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ABSTRACTS OF SUBMISSIONS ACCEPTED FOR PRESENTATION

CLINICAL VIGNETTES

"**COME DOWN TO THE ER, WE HAVE ANOTHER CHEST PAIN: RULE OUT MI"** B.E. Goldwasser[1]; A.L. Spencer[2]. [1]Allegheny General Hospital, Pittsburgh, PA; [2]University of Pittsburgh, Pittsburgh, PA. *(Tracking ID # 189416)*

LEARNING OBJECTIVES: 1) To emphasize the importance of taking one's own thorough history and physical. 2) To outline an approach to differentiating cardiac from non-cardiac chest pain. 3) To describe the pathophysiology and treatment of Herpes Zoster.
CASE: A 71 year-old female was admitted to the medical service from the ER to rule-out myocardial infarction. She presented to the ER with one week of chest pain which had worsened over the last 2 days. The pain was 8/10 in intensity, sharp and stabbing, lasting for seconds. Pain was retrosternal with radiation to her back around her left side. It was not associated with emotional stress or physical exertion, and did not change in quality postprandially or with positional changes. There was no associated nausea, vomiting, abdominal pain, diaphoresis, palpitations, dyspnea, or parathesias. ROS was positive for fatigue since her cold one-week prior. PMH included HTN and hyperlipidemia. She had no family history of CAD. Medications included HCTZ and atorvastatin. She denied alcohol, tobacco or illicit-drug use. On physical exam, she was afebrile, Pulse-82, BP-140/85, Resp-18, O2=98% on room air. Cardiac exam revealed normal S1,S2 without murmurs, rubs, or gallops. Lungs were clear without retractions or accessory muscle use. A vesicular rash was noted in a T-4 dermatomal distribution from her back around to her left chest. EKG was normal and cardiac enzymes were negative. She received Valtrex for presumed Herpes Zoster and symptoms resolved over the next week.
DISCUSSION: Cardiac chest pain is classically described as a pressure, crushing or squeezing, and may be demonstrated by a clenched fist over the chest (Levin's sign). Cardiac pain is usually related to exertion or stress, is relieved with rest, and lasts several minutes. Pain may be associated with nausea, vomiting, diaphoresis, or palpitations. Radiation of pain to the jaw and left arm are common, but radiation elsewhere suggests alternate diagnoses may be more likely. Events that exacerbate pain such as eating, changing positions, cough, or inspiration also suggest alternate diagnoses. While the differential diagnosis for chest pain is very broad, life threatening causes such as ischemia, aortic dissection, tension pneumothorax, and pulmonary embolus should be considered first, followed by other common causes of chest pain including gastrointestinal disease, costochondritis, and herpes zoster. Anxiety or panic disorders are diagnoses of exclusion. Herpes zoster, aka shingles, is the reactivation of Varicella-Zoster virus(VZV). As one of the Herpesviridae group, Zoster causes grouped painful vessicles over a dermatomal area. After an attack of chicken pox, VZV retreats to nerve cells within the ganglion or spinal cord, where it lies dormant for several months to decades. Aging, stress, or disease will cause VZV to reactivate and reproduce, at which point it is known as herpes-zoster. Once activated, the zoster virus travels along the nerve path to the skin's surface and causes shingles. Treatment involves antiviral drugs such as acyclovir, or prodrugs such as famciclovir or valacyclovir. Maximum efficacy of antiviral drugs occurs if treatment is commenced within 72 hours of symptoms. This case underscores the importance of performing a thorough physical exam and the importance of avoiding premature closure of the differential diagnosis.

"**SHE GOT COLD FEET**" B. Goldwasser[1]; A.L. Spencer[2]. [1]Allegheny General Hospital, Pittsburgh, PA; [2]University of Pittsburgh, Pittsburgh, PA. *(Tracking ID # 189361)*

LEARNING OBJECTIVES: 1) To differentiate between the signs and symptoms of acute arterial thrombosis and acute venous thrombosis. 2) To recognize the risk factors for arterial and venous thrombosis.
CASE: A 51 year-old non-smoking female with morbid obesity presented to the ER with left lower extremity pain which developed while carrying her laundry up the stairs. The pain was sharp, 10/10 in intensity, and radiated from her left hip to her toes. Physical exam revealed asymmetric swelling of her left leg and calf tenderness without palpable chord. Venous dopplers demonstrated extensive deep venous thrombosis involving the distal femoral and popliteal veins. A heparin drip was initiated. While still in the ER, she complained of numbness and worsening pain in her left foot. On repeat exam, she had a cool left foot which appeared cyanotic and mottled. Distal pulses were not palpable and could not be obtained with Doppler signal. Arteriogram demonstrated an embolic occlusion of her left external iliac artery. She was emergently taken to the OR and underwent a successful thrombectomy after which flow was reestablished and symptoms improved. An extensive hypercoagulability work-up was unrevealing. Echocardigram revealed an atrial septal aneurysm with a large patent foramen ovale (PFO). No thrombus was noted. She did well post-operatively and was sent home on Coumadin and with follow up with cardiology for PFO closure.

DISCUSSION: The signs of arterial clot are commonly referred to as the 6 P's. They include: pain, parathesias, pallor, poikothermia, paralysis, and pulselessness. A venous clot may present with pain and swelling, but is unlikely to present with the other "P's"- especially pulselessness. Risk factors for venous thrombosis (VTE) differ from those of arterial thrombosis. VTE usually occurs in the setting of Virchow's triad which includes endothelial damage, venous stasis, and hypercoagulable state. Endothelial damage includes surgery or vessel trauma. Venous stasis occurs with pooling of blood such as with atrial fibrillation or with decreased circulation from physical inactivity. The most common hypercoagulable mutation is factor V Leiden. Others include Protein C & S deficiency, antithrombin-III mutation, antiphospholipid-antibody syndrome, and thrombin-variant MTHFR mutation. Risk factors for arterial thrombosis include smoking, hypertension, hyperlipidemia, and diabetes mellitus. Our patient was at increased risk for VTE formation given her morbid obesity and inactive lifestyle and at increased risk for arterial clot formation given her atrial aneurysm and likelihood of having DM and hyperlipidemia. Additionally, her PFO presents an opportunity for VTE to be disseminated systemically. VTE emboli may have travelled to the heart through the venous system and through the PFO to the arterial system leading to her cold foot as opposed to the typical route where VTE travel to the lungs with resultant PE. It is unclear whether she had simultaneous arterial and venous clot formation or whether her VTE travelled to the heart, through the PFO, and back down the same leg; both possibilities are uncommon. In any event, daily Coumadin therapy combined with PFO closure and risk factor modification should help to decrease her risk of future episodes of thrombosis.

"THE FORGOTTEN DISEASE" IS CERTAINLY NOT EXTINCT A. Khurana[1]; S. Ullah[1]; N. Vinayek[1]. [1]Sanford University of South Dakota, Sioux Falls, SD. *(Tracking ID # 190917)*

LEARNING OBJECTIVES: 1. Recognize characteristic clinical scenario of Lemierre's syndrome. 2. Judicious antibiotic prescribing habits for benign appearing sore throat have lead to the clinical resurgence of this forgotten disease. 3. Prompt diagnosis and treatment can prevent potentially fatal consequence.
CASE: A 19 year old healthy male was admitted with 1 week history of sore throat. Initially he was diagnosed with viral syndrome, but after persistence of symptoms and low grade fevers, he was prescribed azithromycin. Over the last three days he developed high fevers, chills, dyspnea and pleuritic chest pain. On presentation to ER, he was ill appearing, febrile, tachycardic, tachypneic, hypoxic, and had erythema of left great toe. Oropharyngeal exam revealed erythema without exudates. Labs showed WBC 32K, bands 32%, Plt 29K, BUN 87, Cr 1.9, T. Bili 14.4, D. Bili 10.2, SGOT 96, SGPT 96 and AP 496. Patient soon decompensated and required intubation and mechanical ventilation for respiratory support. CXR revealed bilateral patchy infiltrates and CT chest showed multiple bilateral pulmonary nodules with cavitations consistent with septic emboli and bilateral pleural effusions, possibly empyema. Broad spectrum antibiotics were started and bilateral chest tubes were placed. Monospot and rapid strep throat were negative. Abdominal CT and ultrasound revealed no abscesses. MRI of left foot was consistent with septic arthritis. Blood, pleural and joint cultures grew Fusobacterium necrophorum. CT neck and ultrasound of neck vessels did not show jugular thrombosis. Transthoracic and transesophageal echo did not show any vegetations. After a prolonged and complicated course, patient recovered and was discharged.
DISCUSSION: Lemierre's syndrome (also known as necrobacillosis or post-anginal sepsis) is characterized by an acute oropharyngeal infection, frequently with evidence of septic thrombophlebitis of internal jugular vein, positive blood cultures and septic metastasis. Though first described in 1900, this syndrome is named after A. Lemierre, who reported a review of 20 patients in 1936. Common in preantibiotic era, this syndrome is now rare. Recent resurgence of this syndrome is possibly related with reduced use of antibiotics for sore throats. Typically involving immunocompetent young patients, majority of such cases begin as pharyngotonsillitis. Initial symptoms include sore throat, fever, dysphagia, often followed by swelling and tenderness along the lateral neck due to septic thrombophlebitis of the internal jugular vein. Septic emboli from the veins metastasize most commonly to pulmonary vasculature resulting in pulmonary abscesses and empyema. Septic joints, endocarditis, osteomyelitis, hepatic and splenic abscesses have also been reported. Blood cultures typically grow Fusobacterium necrophorum, a gram negative anaerobic bacillus. Treatment involves prolonged antibiotic therapy with penicillin and metronidazole or clindamycin and drainage of accessible abscesses. Anticoagulation is controversial and jugular vein ligation/excision is rarely indicated. Mortality rate in preantibiotic era was 90%, today is 4–18%. Prognosis is related to early recognition and prompt initiation of therapy with antibiotics. "Be not deceived by a comparatively innocent-appearing pharynx, as the veins of the pharynx may be carrying the death sentence for your patient." Hall C. Sepsis following pharyngeal infections. Ann Otol Rhinol Laryngol 1939; 48:905–925.

"WHAT IS BURNING UNDER THE SKIN?" N. Gupta[1]; A. Tindini[2]; M. Panda[1]. [1]Society of General Internal Medicine, Chattanooga, TN; [2]university of tn, chattanooga, TN. *(Tracking ID # 189695)*

LEARNING OBJECTIVES: 1. Describe the work up of a case of skin ulceration in a diabetic patient? 2. Discuss the differential diagnosis and management of a patient with calciphylaxis.
CASE: A 60-year-old woman on hemodialysis for 4 months secondary to end-stage renal disease (ESRD) presented with complaints of heaviness and pain in the medial aspect of left thigh, worsening over one week. She denied fever, chills, rigors, dyspnea or chest pain. Past medical history was remarkable for coronary artery disease, hypertension, and Type II diabetes mellitus. Surgical history was significant for a left carotid endarterectomy 4 years ago and drainage of MRSA cutaneous abscesses from left thigh and right shoulder 6 months prior. Physical exam was normal except some tenderness on the left thigh region but no edema or erythema. A doppler ultrasound was negative for any DVTs. Laboratory data was significant for a WBC count 13.1 thousandt/mm3, Hb 8.6 mg/dl, BUN 52 mmol/l, creatinine 4.7 mmol/l, calcium 10.4 mmol/l, albumin 2.2 gm/dl, phosphorus 8 mmol/l and a PTH level of 2138 pg/dl. On the fifth day of hospitalization, she began to develop peridermal necrotic areas along with erythema and tenderness in her thigh. She was started on vancomycin suspecting the lesions to be cellulitis. However the absence of fever and the presence of a markedly raised PTH levels along with the clinical picture of widespread necrosis with erythema made calciphylaxis a possibility. X ray of left thigh was obtained which showed extensive vascular calcifications thus confirming our diagnosis. Subsequently, total parathyroidectomy with autotransplantation into right forearm was performed on the patient.
DISCUSSION: Calciphylaxis is an uncommon condition that affects 1–4% of the population with ESRD. Early lesions of calciphylaxis manifest as nonspecific violaceous mottling; or erythematous papules, plaques, or nodules. Lesions are found predominantly on the thighs, buttocks, and lower part of the abdomen. It has a mortality rate of 60–80%. Vascular calcification is a constant finding in cases of calciphylaxis. Plain films uniformly demonstrate an arborization of vascular calcification within the dermis and subcutaneous tissues. An incisional cutaneous biopsy is the diagnostic modality of choice. However, it may lead to the development of a persistent non healing wound at the site of biopsy. This was also the rationale behind our not doing a biopsy on this patient. Treatment options for calciphylaxis are limited. Among the options cited, the major ones include correction of the calcium and phosphorus levels by Cinacalcet, a parathyroid gland calcimimetic, or parathyroidectomy, in cases refractory to medical management. Other newer treatment options include sodium thiosulfate and hyperbaric oxygen. The disease can easily be mistaken for a case of cellulitis, necrobiosis lipoidica diabeticorum, vasculitis, warfarin necrosis or nephrogenic systemic fibrosis. Thus it is important that an internist thinks of calciphylaxis as a differential in a case of skin lesions in a ESRD patient because the disease is easy to miss and the prognosis grim.

"WHEN TISSUE IS THE ISSUE":A RARE CASE OF EXTRAPULMONARY SARCOIDOSIS C. Halford[1]; M. Panda[1]. [1]Society of General Internal Medicine, Chattanooga, TN. *(Tracking ID # 190247)*

LEARNING OBJECTIVES: To illustrate a rare case of disseminated sarcoidosis and emphasize the role of tissue biopsy in sclerotic lesions
CASE: A 44-year old black female originally presented with pneumonia and incidental hilar adenopathy. When her hilar adenopathy did not resolve, she underwent bronchoscopy with biopsy demonstrating non-caseating granulomas. She had no evidence of ocular, skin, cardiac or

CNS involvement and was not treated with steroids. She was followed by her pulmonologist who noted no decline in her pulmonary function tests. Two years later, she presented with sharp intermittent headaches. MRI brain demonstrated bifrontal meningeal thickening, right frontal and thalamic enhancing lesion with edema. A chest CT showed multiple new pulmonary nodules (5–9 mm), worsening bilateral hilar and subcarinal adenopathy, and thoracic vertebral sclerotic changes. Bone scan demonstrated uptake in the frontal bones, pelvis, lumbar, and thoracic spine. The differential diagnosis at this time included metastatic cancer, opportunistic infection, or progressive sarcoidosis. The patient was up to date on mammograms and pap smears. Routine labs including calcium were normal. A brain biopsy was performed with total resection of the frontal lesion which demonstrated non-caseating granuloma, negative for neoplasm, acid-fast bacilli, or fungi. She was placed on high dose steroids. Later bone biopsy was performed from the right ilium to rule out malignancy, which was also consistent with sarcoidosis. She experienced no neurological complications and was discharged home on prednisone 60 mg daily to be followed by a multidisciplinary team.

DISCUSSION: Sarcoidosis is a multisystem inflammatory disease defined by non-caseating ganulomas most commonly presenting as hilar adenopathy or pulmonary infiltrates. Approximately half of patients will have extrapulmonary manifestations including arthritis and bone lesions (5%), myopathy (65%), skin (24%), eye (51%), cardiac (7%), and CNS (5%). CNS involvement rarely occurs without systemic disease. Because of non-specific clinical presentation and imaging characteristics, intracranial neurosarcoidosis remains a difficult diagnosis. Any part of the brain can be affected. Lumbar puncture is useful only to rule out other neurological disorders. ACE in cerebrospinal fluid is often unreliable. Concensus dictates these patients be treated with corticosteroids. Prognosis for neurosarcoidosis is good with 90% of neurologic manifestations improving with time. Osseous lesions can affect any bones, but hands, feet, and long bones are most commonly affected. Bony lesions are usually cystic and hypothesized to be secondary to high levels of 1,25(OH)2D3 which stimulate osteoclastic activity. For this reason, sclerotic lesions are extremely rare and almost exclusively in middle-age black patients and mimic metastatic cancer and require biopsy. Vertebral sarcoidosis is rare with less than 30 reported cases. Osseous sarcoidosis is a late development and often associated with cutaneous lesions and pre-established intrathoracic sarcoidosis. Therapy includes corticosteroids, methotrexate and other disease modifying agents for control of disease activity; bisphosphonates, calcium and vitamin D for treatment of osteoporosis. Osseous sarcoidosis responds poorly to steroids which can subdue the pain but do not normalize bone abnormalities, while increasing the risk for osteoporosis and avascular necrosis.

A "NOT SO FOREIGN" LIVER INFECTION M. Rice[1]; Z. Khan[1]; C. Miller[1]. [1]Tulane University, New Orleans, LA. *(Tracking ID # 190624)*

LEARNING OBJECTIVES: 1. Review the differential diagnosis for hepatic abscess formation. 2. Understand the risk factors and pathophysiology for amebic liver abscess.

CASE: A 25 year-old Hispanic man presented complaining of constant, dull, throbbing, right upper quadrant abdominal pain lasting for 9 days. Associated symptoms included subjective fevers and chills. He lived in the United States for the past seven and a half years, but recently traveled to Mexico to visit family. On exam, his temperature was 103.3 degrees Fahrenheit. He had significant tenderness to palpation over the right upper quadrant, but no signs of guarding or rebound tenderness. His exam did not reveal hepatomegaly, jaundice, or stigmata of chronic liver disease. The rest of his physical exam was normal. Laboratory data was remarkable for a leukocytosis of 14,000 cells/L without eosinophilia. Electrolytes, renal function, and liver function tests were normal. Blood and stool cultures were negative for pathology. Abdominal ultrasound revealed a 7.3×5.7 cm mass in the right hepatic lobe. A follow-up CT showed a homogenous, low-density fluid collection consistent with an abscess. Metronidazole and ceftriaxone were started. The abscess was drained revealing a dark brown "chocolate" appearing fluid. The fluid was examined in detail, but revealed no new information. Later during the hospital stay, an IgM and IgG antibody test returned positive for entamoeba histolytica. He improved over four days and was discharged in good health on a regimen of metronidazole and paromomycin.

DISCUSSION: The differential diagnosis for a hepatic abscess includes pyogenic abscess, amebiasis, hydatid cyst, simple cysts, metastasis, hemangioma, or hepatoma. Because of the leukocytosis and fever, we immediately pursued infectious etiologies. In the U.S., pyogenic abscesses are most common, and usually result from hepatic seeding from a suppurative process elsewhere in the body. These patients usually have fever and jaundice. Hydatid cysts, caused by echinococcus, are usually asymptomatic, and may have eggshell or mural calcifications with daughter cysts. Ninety percent of liver echinococcal cysts have positive serology. Serology is very helpful when echinococcus is being considered because needle aspiration is known to result in anaphylactic shock and would be contraindicated. Finally, entamoeba histolytica is a common cause of hepatic abscesses worldwide, but less common in the U.S. The main groups at risk are travelers, recent immigrants, homosexual men, and inmates. The ameobas are usually acquired through ingestion of cysts from fecally contaminated food or water. In this case, the presence of amebiasis may be indicative of the changing demographics and environment of our region. Amebiasis is found mostly in crowded, developing, tropical and subtropical countries with poor sanitation. However, with the increasing migrant population in the Southern United States, the diagnosis of amebic liver abscess becomes ever more important.

A 21 YEAR-OLD WOMAN WITH HYPERTENSION AND SEIZURE S. Leung[1]; D. Lefrancois[1]; J. Stulman[1]. [1]Albert Einstein College of Medicine, Bronx, NY. *(Tracking ID # 189741)*

LEARNING OBJECTIVES: 1. Recognize the manifestations of the posterior reversible encephalopathy syndrome (PRES) 2. Distinguish PRES from stroke and understand the distinct therapeutic and prognostic implications of PRES

CASE: A 21 year-old African American woman with a history of hypertension diagnosed four years earlier during her second trimester of pregnancy, since complicated by three distinct episodes of hypertensive emergency, presented with sudden onset of nausea, vomiting and bilateral throbbing temporal headache for two days. The patient has been living in a homeless shelter and is non-adherent to medications. Upon arrival in the ER, the patient was lethargic. Her blood pressure (BP) was 208/118 mmHg, pulse was 62 beats/min, Tmax was 98.8 F and the body mass index was 39. Cardiac, neurological and fundoscopic exam were unremarkable. Within hours of presentation she had a two-minute generalized tonic-clonic seizure. Pertinent laboratory data included BUN 6 mg/dL; creatinine 0.8 mg/dL; negative urinalysis, sedimentation rate, 8 mm/hr; urine drug screen was positive for cannabinoids. CT showed high density on the right frontal and left parietal lobes suspicious for subarachnoid hemorrhage (SAH). The patient refused lumbar puncture. T2 and FLAIR sequences on MRI revealed high signal within a few right frontal and left parietal sulci. Evidence of SAH on the left occipital lobe was also noted. Given the patient's clinical history in the context of these radiological findings, PRES with associated SAH was suspected. The patient was treated with anti-hypertensive medications and her BP and clinical condition improved within hours.

DISCUSSION: PRES was first described in 1996 as a reversible clinicoradiologic syndrome, characterized by headache, altered consciousness, visual disturbances, and seizures. The most common causes are hypertensive encephalopathy, uremia, eclampsia, vasculitis, or cytotoxic and immunosuppressive drugs. The incidence of PRES is not known and the pathogenesis is unclear. The proposed mechanism suggests an autoregulatory disturbance with hyperperfusion, resulting in a blood-brain barrier breakdown with resultant cerebral edema without infarction. Any part of the brain can be involved but parietal and occipital lobe involvement is typically predominates. Diffusion-weighed MRI can detect white matter edema early. Our patient presented with hypertensive encephalopathy. It occurred when her increased systemic BP surpassed the upper limits of her cerebral autoregulatory process, resulting in the breach of the blood-brain barrier and the extravasation of fluid and blood into her brain parenchyma. In this patient, her rapid clinical improvement, coupled with a repeat MRI four days later showing reversal in her radiological findings further, confirm the initial impression of PRES. Investigations for secondary causes of hypertension in this patient were unrevealing. Thus, uncontrolled essential hypertension appears to be the cause of her recurrent hypertensive emergencies. PRES is a well-recognized

condition among neuroradiologists, but not clinicians. Mean arterial pressure lowering to 105–125 mmHg with less than 25% within the first hour is safe and crucial to prevent worsening cerebral edema in patients with PRES. Thus, early recognition of this distinct syndrome can minimize unnecessary workup as well as guide appropriate and prompt treatment for optimizing patient prognosis.

A 22 YEAR OLD WITH TACHYCARDIA: A GRAVE PROGNOSIS? A. Mostaghimi[1]; A. Vanka[1]; E.E. Reynolds[1]. [1]Beth Israel Deaconess Medical Center, Boston, MA. *(Tracking ID # 190380)*

LEARNING OBJECTIVES: 1. Review the clinical presentation and pathogenesis of Grave's Disease. 2. Recognize longstanding tachycardia secondary to hyperthyroidism as a cause of cardiomyopathy and heart failure in young males.
CASE: A 22 year old male with no past medical history presented with a nine month history of progressive dyspnea, palpitations, and lightheadedness after walking 2 flights of stairs. He also reported an unintentional 140 lbs weight loss over the past one year. He denied taking any drugs, dietary aids or supplements. On review of systems he denied heat intolerance, anxiety, diarrhea, weakness, or changes in hair, skin, or vision. His family history was notable for hyperthyroidism in a maternal aunt and grandmother. His exam was remarkable for a resting heart rate of 133, cachexia, and a diffusely enlarged, non-tender thyroid without a bruit. He had no tremor. An EKG revealed normal sinus tachycardia. His thyroid studies were significant for a TSH of <0.02, T3 of 340, T4 of 23.7, and free T4 of 7.4. Anti-thyroglobulin antibodies and anti-thyroid peroxidase antibodies were markedly elevated. A thyroid scan showed diffuse uptake, consistent with a diagnosis of Grave's disease. An echocardiogram revealed biatrial enlargement, a dilated left ventricular diastolic dimension of 7.4 cm and a left ventricular ejection fraction of 25%. The patient was started on propylthiouracil, metoprolol succinate, and lisinopril. After one month of treatment, the patient's thyroid function improved to a T4 of 12.2, a T3 of 191, and a free T4 of 2.6. A repeat echocardiogram was unchanged.
DISCUSSION: Grave's disease is an autoimmune disease characterized by the production of IgG antibodies that stimulate the TSH receptor. Clinically, this results in features of hyperthyroidism, a diffuse non-tender goiter, ophthalmopathy, and dermopathy. This patient's presentation was limited to weight loss, tachycardia, and cardiomyopathy, a presentation more common in elderly individuals. Tachycardia and high-output heart failure is associated with hyperthyroidism. The pathophysiology is believed to be secondary to a direct inotropic effect and decreased systemic vascular resistance caused by excess thyroid hormone. In addition, thyroid hormone has a direct proliferative effect on myocardial tissue, resulting in increased cardiac mass. Changes in cardiac physiology are evident after just 24 hours of tachycardia. Thyroid-induced heart failure can be transient and completely reversible with correction of the underlying hyperthyroidism. However, long-term tachycardia from hyperthyroidism can result in cardiac remodeling, leading to dilatation of the chambers and lower ejection fraction, as in the case of this patient. Treatment consists of correcting the underlying cause of the arrhythmia, giving beta-blockers to decrease the heart rate, and using ACE inhibitors to improve cardiac remodeling. The outcomes of tachycardia-induced cardiomyopathy are highly variable. Younger patients and patients with shorter duration of tachycardia have a higher likelihood of recovery. The majority of patients will normalize or have a significant improvement in ejection fraction with therapy within one to six weeks.

A 46 YEAR OLD WOMAN WITH DYSPNEA AND MONONEURITIS MULTIPLEX R.P. Bhattacharyya[1]; V. Chiappa[1]. [1]Massachusetts General Hospital, Boston, MA. *(Tracking ID # 190240)*

LEARNING OBJECTIVES: 1. Recognize the clinical presentation of Churg-Strauss syndrome, a rare diagnosis that unifies a set of common symptoms 2. Outline the evidence for early aggressive immunosuppressive therapy for Churg-Strauss syndrome
CASE: A 46 year old female flight attendant with treatment-refractory asthma presented with worsening dyspnea and new paresthesias. She enjoyed excellent health until age 42, when she developed asthma that failed to respond to standard treatments. Only steroid pulses provided relief, but her dyspnea returned soon after completion. She then developed allergic rhinitis, and four months before admission, she required surgery for extensive paranasal sinusitis. Four days prior to admission, she noted asymmetric numbness, tingling, and pain in both feet. When these paresthesias impaired her walking and spread to her hands, she came to the hospital. On examination, she was afebrile with normal vitals. Lungs revealed diffuse wheezes and a prolonged expiratory phase. She had hyperalgesia to light touch and reduced vibration sensation in a peroneal, ulnar, and median nerve distribution. Motor exam showed asymmetric distal weakness of both lower extremities, most notably impaired dorsiflexion. Admission labs revealed a WBC count of 17,800 with 56% eosinophils. A chest CT showed many centrilobular nodules with tree-in-bud opacities. ESR, CRP, perinuclear anti-neutrophil cytoplasmic antibody (p-ANCA), and serum IgE were elevated, while other immunoglobulins, complement levels, and Lyme serology were normal. Taken together, her adult-onset asthma with rhinitis, sinusitis, mononeuritis multiplex, eosinophilia, and centrilobular opacities on CT strongly suggest Churg-Strauss syndrome. She was started on methylprednisolone, cyclophosphamide, and rituximab, followed by a long prednisone taper. Her eosinophilia quickly resolved with steroids, and her respiratory and allergic symptoms soon followed. Her neuropathy has been slower to recover, requiring chronic pain management and physical therapy. Her p-ANCA titer has decreased 8-fold with treatment but remains elevated.
DISCUSSION: Churg-Strauss syndrome (CSS) is a rare systemic vasculitis characterized by the following diagnostic criteria, established by the American College of Rheumatology: asthma, peripheral eosinophilia, neuropathy, radiographic pulmonary opacities, paranasal sinusitis, and extravascular eosinophilia on biopsy. The presence of 4 of these 6 criteria has 85% sensitivity and 99.7% specificity for the diagnosis of CSS. Our patient had all 5 non-biopsy criteria, essentially confirming the clinical entity. Management of CSS involves aggressive immunosuppression. Untreated, it carries a poor prognosis, with 5-year survival near 25%; much of the mortality arises from cardiac and renal involvement. The mainstay of treatment is systemic glucocorticoids, with high-dose therapy followed by a slow taper. Adding cyclophosphamide to initial regimens decreases relapse rates and improves quality of life. New data in open trials also support the adjunctive use of TNF-alpha or B-cell antagonists, though no randomized trials are yet complete. Treatment improves prognosis considerably, with 5-year survival exceeding 70%, higher still in the absence of cardiac, renal, CNS, and GI manifestations. CSS is a rare cause of a constellation of symptoms that are individually quite common. Recognition of this syndrome is essential, as diagnosis requires clinical suspicion and treatment greatly improves outcomes.

A 49-YEAR-OLD MAN WITH RHEUMATOID ARTHRITIS AND NEW BRAIN LESION – A CASE OF VASCULITIS OF THE CENTRAL NERVOUS SYSTEM M.Y. Chan[1]; N. Afsar-Manesh[1]; S.R. Adams[1]; N. El Farra[1]. [1]University of California, Los Angeles, Los Angeles, CA. *(Tracking ID # 190407)*

LEARNING OBJECTIVES: 1) Describe the presentation and diagnosis of CNS vasculitis 2) Review the management of CNS vasculitis
CASE: A 49-year-old man with a history of rheumatoid arthritis and a positive PPD presented to an outside hospital with severe left-sided headache. He reported associated vomiting, diarrhea, blurred vision, and photophobia. MRI of the brain revealed a left temporal mass with surrounding edema and midline shift. With concern for infectious and neoplastic etiologies, a brain biopsy was done and revealed non-specific astrocytic gliosis. The patient was then referred to our hospital for further work-up. A second brain biopsy showed necrotizing and non-caseating granulomas, non-diagnostic for a specific process. Considering his history of a positive PPD and use of immunosuppressive medications, including a tumor necrosis factor-α inhibitor, he was empirically treated for CNS tuberculosis. Despite this treatment, the patient continued to have left-sided headache and subsequently developed frontal headaches, emesis, and weakness. Repeat MRI revealed an increase in the size of the left temporal brain lesion, suggestive of a highly cellular tumor. Given the concern for occult malignancy, a third biopsy was obtained and revealed perivascular lymphocytic infiltrates, consistent with lymphocytic vasculitis. Flow cytometry was negative for a lymphoproliferative disorder. Cerebral spinal fluid (CSF) revealed pleocytosis and elevated protein. Cultures of blood, CSF, and brain tissue were negative for infectious etiologies, including ***Mycobacterium tuberculosis***. After extensive evaluation for alternative cause, a diagnosis of CNS vasculitis was made. The patient's symptoms stabilized on high doses of oral steroids and he was discharged with follow-up for monthly cyclophosphamide therapy.

DISCUSSION: We describe the case of a 49-year-old man on immunosuppressant medications with a history of rheumatoid arthritis and a positive PPD, who was diagnosed with CNS vasculitis after negative work-up for secondary etiologies. Vasculitis of the central nervous system is a rare clinical entity. It can occur as a primary vasculitis of the brain, as part of a systemic vasculitis, or secondary to other causes, including infection, neoplasm, substance abuse, or connective tissue disorder. The condition is difficult to recognize because of its wide range of neurologic symptoms and lack of definitive serologic or CSF testing. Imaging modalities including CT, MRI and cerebral angiography lack sensitivity. Biopsy is not only the gold standard in diagnosing CNS vasculitis, but is also important in eliminating other causes. The traditional treatment regimen entails a combination of glucocorticoid and cytotoxic therapy. The optimal duration is unknown, but once clinical remission is established, maintenance therapy should continue for an additional 6–12 months. Response to treatment can be monitored by serial CSF analysis, angiography, or MRI. A multidisciplinary healthcare team should be involved throughout the treatment course. In summary, the differential diagnosis of a brain lesion, in the setting of chronic immunosuppression, active connective tissue disease, and history of tuberculosis exposure, is very broad. It warrants an extensive, systematic evaluation, since the treatment and outcome for each diagnosis can be different.

A 76 YEAR-OLD MAN WITH A RAPID GROWING ANTERIOR CHEST WALL MASS S. Leung[1]; M. Berger[2]. [1]Albert Einstein College of Medicine and Montefiore Medical Center, Bronx, NY; [2]Albert Einstein College of Medicine, Jack D. Weiler Hospital/Montefiore Medical Center, Bronx, NY. *(Tracking ID # 190065)*

LEARNING OBJECTIVES: 1. Recognize multiple myeloma is a rapid growing malignancy 2. Recognize that imaging findings can be helpful in differentiating different malignant chest wall tumors.
CASE: A 76-year-old Hispanic man presented with persistent chest pain for two days and a large chest wall mass that had developed rapidly over two months. Physical exam showed a fixed, rubbery, non-tender mass measuring 5.5×8.5×10.0 cm at the right mid-sternal border. The overlying skin was uninvolved. No hepatosplenomegaly or lymphadenopathy was appreciated. Laboratory data were notable for a globulin gap of 4.4; creatinine, 0.9 mg/dL; hemoglobin, 10.7 gm/dL; calcium, 9.5 mg/dL; lactate dehydrogenase, 168 U/L. Serum and urine electrophoreses both showed a monoclonal protein identified as IgA lambda (3.51 g/dL). Serum 2-microglobulin was 2.71 g/mL. Skeletal survey revealed no additional lesions but moderate generalized osteopenia was present. Core needle aspiration showed CD38+, CD138+monoclonal cytoplasmic lambda restricted plasma cells. Bone marrow biopsy showed hypercellular marrow with 50% atypical plasma cells. The patient was readmitted two weeks later for recurrent chest pain. The anterior chest wall mass grew considerably measuring 5.5×10×12.5 cm. Computed tomography (CT) demonstrated a 8.7×7.1×13.0 cm soft tissue mass connected to an expansile and destructive lesion of the manubrium and body of the sternum. The patient began radiation therapy and chemotherapy.
DISCUSSION: Primary tumors of the chest wall are uncommon. Chest wall involvement due to malignant disease is rare. Differential diagnosis of the common malignant chest wall tumors in adults includes chondrosarcoma, osteosarcoma, fibrosarcoma, lymphoma and solitary plasmacytoma. Each of these tumors has characteristic features on imaging. In some patients, the combined clinical (age, location of the tumor) and imaging findings may suggest the diagnosis prior to definitive biopsy. Thus, imaging is important for initial diagnosis, tumor staging and therapeutic planning of patients with malignant chest wall tumors. This case highlights an atypical presentation of multiple myeloma as an aggressive growth of a solitary IgA lambda plasmacytoma on the chest wall over a period of two months. Solitary plasmacytoma is a rare tumor accounting for about 5% of all plasma cell neoplasias, of which 45 to 75% of patients will develop systemic multiple myeloma. Multiple myeloma is an uncommon B cell malignant disease with no clear predisposing factors and of unknown etiology. Over 75% of affected patients are over 70 years of age. Patients typically present with skeletal pain or a pathologic fracture. The cortex of the affected bone is usually destroyed by the proliferation of plasma cells and the activation of osteoclasts, resulting in expansion and remodeling of the bones as well as formation of lytic lesion. As the disease progresses, cortical breaches invade the surrounding soft tissues producing masses as illustrated in our patient. CT is superior to MRI in showing early cortical breaches. In patients with a rapid growth of a solitary bone plasmacytoma, local radiation therapy is indicated.

A BAD BRAIN BEHAVES BADLY S. Nguyen[1]; K. Widmer[1]. [1]Tulane University, New Orleans, LA. *(Tracking ID # 190801)*

LEARNING OBJECTIVES: 1. Recognize hypertension as a cause for encephalopathy 2. Include hypertensive encephalopathy in the differential diagnosis for stroke 3. Learn the symptoms and pathophysiology of hypertensive encephalopathy
CASE: A 52-year-old woman presented with altered mental status after a motor vehicle accident. While trying to park her car, she rear-ended a parked car. Police noted that she was somnolent; she was brought to the hospital for evaluation. She was unable to offer any history, only able to say "yes." Her cerebrovascular risk factors include hypertension and type II diabetes mellitus. Her blood pressure was 220/100 mmHg, and heart rate was 90 bpm. The remainder of her vital signs were normal. Her head and neck examination was normal with no signs of head trauma. She had no evidence of papiledema, but there was evidence of hypertensive changes in the retinal vessels. Her PMI was displaced; the cardiac exam was otherwise normal. She had a hemiparesis and hemineglect of the right side of her body. Given her focal neurological deficits, she was treated for stroke. Because she did not present in the appropriate time frame, she was not a candidate for t-PA. In addition to starting her on a high-dose lovastatin and aspirin, she was allowed to have permissive hypertension after an MRI and MRA did not reveal evidence of the stroke apparent based on her physical exam. By hospital day two, her blood pressure was 240/130 mmHg and her mental status had not improved. She remained aphasic and her focal neurological deficits had not improved. Follow-up imaging studies were not consistent with stroke, prompting her diagnosis was reevaluated. Her hypertension was aggressively treated with a beta-blocker and an ACE-inhibitor, and soon thereafter, her neurologic deficits resolved
DISCUSSION: The differential diagnosis for focal neurologic deficits with global depression of mental status includes stroke, intracranial bleed, intracranial mass, and hypertensive encephalopathy. Hypertensive encephalopathy is a neurological syndrome caused by breakthrough hyperperfusion from severe and sudden rises in blood pressure, generally greater than 180/120 mmHg. In chronically hypertensive patients experiencing extreme hypertension, cerebral autoregulation is compromised and hydrostatic leakage develops across capillaries in the central nervous system, leading to arteriolar damage and necrosis. Vasodilatation and cerebral edema can then develop, manifesting with globally depressed mental status. In a patient with many previous small-vessel infarcts, stroke-like symptoms with focal deficits can occur. Hypertensive encephalopathy is often associated with pre-eclampsia, cyclosporine therapy, and renal disease, but can occur after abrupt cessation of hypertensive medications. Symptoms most commonly include headache, nausea and vomiting, followed by non-localizing neurological symptoms including confusion. If left untreated, seizures and coma may occur. Stroke and hypertension are problems commonly encountered by the general internist, and distinguishing between the two disorders is important as the therapy is discordant. Our patient received no therapy for her hypertension due to the premature closure in establishing stroke as the diagnosis. Once she failed to show signs of improvement, and with supporting imaging studies, the diagnosis was re-considered. Fortunately, the subsequent normalization of her blood pressure resulted in resolution of her symptoms prior to permanent damage.

A BAD DAY ON THE EXCHANGE S. Krishnan[1]; L. Degregoria[1]. [1]Tulane University, New Orleans, LA. *(Tracking ID # 190876)*

LEARNING OBJECTIVES: 1. Understand the clinical presentation of thrombotic thrombocytopenic purpura (TTP) 2. Identify the treatment options for HIV associated TTP 3. Recognize when to start Highly Active Anti-Retroviral Therapy (HAART)
CASE: 37 year-old man presented with progressive weakness. He was diagnosed with anemia three months prior, and was found to have an acute worsening of his anemia. Had no additional symptoms, and noted no recent trauma, hematochezia, melena or hemoptysis. His vital signs were normal. He had pale conjunctiva, but no abnormalities where

noted on his cardiac, pulmonary or abdominal examination. Neurologic examination was normal, with no sensory deficits; there were no abnormal nail findings. His stool was guiac negative. Had a hemoglobin of 8 gm/dl, with an MCV of 93; the platelet count was 85,000/mm3, and the creatinine value was 1.9 mg/dl. The presence of anemia, thrombocytopenia, and renal insufficiency prompted a working diagnosis of thrombotic thrombocytopenic purpura (TTP). This was confirmed with a positive ADAMTS13 test. He was started on daily plasmapharesis. There was no change in his hemoglobin, platelet count, or creatinine level. On the sixth day, an HIV test returned positive with a CD4 count of 89. In addition to continuing daily plasmapharesis, he was started on lopinavir/ritonavir and emtriva/tenofovir. Although there was an immediate improvement in his hemoglobin and platelet count, attempts to space his plasmapharesis to every other day, his hemoglobin, hematocrit, and platelet levels would drop. He was started on rituximab 375 mg/m2 IV weekly for four doses, while continuing daily plasmapharesis and the HAART regimen. Levels normalized, plasmapharesis was discontinued, and was discharged home on kaletra, truvada, humulin, and lisinopril.
DISCUSSION: Although TTP is defined by the clinical pentad of microangiopathic hemolytic anemia, thrombocytopenia, renal failure, depressed mental status, and fever, the coincidence of all five signs is rarely present, requiring that the general internist have a strong clinical suspicion for the disease should two or more of these signs be present. TTP is caused by the acquired or inherited deficiency of vonWillibrand cleaving factor (ADAMTS13 protease), resulting in excessive intravascular fibrous strands that lyse red cells. The result is focal ischemia of target organs, including the brain and the kidneys. The treatment of TTP involves immediate plasma exchange in which plasma rich in ADAMTS13 inhibitors is exchanged for normal plasma. This treatment is immediately effective in patients with inherited deficiencies; patients who are refractory to plasmaphoresisshould promptly consideration of the TTP being secondary to an antibody-mediated inhibition of the vonWillibrand cleaving factor. Due to its dysregulated presentation of antigens by CD4 cells, and subsequent dysregulation in antibody formation, HIV can induce an oligoclonal antibody response that, by antigenic mimickry, can reduce vonWillibrand cleaving factor. TTP usually occurs with a CD4 count of less than 250. HAART therapy should be initiated immediately, as this has been shown to be effective in reducing the signs and symptoms of the TTP. Corticosteroids can be started as adjuvant therapy. For cases in which the TTP persists, rituximab, which is a monoclonal anti CD20 immunomodulator, has met with some success. Importantly, platelet transfusions are an absolute contraindication as they can increase microvascular thrombosis.

A BIZARRE ORCHESTRATION OF HEADACHE AND NERVE PALSY
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LEARNING OBJECTIVES: To discuss the differential diagnosis of headaches associated with nerve palsies in a patient with poorly controlled diabetes.
CASE: A 60 year old male with poorly controlled type II diabetes mellitus presented with recurrent headaches and diplopia. He described intermittent throbbing headaches in the right temporal area radiating to the occipital region over the last six months. Unrelenting headaches for the past four days associated with vomiting, vertigo, and diplopia led him to presentation. Just three months prior, he was treated with steroids for a right sided Bell's palsy. Physical examination demonstrated an afebrile patient with a right sided sixth nerve palsy and correctable visible acuity. ENT exam noted cerumen impaction and mild hearing loss in the right ear and poor dentation. Temporal pulses were palpable without jaw claudication. Neurological exam was otherwise normal. Initial laboratory results demonstrated a normal complete blood count and complete metabolic panel except for a random blood sugar level of 285 mg/dl. His HbA1c was 9.1%. ESR was 47 mm/hr and CRP was 1.24 mg/L. He was admitted to hospital and started on an insulin drip and oral prednisone 60 mg daily. MRI/MRA of the brain demonstrated significant right sided mastoid disease with patent dural sinuses. Intravenous piperacillin/tazobactam was then commenced. His right ear was curetted which demonstrated serous fluid behind a normal appearing drum. Myringotomy was performed. No cholesteatoma was seen. Bilateral temporal artery biopsies were normal, thus steroids were discontinued. Lumbar puncture fluid analysis was normal except for a lymphocytic pleocytosis. ANCA and ANA were negative. Myringotomy fluid was negative for cytology, AFB, demonstrating only mild growth of community acquired MRSA (cMRSA). After five days of intravenous antibiotics he was discharged home on sulfamethoxazole/ trimethoprim for two weeks. His ESR gradually returned to normal and his 6th nerve palsy and hearing improved.
DISCUSSION: For a patient presenting with headache and nerve palsy, the differential include temporal arteritis, vasculitis, mononeuritis multiplex, dural sinus thrombosis, lymphoma, and sinus disease. Another major differential would be mononeuritis multiplex secondary to poorly controlled diabetes, a condition believed to be caused by an immune mediated vasculopathy. Diagnosis usually involves a nerve biopsy which demonstrates axonal loss. Treatment often requires prednisone, plasma exchange, and immunoglobulin. However this diagnosis does not support our patient's CSF analysis demonstrating lymphocytic pleocytosis. Chronic mastoiditis can cause headaches, hearing loss, and with worsening inflammation can lead to abducen (VI) and facial nerve (VII) palsy in some patients. A nerve biopsy was not performed on our patient, due to the improvement of his symptom on his prescribed antibiotic course suggesting chronic bacterial mastoiditis over that of chronic fungal infection or mononeuritis multiplex.

A BROKEN HEART ON THE MEND: A CASE OF REVERSIBLE LEFT VENTRICULAR DYSFUNCTION.
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LEARNING OBJECTIVES: 1. To identify a significant stressful event as a precipitating factor in severe and reversible apical left ventricular dysfunction in patients without coronary disease. 2. To describe the clinical features and proposed diagnostic criteria for this syndrome.
CASE: A 62 year old, otherwise healthy, caucasian female with hyperlipidemia and GERD was transferred from an outside hospital with acute coronary syndrome. She was emotionally distraught following the unexpected death of her granddaughter during labor, two days previously. She developed severe chest heaviness and dyspnea of 4 hours duration. She was found to have LBBB, elevated troponin I level, and mild pulmonary edema. She was managed with Aspirin, Clopidogrel, Furosemide, Heparin and Epitibafide infusion. Urgent cardiac catheterization was planned since her repeat EKG showed 1 mm anterior ST segment elevations. An echocardiogram revealed severe antero-apical, antero-septal and antero-lateral wall hypokinesis with severe LV dysfunction, EF 25%. Her cardiac catheterization however, did not show any obstructive epicardial vessel. A left ventriculogram had characteristic "apical ballooning" with estimated LVEF of 25%. Her maximum elevation of cardiac biomarkers were mainly a troponin of 6.98. She was continued on Aspirin, Clopidogrel, Metoprolol, Enalapril Heparin gtt, Coumadin and Lorazepam. Five days later, her LVEF improved to 35% on re-testing. She was finally discharged in stable condition.
DISCUSSION: First reported in Japan in 1991, tako-tsubo-like (octopus trap) left ventricular dysfunction, stress-induced cardiomyopathy or "broken heart syndrome" is an increasingly reported entity of profound myocardial stunning precipitated by acute emotional or physiologic stressor. The heart shape on ventriculogram resembles the octopus trap with a round, akinetic apex and narrow, hyperkinetic base. The exact mechanism remains unknown. Theories include vasospasm, microvascular dysfunction and direct catecholamine associated myocardial dysfunction. Post-menopausal women seem to be at greatest risk for stress-induced cardiomyopathy (90%). The clinical presentation mimics that of an acute ST elevation myocardial infarction and most patients will undergo emergent cardiac catheterization. Common presenting signs include chest pain and dyspnea. Pulmonary edema, syncope, and cardiogenic shock have been reported. The electrocardiogram most commonly shows ST elevation in the precordial leads and evolutionary t wave changes. Cardiac enzymes are frequently but only mildly elevated. Left ventriculography or echocardiography shows depressed LV function (20–49%) with extensive local wall motion abnormalities in the apical segments and compensatory hyperkinesis of basal walls producing ballooning of the apex during systole. The diagnosis of stress cardiomyopathy should be considered when the symptoms are precipitated by intense emotional stress, new electrocardiogram abnormalities, lack of obstructive coronary disease by catheterization and there is a unique pattern of LV dysfunction characterized by large apical and

midventricular contractile abnormalities with sparing of the basal segments. Treatment is mainly supportive and carries an excellent prognosis. In-hospital mortality ranges from 0 to 8 percent. Patients who survive the acute episode typically recover normal LV function within one to four weeks.

A CASE OF UNRESOLVING PNEUMONIA AND BRONCHORRHEA
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LEARNING OBJECTIVES: Recognize the clinical presentation, diagnosis, and management of bronchioalveolar carcinoma. Recognize when invasive investigations should be considered for patients with non-resolving pneumonia.
CASE: A 61-year-old male had been consulting his primary care physician for two months. His main complaint was a progressive dyspnea on exertion associated with a persistent dry cough. He had no fever, chills, chest pain, hemoptysis or weight loss. His past medical history included hypertension. No history of smoking. Chest X-rays (CXR) showed a left lower lobe infiltrate. He received two weeks of antibiotics without significant clinical improvement. Repeat CXR 4 weeks later showed the same infiltrate. CT chest angiogram showed left lower lobe infiltrate without pulmonary embolism or mass. The patient had extensive work up as an outpatient. Sputum culture, acid-fast bacilli and cytology, and blood culture all were negative. He was treated with another course of antibiotics and steroids without improvement. Bronchoscopy with bronchial lavage was non-diagnostic. Transbronchial lung biopsy (TBLB) revealed a mild chronic inflammation without atypia or malignant features. Culture and stains showed no evidence of fungus, Pneumocystis jirovecii, or acid-fast bacilli. Anti-neutrophilic cytoplasmic antibodies and antinuclear antibodies were negative. The patient eventually presented to the hospital with progression of his symptoms. He developed copious yellowish sputum for two weeks. Physical examination revealed bilateral lung crackles. Complete blood count was normal. CXR showed bilateral infiltrates. High resolution CT of the chest showed bilateral airspace consolidations with a predominantly peripheral distribution. Video-assisted thoracoscopic biopsy was performed and showed bronchoalveolar carcinoma of lung, mucinous type
DISCUSSION: BAC is called the masquerader because it often presents as pneumonia and other inflammatory lung diseases. Patients complain of dyspnea and cough, which may be associated with copious sputum. BAC may mimic many diseases radiographically. It may present as a solitary lesion, consolidations or interstitial infiltrates. Studies done to differentiate BAC from infectious pneumonia showed the presence of bubble-like low attenuation area within the lesion. If there is stretching, squeezing and widening of the branching angle of the air-filled bronchus within consolidation, it is likely to be BAC rather than pneumonia. Differential diagnoses of the pneumonia-like form of BAC include infectious and inflammatory types of pneumonitis. The treatment may include surgery or chemotherapy. A recent report showed that the pneumonic type of BAC has a special sensitivity to epidermal growth factor receptor -tyrosine kinase inhibitors. Physicians need to consider BAC in the differential diagnosis of non-resolving pneumonia. Pneumonia with appropriate treatment should improve clinically in 3–7 days and radiographically in 4–8 weeks. Determining the underlying cause of non-resolving pneumonia may require extensive investigation. Negative TBLB should not reassure the physician, and video-assisted thoracoscopy or open lung biopsy should be considered in these cases, especially when potential malignancy is suspected; otherwise a serious diagnosis may be delayed. BAC is less aggressive than other adenocarcinomas of the lung. Early diagnosis and resection showed good overall survival.

A CASE OF ACUTE ONSET ASCITES AND SEVERE PERIPHERAL EOSINOPHILIA
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LEARNING OBJECTIVES: 1. Describe the diagnostic approach to eosinophilia 2. Recognize strongyloides and eosinophilic gastroenteritis as causes of eosinophilic ascites
CASE: A previously healthy 28 y/o Puerto Rican woman presented with 4 weeks of alternating constipation and diarrhea and 1 week of increased abdominal girth. Travel history included a trip to the Bahamas and repeated trips to Puerto Rico, the last ending the day prior to admission. The patient appeared comfortable. She was afebrile, normotensive, and anicteric, but with massive ascites. Labs showed 23400 WBC/ul, 40% eosinophils and normal liver tests. CT-abdomen/pelvis revealed ascites and small bowel dilation and thickening. Ultrasound indicated mild hepatosplenomegaly without hepatic vascular obstruction. Paracentesis identified 2000 WBC/ml with 92% eosinophils. HIV, hepatitis serologies, PPD and multiple stool samples for ova and parasites were negative. Normal IgE, ESR, ANA, antiendomysial and antigliadin antibody levels excluded autoimmune etiologies. Bone marrow biopsy showed hypocellularity with marked eosinophilia. Negative Bcr-abl and F2P2L1-PDGFR ruled out leukemia/lymphoma. Biopsies from EGD revealed diffuse eosinophilic infiltration with reactive epithelial change from the lamina propria to the muscularis mucosa of the stomach and duodenum. Diagnosis of eosinophilic gastroenteritis (EG) was entertained until day 10 when strongyloides IgG returned positive. At that time, plans for empiric steroids were abandoned. A 5-day course of ivermectin (200 ug/kg) later produced complete symptom resolution.
DISCUSSION: Peripheral eosinophilia poses a diagnostic challenge and occurs in allergic conditions, drug reactions, parasitic infection, malignancy, connective tissue disorders, and idiopathic hypereosinophilic syndromes (HES) including EG. Severe eosinophilia (>1500/uL) is more likely in HES and parasitic infection. In bone marrow, eosinophils undergo clonal expansion stimulated by IL-4, IL-5 and GM-CSF. Eotaxins promote their migration into the GI tract, lungs, and skin. A diagnosis of exclusion, EG is limited to eosinophilic infiltration of any or all layers of the GI tract. The etiology of EG is unknown but has been associated with increased eotaxin recruitment triggered by food allergy. Ascites and muscularis infiltration on partial thickness biopsy are consistent with subserosal EG; treatment is steroids. However, the presence of a parasitic infection excludes the diagnosis. Strongyloides, a tropical helminth, penetrates skin in contact with materials contaminated by human feces. Larvae migrate hematogenously to the lungs to be coughed up and swallowed. They mature in the bowel and are either shed in feces or multiply in an intestinal autoinfection cycle. Patients remain asymptomatic or can manifest eosinophilia, pneumonitis, abdominal pain, diarrhea, or ascites if larval load increases. Ivermectin is the treatment of choice. Steroids are contraindicated as hyperinfection syndrome, a devastating complication with larval dissemination to multiple organ systems, may develop. Severe peripheral and ascitic eosinophilia are consistent with both parasitosis and EG. Overwhelming eosinophilic infiltration and negative stool studies initially directed us to EG and use of steroids. Serology ultimately allowed the timely diagnosis of strongyloides and avoidance of steroid-mediated hyperinfection. The rapid response to ivermectin further confirmed strongyloides as the cause for this woman's eosinophilic ascites.

A CASE OF FEVER AND ANEMIA
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LEARNING OBJECTIVES: 1) Increase awareness of a rare but important infectious process. 2) Demonstrate that babesiosis is an infection that may manifest similarly to other disease processes. 3) Review clinical features, diagnostic tests, and treatments for babesiosis.
CASE: We describe the case of a 70-year-old gentleman with recent travel to northern Wisconsin who presented to his physician with symptoms of altered mental status, exertional dyspnea, cough, and anorexia. He was noted to have an elevated creatinine, thrombocytopenia, and anemia. On subsequent admission to the hospital, the patient developed cycles of fevers as high as 104 F. His examination, basic laboratory studies, and cultures were otherwise unremarkable except for the presence of red blood cells (RBCs) on his urinalysis. The patient underwent an abdominal CT, which was unrevealing, and was treated with empiric broad spectrum antibiotics without improvement. In addition, he received blood products for anemia and underwent dialysis. There was concern for TTP, so the patient was transferred to our tertiary care facility for possible plasma exchange therapy. Peripheral smear was done to look for schistocytes prior to beginning plasma exchange and ring-like inclusions were found in several RBCs. We started the patient on atovaquone and azithromycin with good clinical response, including resolution of his anemia, leukocytosis, and thrombocytopenia. PCR testing was later positive for Babesia microti DNA.

DISCUSSION: Babesiosis is a malaria-like illness caused by a protozoan parasite that invades erythrocytes. Babesia microti is the species most often implicated in babesiosis in the northeastern United States (rare cases occur in the Midwest and western states). The Ixodes tick transmits the disease in the summer months, though infection can also occur via blood transfusion. The disease is often asymptomatic, and symptoms primarily occur in patients with advanced age or underlying medical problems. Symptoms start approximately one to four weeks after infection and generally include fatigue, anorexia, fever, myalgias, and shortness of breath. Anemia, renal failure, and hepatomegaly may also be seen. As these symptoms are nonspecific, one may confuse the presentation for TTP or other hemolytic anemias. The schistocytes required to diagnose TTP are minimal or absent in babesiosis. Hemolytic anemia of other causes are differentiated from babesiosis by a lack of intraerythrocytic ring forms on a properly prepared peripheral smear. In addition to the ring formations, a tetrad configuration of budding trophozoites is pathognomonic, but infrequently seen. An indirect immunofluorescent antibody test with use of B. microti antigen can confirm the diagnosis, though PCR of B. microti DNA is more sensitive and equally specific. Treatment is with quinine and clindamycin for 7–10 days, but recent studies have shown the regimen of atovaquone and azithromycin for 7 days to be equally effective with fewer side effects. In severe disease there is a role for exchange transfusion.

A CASE OF OBSTRUCTIVE UROPATHY: WHERE'S THE HYDRO? T.W. Conlon[1]; E. Anish[1]. [1]University of Pittsburgh, Pittsburgh, PA. *(Tracking ID # 190194)*

LEARNING OBJECTIVES: 1. Appreciate that obstructive uropathy can occur without hydronephrosis. 2. Recognize the clinical and radiographic findings associated with alkaline-encrusted pyelitis and understand the role of Corynebacterium urealyticum infection in its development.
CASE: An 81 year-old male with a history of transitional cell carcinoma status-post radical cystectomy with ileal diversion and atrial fibrillation on coumadin presented with a 2-month history of gross hematuria worsening over a 2-week time period. He was found to be hyperkalemic with a potassium level of 7.0, anemic with a hemoglobin of 8.0 and in acute renal failure with a BUN and creatinine of 87 and 3.4 respectively (baseline 1.0–1.3). The patient's INR and hyperkalemia were corrected and intravascular volume was repleted with IV fluids and transfusion of PRBCs. The patient's creatinine increased despite medical management and he continued to have hematuria. A urinalysis demonstrated WBCs, RBCs, bacteria, and triple phosphate crystals, but no casts. The urine pH was 8.5 and FeNa was 6%. The patient had a CT of his abdomen performed which showed diffuse calcification of the pelvicalyceal urothelium extending from the renal pelvis to the ileal anastamosis without hydronephrosis. An ultrasound confirmed the absence of hydronephrosis and a loopogram demonstrated a patent ileal conduit without stricture. Despite the absence of hydronephrosis, we postulated that the collecting system was unable to dilate due to the extensive calcification of the urothelium and that functionally he had an obstructive uropathy. With hemodialysis impending, the patient underwent bilateral nephrostomy tube placement and subsequent ureteral stenting with resolution of his renal insufficiency. The patient's urine subsequently grew >100,000 colonies of Corynebacterium urealyticum and treatment with IV vancomycin was initiated.
DISCUSSION: This case illustrates how a chronic C. urealyticum urinary tract infection can result in extensive urothelial calcification with post-obstructive uropathy in the absence of hydronephrosis. C. urealyticum is a gram positive urease-producing microorganism. The urease activity of this bacterium results in urine alkalinization, promoting the formation of struvite and calcium phosphate crystals. In the setting of chronic UTI with C. urealyticum, stone encrustation of the wall of the urinary tract can occur resulting in the clinical condition referred to as alkaline-encrusted cystitis and pyelitis. Most patients with this infection are elderly, debilitated or immunocompromised, have a history of urologic disease, and have undergone urologic procedures in the past. Alkaline-encrusted pyelitis may be asymptomatic for an extended period of time and only be revealed when a complication develops such as urinary tract obstruction, renal failure or gross hematuria. Although often detectable on sonography, CT is the optimal imaging to diagnose urothelial encrustation. Treatment options include antibiotic therapy, urine acidification and surgical removal of the encrustations. Marked improvement in this patient's renal function following the placement of nephrostomy tubes and nephroureteral stents supports a diagnosis of obstructive uropathy as a cause of this patient's ARF. We postulate that hydronephrosis, the hallmark of obstruction, was unable to develop due to the encrustation of the renal pelvis.

A CASE OF RECURRENT METASTATIC INSULINOMA SUCCESSFULLY TREATED WITH ORTHOTOPIC LIVER TRANSPLANTATION L.E. Aguirre[1]; S. Meek[1]. [1]Mayo Clinic, Jacksonville, FL. *(Tracking ID # 189426)*

LEARNING OBJECTIVES: 1) To recognize the symptoms of recurrent metastatic insulinoma. 2) To describe various treatment modalities for recurrent metastatic insulinoma with particular emphasis on orthotopic liver transplantation.
CASE: We describe the clinical case of a female subject 54 years old, diagnosed with insulinoma in 1998 treated with pancreatic insulinoma enucleation. Her symptoms of hypoglycemia recurred months later and she was diagnosed with recurrent disease. She then underwent distal pancreatectomy and splenectomy in the same year at Mayo Clinic Rochester and a 2.2-cm insulinoma was found. The patient remained asymptomatic until 2004 when her symptoms of hypoglycemia recurred. She was diagnosed with metastatic insulinoma to the liver by hepatic biopsy. Hepatic vein sampling following calcium stimulation of the pancreas and imaging revealed no evidence of disease in the remaining pancreas. She underwent hepatic embolization on 2 different times in November 2004 and January of 2005, which alleviated her symptoms for a few months but her symptoms of hypoglycemia recurred. In 2006 she was referred to Jacksonville Florida for consideration of additional treatment and evaluation for orthotopic liver transplantation (OLT). She was evaluated by an oncologist, but chemotherapy was not recommended. In June 2005 she underwent RFA but her symptoms recurred. In May of 2006 she underwent OLT with choledocholedochostomy. Final liver pathology confirmed low-grade neuroendocrine carcinoma. Since OLT her hypoglycemia symptoms resolved but she developed diabetes requiring insulin therapy.
DISCUSSION: Insulinomas are rare pancreatic endocrine tumors with an incidence of four cases per million per year. Based on the Mayo Cohort series by Service et al1 87%of the time insulinomas present as a single benign tumor, 7% had multiple benign tumors, 6% had malignant insulinomas, defined as the presence of metastases. Treatment of choice is tumor resection which is curative in most cases. Recurrence of tumor and symptoms can occur in up to 6% of cases. Recurrences were more common in the patients with multiple endocrine neoplasia syndrome 1. Treatment of recurrent insulinoma includes liver resection, hepatic artery embolization, radiofrequency ablation (RFA) and cryoablation, either alone or in conjunction with surgical debulking. The number of patients with isolated liver metastatic disease in whom OLT has been attempted is small. Follow-up data after liver transplant are insufficient to judge whether complete cure has truly been achieved. Currently liver transplantation is an investigational approach for metastatic islet cell tumors, including insulinoma. Still, little is known regarding potential prognostic factors and long-term survival after liver transplantation for neuroendocrine tumors. This case illustrates and reviews the typical symptoms of hypoglycemia due to an insulinoma. It also emphasizes the importance of recognizing symptoms of recurrent insulinoma. Review of various treatment modalities for insulinoma are discussed with emphasis on OLT. Although still considered experimental, OLT may be justified in selected patients to provide immediate relief of otherwise intractable pain or hormone-related symptoms of insulinoma.

A CASE OF SORE THROAT, ERYTHEMA NODOSUM, AND ARTHRITIS, WITH AN UNUSUAL CAUSE H. Nayeb-Hashemi[1]; J.W. Turner[1]; N. Afsarmanesh[1]. [1]University of California, Los Angeles, Los Angeles, CA. *(Tracking ID # 190626)*

LEARNING OBJECTIVES: •Illustrate a unique presentation of coccidioidomycosis and outline laboratory studies utilized in the diagnosis •Describe the immune complex-mediated manifestations of coccidioides infection

CASE: A 27-year-old healthy woman presented to the ED with severe back pain and leg lesions. Ten days prior to admission, the patient presented to her PCP with sore throat and was prescribed amoxicillin. The following day, her sore throat worsened and she presented to ED, where she was given azithromycin and a dose of prednisone. She experienced initial improvement in symptoms, but four days later, her sore throat worsened and she developed severe low back pain accompanied by tender erythematous lesions on her lower extremities. On admission, several tender, erythematous and indurated nodules were noted on bilateral lower extremities, most consistent with erythema nodosum. During her hospitalization, she developed left ankle swelling. Synovial fluid analysis was consistent with inflammatory arthritis. She was treated with anti-inflammatory agents and prednisone and her symptoms improved. Her rheumatologic work-up was negative. Her infectious work-up was significant for elevated IgM coccidioides antibody and positive tube precipitin study, with non-detectable IgG and negative complement fixation study. On further interview, the patient had recently traveled to Mexico as well as frequently visiting family in the Central Valley of California. At that point, her prednisone was discontinued and fluconazole therapy was initiated for primary coccidioides infection with immune complex-mediated systemic manifestations.
DISCUSSION: Coccidioides infection is endemic to the Central Valley of Southern California and Mexico. Many infections are sub-clinical and those presenting with symptoms develop self-limited pulmonary syndromes. Arthritic and dermatologic manifestations occasionally develop in coccidioides infection and are mediated by circulating immune complexes. The associated arthralgias are migratory in a nature and are most commonly associated with the weight bearing joints, particularly the knees and ankles. The most typical skin manifestation is erythema nodosum. This is more common in women, usually occurring within one to three weeks of infection. Coccidioidomycosis can present with the more severe erythema multiforme and Sweet's syndrome. Presumptive diagnosis of coccidioidomycosis can be made by antibody detection, as it indicates active disease. Antibodies decrease to undetectable levels during the course of disease and with resolution. Tube precepitin assay relies on antigen-antibody complexes forming a precipitin, indicative of IgM response and is positive in early infection.

A CASE OF SURREPTITIOUS DIURETIC ABUSE PRESENTING AS A PATIENT WITH ALLEGED GITELMAN'S SYNDROME J. Knox[1]; M.Y. Chan[1]; N. El Farra[1]; B.Y. Young[1]. [1]University of California, Los Angeles, Los Angeles, CA. *(Tracking ID # 190412)*

LEARNING OBJECTIVES: 1. Recognize that surreptitious diuretic use may mimic genetic disorders of renal tubular function
CASE: A 39-year-old woman presented to the ER with 1 week of profound weakness and muscle cramps. She denied significant vomiting, diarrhea, or polyuria. Review of systems was otherwise negative. She reported Gitelman's syndrome was diagnosed 2 years prior by an outside physician when she had similar symptoms and was found hypokalemic. Potassium and magnesium tablets and a potassium-sparing diuretic were begun at that time. However, these medications were stopped 1 year ago due to a lapse in medical insurance. She denied all other medical history, medications, supplements, herbs, and recreational drugs. There was no family history of electrolyte imbalance. On physical, her blood pressure was 108/54 mmHg. She was a thin woman with dry mucus membranes and without dental erosions. No lesions of the hands were noted. Her JVP was 5 cm. She had diffusely diminished strength with brisk reflexes. Exam was otherwise negative. Labs showed sodium 137 mmol/L, potassium 2.7 mmol/L, chloride 95 mmol/L, total CO2 content 28 mmol/L, magnesium 1.2 mEq/L, and normal renal function. Spot urine chloride was 138 mmol/L. Transtubular potassium gradient and fractional excretion of magnesium were elevated. Plasma renin activity and serum aldosterone were also elevated. 24 hour calcium excretion was low. The patient had symptom resolution with electrolyte repletion. She was discharged on her prior medication regimen. Several days later, a urine diuretic screen drawn on admission returned positive for furosemide and thiazide use. When confronted, the patient denied diuretic abuse. She was recommended to stop all diuretics and electrolyte supplements. The patient refused further follow-up at our institution.
DISCUSSION: Gitelman's syndrome often presents in adults with muscle cramps, fatigue, polyuria, and polydipsia associated with several biochemical abnormalities. The syndrome results from an autosomal recessive mutation of the thiazide-sensitive sodium chloride cotransporter. This mutation impairs renal sodium reabsorption in the distal tubule and leads to volume depletion and subsequent activation of the renin-angiotensin-aldosterone system. Concomitant increased distal tubular flow and hyperaldosteronism result in enhanced potassium and hydrogen secretion downstream in the collecting tubules. Also, through mechanisms that are still being elucidated, renal magnesium wasting and calcium sparing are common. As Gitelman's syndrome affects the same cotransporter as thiazide diuretics, differentiation may rely on a urine diuretic screen. In this case, surreptitious diuretic use was almost overlooked as a past history of Gitelman's syndrome was claimed by the patient and her clinical findings were consistent (renal potassium and magnesium wasting, metabolic alkalosis, elevated urine chloride, hypocalciuria, and secondary hyperaldosteronism with low-normal blood pressure). The importance of a correct diagnosis in an unestablished patient with purported Gitelman's syndrome, as well as similar disorders, lies in the potential side effects of treatment. Electrolyte repletion and initiation of a potassium sparing diuretic, such as amilioride or spironolactone, may result in severe hyperkalemia and hypermagnesemia in normal patients. Surreptitious diuretic use must always be considered in cases of hypokalemia associated with metabolic alkalosis and low-normal blood pressure.

A COMMON CANCER IN AN UNCOMMON PLACE A.V. Ambardekar[1]; J. Gonzaga[1]; K. Pfeifer[1]. [1]Medical College of Wisconsin, Milwaukee, WI. *(Tracking ID # 190084)*

LEARNING OBJECTIVES: 1. Recognize uncommon etiologies of refractory headaches. 2. Review the sites of metastasis and treatment options for prostate adenocarcinoma.
CASE: A 70-year-old gentleman with a past history of localized prostate cancer presented with a 3-month history of right sided headache extending from behind his right eye to his right ear. On presentation his physical examination was normal except for tenderness to palpation along the mastoid sinus as well as loss of touch sensation across his right maxilla. Basic laboratory investigation was normal with the exception of an erythrocyte sedimentation rate (ESR) of 107. Head computed tomography (CT) scan revealed right otitis media, mastoiditis with possible erosion of adjacent cranium, and right sigmoid sinus thrombosis. Brain magnetic resonance imaging (MRI) and MR venography confirmed the findings of right sigmoid and transverse sinus thrombosis and further indicated possible mastoid effusion with osteomyelitis. Antibiotics and anticoagulation were started and an otorhinolaryngology consult was obtained. Given this unusual presentation in a previously healthy elderly patient, mastoid sinus drainage and biopsy of the erosive cranial bone lesion were performed for further evaluation. Biopsy revealed metastatic prostate adenocarcinoma and no signs of infection. Oncology was consulted who recommended outpatient follow-up for palliative radiation.
DISCUSSION: Prostate adenocarcinoma is a common malignancy of elderly men with over 70% of autopsies of men in their eighth decade showing some evidence of disease. Although most men with prostate cancer do not usually die from this disease, it remains the second leading cause of cancer death in men. The most common sites of metastasis are bones, lymph nodes and less commonly the lungs, adrenal glands, brain, and kidneys. Metastasis to the sinuses and cranial bones is rare. Other cancers known to have metastasis to this area are breast, gastrointestinal, renal cell, lung, multiple myeloma, lymphoma, or leukemia. Malignancy can cause destruction of bone giving the radiologic appearance of osteomyelitis. When present in the mastoid process, it can easily be mistaken for a complication of otitis media. Therefore, a high index of suspicion for malignancy must be maintained in patients in whom spontaneous, complicated otitis media would be unusual. Treatment of metastatic prostate adenocarcinoma is based on testosterone levels. In patients with noncastrate levels the goal is blockade of androgen action, which can be accomplished medically or surgically. In patients with castrate testosterone levels, the majority of tumors remain sensitive to second and third-line hormonal treatments such as estrogens, progestins, or ketoconazole. Radiation is effective for palliation of symptoms caused by tumor-related neurologic or vascular compromise, both of which are considerations in mastoid sinus and temporal bone involvement. Our case illustrates the need to search for unusual causes of common problems such as headache and otitis media.

A COMMON HOUSEHOLD HAZARD A. Radhakrishnan[1]; M. Patel[1]; G. Chrysochoou[1]; T. Haddad[1]. [1]Allegheny General Hospital, Pittsburgh, PA. *(Tracking ID # 189452)*

LEARNING OBJECTIVES: 1) Recognize the importance of a thorough exposure history in patients with respiratory symptoms. 2) Recognize the importance of potential chemical exposure (usual and unusual) in the presentation of pulmonary processes.
CASE: A 60 year old Caucasian female with history of tobacco abuse presented with progressive dyspnea on moderate exertion and dry cough. There was no history of sputum production, wheezing, hemoptysis, chest pain or fevers. Physical examination findings were unremarkable. Laboratory data demonstrated hyponatremia at 120 mmol/L with all other labs within normal limits. A CXR illustrated a right lower lobe consolidation with large lung volumes. A CT chest was done which showed a 7 cm spiculated mass in the right lower lobe. No lymphadenopathy or pleural plaques were present. Microbiological tests ruled out infection. The patient underwent two bronchoscopies with biopsies which were inconclusive. No endobronchial lesions were noted. She had a right thoracoscopy for evaluation. The right thoracoscopy was changed into a right thoracotomy with a right lower lung biopsy when six biopsies did not diagnose malignancy. The lung biopsy specimen showed scattered aggregates of exogenous lipoid and silicate nodules. The particles ranged in size from 30 to 100 microms and were birefringent with talc particles when viewed under polarized light which was consistent with a diagnosis of talcosis.
DISCUSSION: Talcosis is a rare disorder with an unknown pathophysiologic mechanism, although the most likely hypothesis for its origin is an immunologic mechanism of delayed hypersensitivity. Inhalation is the most frequent form of exposure to talc. Most talc-related illnesses are caused by exposure during the milling and processing of talc, industrial use of the end product, and even the use of talc in high doses for personal care. Patients with talcosis have restricted lung volumes and often have diffuse bilateral interstitial infiltrates on CXR. Histologically findings are diffuse interstitial fibrosis, ill-defined nodules with birefringent talc particles and foreign-body granulomas with or without interstitial and pleural fibrosis. Following review of the lung biopsy specimen, the patient admitted to regularly using large amounts of baby powder and powdering her face three times daily. Baby powder is insoluble, and if inhaled in large amounts, dries the tracheobronchial mucous membrane and prevents normal ciliary function beginning a pulmonary process. Awareness of this more subtle presentation of talcosis may aid in earlier recognition of this disease. Treatment is prevention of the use of talc. Corticosteroids have been attempted, although there is a risk of relapse after cessation. In these cases, an early bronchoscopy along with a biopsy should be considered, as the identification of talc-induced pulmonary disease would avoid diagnostic errors and consequently, unnecessary treatment. Conclusion: This unusual presentation of talcosis suggests that even a relatively short, but presumably intense exposure to talc may be a cause of progressive lung disease. This case emphasizes the importance of a thorough exposure history, which may reveal a remote and forgotten exposure to a significant cause of lung disease.

A CRIME WITH TWO POSSIBLE SUSPECTS: WHO IS THE CRIMINAL? J. Park[1]; V. Avula[1]. [1]University of California, San Francisco-Fresno, Fresno, CA. *(Tracking ID # 189618)*

LEARNING OBJECTIVES: 1. Consider pulmonary embolism (PE) in the differential diagnosis of dyspnea and chest pain in patients with Hemoglobin SC (HbSC) disease. 2. Recognize Hb SC disease as a possible risk factor for venous thromboembolism (VTE) in the black population.
CASE: A 37-year-old African American man with a past medical history of chronic sinusitis, reactive thrombocytosis, and hemoglobin SC disease, diagnosed in May 2006 presented to the ER with worsening shortness of breath and left sided pleuritic chest pain for 4 days. Two days before, he had been discharged from the ER in another hospital with possible bronchitis. In the ER, his temperature was 36.4°C, heart rate 87beats/min, blood pressure 134/76, respirations 20/min and O2 saturation 97% on room air. The patient was in mild respiratory distress. Physical exam showed only decreased breath sounds on the left lower lobe area. WBC 1250, hemoglobin 11.2, hematocrit 32, and platelet 719K. Troponin level was normal and EKG showed normal sinus rhythm. Chest x-ray was unremarkable. CT scan of the chest revealed bilateral pulmonary embolism. Ultrasound of lower extremities showed no evidence of deep vein thrombosis. CT scan of abdomen showed atrophic appearance of the spleen with some calcifications. Homocysteine level, protein C, protein S, antithrombin III, and factor V Leiden (activated protein C resistance) were normal. Prothrombin G20210A mutation was not detected. Lupus anticoagulant and antiphospholipid antibody were negative. Treatment was started on heparin and then on warfarin the next day. Dyspnea and chest pain improved and he was discharged on 6 months of warfarin therapy.
DISCUSSION: Patients with hemoglobin SC disease have a milder hemolytic anemia and clinical course than those with sickle cell disease (HbSS). Activation of both coagulation and platelets in HbSS is well known and autopsy studies showed that acute and chronic thrombi were found in the pulmonary arteries in HbSS patients. Whether HbSC patients are at increased risk of VTE, however is not proven yet. One recent case control study found increased odds ratio association of VTE and sickle cell trait (SCT) among blacks. These findings suggest that SCT might be a hypercoagulable state. Reactive thrombocytosis usually does not increase the risk of thrombosis. This patient had HbSC and reactive thrombocytosis and developed pulmonary embolism without any other well known major hypercoagulable states, such as hyperhomocysteinemia, protein C deficiency, protein S deficiency, antithrombin III deficiency, factor V Leiden (activated protein C resistance), prothrombin G20210A mutation, lupus anticoagulant and antiphospholipid antibody. Taken together, HbSC might be the cause for VTE in this patient. A possibility of VTE should be considered in the differential diagnosis, when patients with HbSC present with dyspnea and chest pain. Further clinical study is needed to determine whether HbSC is a risk factor for acute and/or chronic VTE and whether life long anticoagulation is beneficial in patients with HbSC disease.

A DIAGNOSIS IN THE POCKET C. Broussard[1]; S. Nguyen[1]. [1]Tulane University, New Orleans, LA. *(Tracking ID # 190556)*

LEARNING OBJECTIVES: 1. Identify an unusual cause of chest pain in an immunocompromised patient. 2. Recognize complications of esophageal diverticula and esophageal stricture. 3. Understand the management of a patient with esophageal diverticula.
CASE: A 41-year-old woman with HIV (CD4: 6) presented with one month of progressively worsening chest pain. The pain radiated to the back and was worse with deep inspiration. She had progressive dysphagia of both solids and liquids and occasional hematemesis. She had not taken highly active antiretroviral therapy (HAART) for three years. She had a history of cryptococcal meningitis, esophageal candidiasis, and Pneumocystis jiroveci pneumonia. Endoscopy six months prior to presentation showed esophageal ulcers of unknown etiology. Her vital signs and physical exam were normal with the exception of temporal wasting. Her white blood cell count was low, but the remainder of her complete blood count, electrolytes, and liver function tests were normal. Because of her low CD4 count and past history of opportunistic infections, infectious esophagitis was considered as the etiology of her presenting complaints. We repeated endoscopy and found two mid-esophageal diverticula and two areas of black eschar consistent with chemical esophagitis. A gastrografin esophagram revealed the diverticula to be eight and three cm in length with the proximal lumen of the 8 cm diverticula being larger than the lumen of the esophagus at the same level. A percutaneous enterogastrostomy (PEG) tube was placed to avoid esophageal rupture and aspiration pneumonia. Tube feeds were started and her pain was managed with a transdermal fentanyl patch.
DISCUSSION: Dysphagia is a common presenting complaint for the general internist. While the presence of HIV expands the differential, the internist must still remain cogniscent of common etiologies that are not HIV related. The two most common causes of mid-esophageal diverticula are congenital and traction diverticula secondary to mediastinal inflammation. Occasionally, they may be caused by motility disorders such as achalasia and diffuse esophageal spasm. In our patient, the mediastinal inflammation due to her repeated bouts of opportunistic infections was the cause of the diverticuli. Mid-esophageal diverticula are often asymptomatic, but trappings of not just food, but also of corrosive pills are responsible the chemical, or pill esophagitis leading to our patient's chest pain. Her dysphagia was the result of a large diverticulum becoming food filled. Regurgitation and aspiration frequently occur in such a diverticulum. The definitive treatment for a symptomatic esophageal diverticulum is surgical excision.

A DIFFERENT KIND OF MALIGNANT PLEURAL EFFUSION A.J. Deshmukh[1]; A. Kasarabada[1]; V. Peterson[1]; K. Pfeifer[1]; S. Malcom[1]; S. S. Subramanian[1]. [1]Medical College of Wisconsin, milwaukee, WI. *(Tracking ID # 190397)*

LEARNING OBJECTIVES: 1) Describe the pathophysiology, diagnosis and management of chylothorax.
CASE: A 68 year-old gentleman with known mantle cell lymphoma with plasma cell differentiation treated in the past with chemotherapy presented with shortness of breath, failure to thrive and hemoptysis. He appeared cachectic and the physical examination was significant for decreased breath sounds with marked dullness to percussion mid lung to base bilaterally. Chest CT showed bilateral pleural effusions and mediastinal lymphadenopathy. Subsequent thoracentesis yielded white pleural fluid with elevated triglyceride levels of more than 500 mg/dl which is consistent with a chylothorax. Chest tubes were placed, and he continued to drain more than 1L of pleural fluid everyday. Pleurodesis was considered for definitive treatment, but surgical consultants felt his surgical risk outweighed the potential benefits. Instead, he was started on total parenteral nutrition (TPN) and a low fat diet, and his chest tube drainage and pleural triglycerides gradually decreased. His chest tubes were removed, and subsequent chest CT confirmed resolution of his pleural effusions. He was discharged home on TPN and a low fat diet with near-resolution of his presenting symptoms.
DISCUSSION: Chyle represents fluid enriched with fat and digestive products absorbed by the intestinal epithelium and transported throughout the lymphatics to the venous system. Chylothorax occurs with obstruction or disruption of the thoracic duct, leading to extravasation of chyle into the pleural space. Surgical trauma to the thoracic duct is the commonest cause but mediastinal lymphadenopathy can also lead to chylothorax by compressing lymphatic channels and the thoracic duct. In the early stages, the patient may not demonstrate clinical symptoms or signs of nutritional compromise. Advanced cases exhibit clinical features of severe protein loss, including malnutrition and immunosuppression due to the loss of immunoglobulins and lymphocytes into the pleural space. Despite the accompanying immunocompromised state, infection of a chylothorax itself is very uncommon because chyle is inherently bacteriostatic. Chest X-ray and CT are helpful in determining the size and location of the chylothorax and the possible presence of an associated malignancy. Pleural fluid triglyceride levels >110 mg/dl, presence of chylomicrons, low cholesterol level, and elevated lymphocyte count are diagnostic of a chylothorax. Conservative management includes oral supplementation of medium-chain triglycerides and pleural drainage to ensure complete lung expansion. For persistent effusions, operative strategies may be beneficial and include ligation of the thoracic duct, pleuroperitoneal shunting, pleurectomy and pleurodesis. New innovative techniques in management include embolization of thoracic duct and radiation therapy. For patients who cannot tolerate these therapies, TPN with a low fat enteral diet may reduce lymphatic flow and reduce the chylothorax.

A GREEN APPLE IN THE CHEST N. Pemmaraju[1]; A. Trindade[1]; Y. Hendley[1]; A. Krishnaswamy[1]; S.D. Sisson[1]. [1]Johns Hopkins University, Baltimore, MD. *(Tracking ID # 190615)*

LEARNING OBJECTIVES: 1) Recognize the various presentations of amyloidosis 2) Understand that amyloidosis is a cause of restrictive cardiac failure
CASE: A 71-year-old male with a past history of chronic renal insufficiency, coronary artery disease, mitral valve replacement and cirrhosis with recurrent ascites presented with two weeks of abdominal distension and dyspnea. He denied chest pain, palpitations, orthopnea, paroxysmal nocturnal dyspnea or abdominal pain. Medications included aspirin, furosemide, and warfarin. The patient had a remote history of smoking and alcohol use. Family history was unremarkable. On physical exam, he was afebrile with normal vital signs. Oxygen saturation was 97% on room air. He was in no apparent distress, with anicteric sclera; JVP was difficult to visualize due to obesity, but lungs were clear and no S3 gallop was noted. His abdomen was distended, and shifting dullness was present. There was 1-plus pitting edema to the knees. Laboratory examination showed creatinine 2.3 (baseline 1.8), Total bilirubin 0.3, ALT 52, AST 23, alkaline phosphate 130, and hematocrit 32. EKG and chest x-ray were unremarkable. Peritoneal fluid was negative for infection. Viral hepatitis serologies were negative. Liver ultrasound revealed cirrhosis and was negative for portal vein thrombosis. Echoardiogram demonstrated severe concentric left ventricular hypertrophy with a "starry sky" appearance of the myocardium. Moderate global hypokinesis was noted; ejection fraction was 35%. Right heart catheterization with cardiac biopsy showed patchy infiltration of the myocardium with amyloid demonstrated by Congo Red and Thioflavin T stains.
DISCUSSION: Our patient presented with restrictive heart failure from cardiac amyloid manifesting as cirrhosis. The differential diagnosis of restrictive heart disease includes sarcoidosis, hemochromatosis, carcinoid syndrome, scleroderma, Wilson's disease, radiation, myocardial fibrosis following heart surgery, glycogen deposition and amyloidosis. With restrictive heart failure, signs and symptoms result from failure of the ventricles to fill properly, limiting cardiac output, and increasing filling pressure. Signs and symptoms include exercise intolerance, progressive dyspnea, dependent edema, ascites, hepatomegaly, elevated JVP, distant heart sounds, and often conduction disturbances or thromboembolic disease. All forms of amyloidosis result in the deposition of extracellular fibrils in various tissues as a result of misfolding of a protein from the normal alpha helical configuration into a Beta-pleated sheet. This abnormal new structure binds the Congo red stain, which emits apple green birefringence under polarized light. Amyloidosis is classified by the protein composition of amyloid deposits; the manifestations, prognosis, and therapy vary greatly depending on the specific type of amyloidosis. Some of the most common types include AL (primary), ATTR (familial), AA (secondary), and Senile Systemic(Age-related, cardiac amyloid-seen in our patient). In cardiac amyloid an interstitial deposition of amyloid fibrils causes concentric thickening of the atrial and ventricular walls. Treatment is largely supportive care and treatment of the congestive heart failure, with heart transplant used only as a last resort. Cardiac amyloidosis should be considered in any patient with unexplained heart failure and an echocardiogram showing increased wall thickness, a non-dilated left ventricular cavity, and a "starry sky" appearance of the myocardium.

A GUT WRENCHING DIAGNOSIS: INFLAMMATORY BOWEL DISEASE IN THE ELDERLY V. Oruganti[1]; W.C. Pace[1]. [1]Temple University, Philadelphia, PA. *(Tracking ID # 190786)*

LEARNING OBJECTIVES: 1.Identify the common presentation between diverticulitis and Inflammatory Bowel Disease 2.Identify the signs and symptoms of IBD in the elderly patient
CASE: A 59 year old female with a past medical history of atrial fibrillation, hypertension, and multiple episodes of diverticulitis presented with left lower quadrant abdominal pain for two weeks, accompanied by diarrhea for three days. These symptoms were similar to her past episodes of diverticulitis however a more detailed history uncovered recent symptoms of a migratory polyarthritis. Upon hospital admission, an abdominal CT scan demonstrated pan-colitis and sigmoid diverticulitis. The patient was started on ciprofloxacin and metronidazole and kept NPO. Her symptoms improved slightly over the next few days, however, by hospital day #4 her symptoms worsened and she began to have low grade fevers. A repeat CT scan showed continued evidence of pan-colitis and all stool studies, including C. difficile toxin, fecal leukocytes, and cultures were negative. A flexible sigmoidoscopy demonstrated diverticulosis of the sigmoid colon and areas of erythema and ulcerations in the sigmoid colon and rectum. These lesions were biopsied and described by pathology as areas of the colonic mucosa with cryptitis and crypt abscesses, consistent with Inflammatory Bowel Disease (IBD). Based on this information the patient was started on corticosteroids and within 48 hours her symptoms had improved dramatically. She noted a decrease both in pain and in daily bowel movements, as well as resolution of her arthritis. She was discharged home with instructions to follow up with GI for a full colonoscopy.
DISCUSSION: IBD is an idiopathic disorder that is divided into two types: Crohn's disease (CD), as in this case, Ulcerative colitis. IBD is more prevalent in the Jewish Americans, Caucasians, and African Americans than in Hispanics and Asians. The peak onset of CD has a bimodal distribution, occurring in people between ages 15–30 and ages 60–80. Crohn's disease is transmural which can manifest as mild disease with superficial ulcerations to severe disease with stellate ulcerations, fistulas, fibrosis and strictures. In both diverticulitis and CD, patients can present with fevers, abdominal pain, elevated ESR,

abdominal mass, and fistulas. However, elderly patients with CD most often present with diarrhea, abdominal tenderness, and weight loss, this is what causes the dilemma. Late onset IBD occurs predominantly in women with a distal distribution which can easily mimic diverticular disease. In the absence of perianal disease, it is difficult to distinguish between the two diseases without endoscopic evaluation. However, there were a few characteristics that suggested the possibility of IBD in our patient's case: she was African American, 59 years of age, and she had associated polyarticular arthritis, a common extraintestinal manifestation of the disease. Due to Ms. BH's age, IBD lied further down on the original differential than it perhaps should have. However as this case documents, it is important to maintain a strong degree of suspicion for this diagnosis in an elderly patient with this constellation of signs and symptoms. IBD is not a rare disease, but it is often overlooked in elderly patients despite what may be a classic presentation. Ms. BH illustrates perfectly the importance of maintaining a broad differential and keeping an open mind when considering common diagnoses in what may seem like uncommon presentations.

A HEARTWRENCHING TALE OF FAILURE A. Izquierdo[1]. [1]University of California, San Francisco, San Francisco, CA. *(Tracking ID # 190944)*

LEARNING OBJECTIVES: 1) List the predisposing conditions and diseases associated with congestive heart failure (CHF) 2) Identify the key diagnostic findings of cardiac amyloidosis 3) Recognize the prognosis and management of cardiac amyloidosis
CASE: An 81 year-old man with a history of osteoarthritis and atrial fibrillation presented to his outpatient clinic with a complaint of one month of rapidly progressive bilateral lower extremity edema, dyspnea on exertion, and intermittent lightheadedness. Vital signs were: BP 116/68, HR 86, RR 18, T 37.5, O2 sat 97% on room air. Physical exam was notable for anicteric sclera, elevated jugular venous pressure at 16 cm, bibasilar crackles, an irregularly irregular heart beat without any murmurs/gallops/rubs/heaves, negative hepatosplenomegaly, and 2+bilateral lower extremity pitting edema to the knees. The patient was sent to the Emergency Department for further evaluation. An EKG showed atrial fibrillation at a rate of 92 without ischemic changes, and the chest ray revealed pulmonary-vascular congestion without any focal opacities. Laboratory data was significant for BNP>5000, WBC 5.3, Hgb 17.9, platelets 122, ALT 43, AST 65, total bilirubin 2.1, total protein 6.1, alkaline phosphatase 139, Na 134, K 4, Cl 95, bicarbonate 23, BUN 60, Cr 2. A transthoracic echocardiogram showed a restrictive pattern with myocardial speckling, severe left ventricular hypertrophy, an ejection fraction of 60–65%, severe left atrial enlargement, and moderate right atrial enlargement. The patient then underwent transabdominal fat pad biopsy which was significant for apple-green birefringence with congo red staining. Based on the echocardiogram results and the biopsy findings, the patient was given the presumptive diagnosis of cardiac amyloidosis. The patient was discharged home, but after a tenuous outpatient course, he was ultimately transferred to hospice care and died 5 months after his initial presentation.
DISCUSSION: CHF is a clinical syndrome that occurs when the ventricles' ability to fill with or eject blood is impaired by a structural or functional cardiac disorder. Predisposing conditions leading to CHF include: ischemic or valvular heart disease, hypertension, drugs/toxins (e.g., alcohol, cocaine, doxorubicin), infection (e.g., viral myocarditis, HIV), autoimmune disease (e.g., lupus, rheumatoid arthritis), hypothyroidism, B12 deficiency, and infiltrative diseases (e.g., amyloidosis, sarcoidosis, hemochromatosis). A rare but significant cause of CHF, cardiac amyloidosis must be considered if the diagnostic workup includes echocardiogram findings significant for ventricular wall thickening and a granular, or "sparkling," myocardium. The diagnosis of cardiac amyloidosis is confirmed by finding amyloid deposits on endomyocardial biopsy or, in patients with the appropriate cardiac findings, by demonstrating amyloid deposits in a biopsy from other tissues. Cardiac amyloidosis leads to rapidly progressive cardiac dysfunction with symptoms of heart failure, syncope and/or angina or infarction. Median survival from the time of presentation with signs of heart failure is 6 months. Treatment options for cardiac amyloidosis are limited and have minimal efficacy. They include melphalan, thalidomide, cyclophosphamide, and steroids. This case illustrates an uncommon, and unfortunate, presentation of a common condition, and underscores the importance of maintaining a wide differential for even the most typical of cases.

A HIDDEN DIAGNOSIS: PHEOCHROMOCYTOMA WITH CONCURRENT CRYSTAL METHAMPHETAMINE USE B.K. Itagaki[1]; R. Lee[2]; R.S. Swerdloff[3]. [1]David Geffen School of Medicine at UCLA, Los Angeles, CA; [2]Harbor-UCLA Medical Center, Torrance, CA; [3]David Geffen School of Medicine at UCLA and Harbor-UCLA Medical Center, Torrance, CA. *(Tracking ID # 190259)*

LEARNING OBJECTIVES: 1. Identify presentations of secondary hypertension such as pheochromocytomas. 2. Recognize the lethal consequences of crystal methamphetamine and how its use may mask more deadly conditions.
CASE: A 24-year-old man presented with a 6 week history of palpitations, diaphoresis and headaches. These symptoms would occur 3–4 times per day and last for 5–10 minutes. Past medical history is significant for hypertension, diagnosed 3 years ago and ongoing use of smokable crystal methamphetamine. On exam, initial vital signs revealed a heart rate of 80 beats per minute and a blood pressure of 169/90. He appeared comfortable and the physical exam was otherwise unremarkable. Initial symptoms were felt to be related to methamphetamine use and the patient was encouraged to stop using this drug. Over the next several weeks, the patient's symptoms persisted despite discontinuing methamphetamine use. His blood pressure remained elevated and a work-up for secondary causes of hypertension was initiated. 24-hour urine studies obtained after methamphetamine withdrawal revealed a metanephrine level greater than 3563 mcg (24–96 mcg), normetanephrine level greater than 3520 mcg (18–80 mcg), and a total catecholamine level greater than 7083 mcg (14–110 mcg). A MRI of the abdomen showed a 10×8×5 cm right adrenal mass. Based on these biochemical markers and imaging studies, the patient was diagnosed with a pheochromocytoma. He was treated with alpha and beta-blocking medication and later underwent surgical resection with pathology confirming a right adrenal pheochromocytoma.
DISCUSSION: This case illustrates a presentation of pheochromocytoma masked by the use of crystal methamphetamine. Both these conditions can cause symptoms of hypertension, diaphoresis and headaches. Crystal methamphetamine is a highly addictive drug, mediated through the release of dopamine and norepinephrine. This potent stimulant may have additive effects when used in the setting of a catecholamine-secreting pheochromocytoma. Due to the growing use of crystal methamphetamine, the diagnosis of serious and deadly conditions such as pheochromocytoma may be delayed or missed.

A HOLE PROBLEM A HOLE BUNCH OF PROBLEMS P. Skelding[1]; C. Miller[1]. [1]Tulane University, New Orleans, LA. *(Tracking ID # 190794)*

LEARNING OBJECTIVES: 1. Recognize an unusual cause of gastrointestinal bleeding and an unusual complication of the Eisenmenger syndrome 2. Identify the manifestations of the Eisenmenger syndrome 3. Identify the management of the Eisenmenger syndrome in adulthood
CASE: A 66 year-old woman presented with five days of progressive dyspnea, fatigue and weakness. She denied chest discomfort, cough, lower extremity swelling, hematochezia, or melena. She had a history of hospital admissions for COPD, pulmonary hypertension, an unexplained anemia, but noted that these symptoms were unlike previous admissions. She was found to have a hemoglobin of 6.6 grams per deciliter and a mean corpuscular volume of 75 femtoliters. Prior caregivers thought her anemia was secondary to gastrointestinal bleeding but no source of bleeding had been found by upper and lower endoscopy. The patient did not initially relate that she had a congenital VSD but supplemental records confirmed its presence as well as severe secondary pulmonary hypertension with bidirectional shunting, also known as Eisenmenger's syndrome. We empirically diagnosed the patient with bleeding small bowel telangiectasias secondary to pulmonary hypertension, which were subsequently confirmed through push enteroscopy.
DISCUSSION: The Eisenmenger syndrome is one of the most common congenital heart diseases to be encountered by the general internist, occurring in ten percent of patients with congenital heart defects. It refers to the reversal of intra-cardiac flow across a ventricular septal defect, with left-to-right flow changing to right-to-left flow as the right ventricular pressure increases. While most patients develop Eisenmenger syndrome in childhood, many patients, will develop it as an adult, especially if a coexistent cause of pulmonary hypertension such as COPD is present. While the likelihood of developing the Eisenmenger syndrome depends on the size and location of the defect, the prognosis does not, with most patients surviving twenty to thirty years after the

syndrome develops, often well into adulthood. One of the typical complications is secondary erythrocytosis and hyperviscosity from the chronic hypoxemia, from the primary lung disease (COPD), the right-to-left shunt, or both. This can manifest as headaches, dizziness, visual disturbances, lethargy and stroke. Our patient manifested with a more rare complication: elevated pulmonary pressures causing an increase in venous pressure, and subsequent development of numerous small bowel telangiectasias with intermittent bleeding and symptomatic anemia. Similar to Heyde's syndrome, this syndrome is attributable to an acquired type II-like von Willebrand factor abnormality, due to abnormal degradation of von Willebrand factor by dysfunctional pulmonary vascular endothelium. The goal of medical management of Eisenmenger's syndrome is to minimize the pulmonary vascular resistance, thereby decreasing the right-to-left shunt fraction. The use of calcium channel blockers and sidenifil have provided promising, but not consistently effective results. Phlebotomy is indicated to decrease the symptoms of hyperviscosity, and home oxygen may be beneficial. Lung or combined heart-lung transplantation is used in patients with severe symptoms or poor short-term prognosis. Given that our patient had an unusual presentation with anemia due to bleeding from small bowel telangiectasias, the appropriate short-term management was blood transfusion and cauterization of bleeding telangiectasias.

A MAN WITH A STUBBORN PNEUMONIA S.W. Marsal[1]; R.J. Dworkin[1]; D.J. Baker[1]. [1]Providence Portland Medical Center, Portland, OR. *(Tracking ID # 190751)*

LEARNING OBJECTIVES: 1) Recognize rapidly growing Mycobacterium as a cause of acute and subacute respiratory disease in select immunocompetent adults. 2) Diagnose rapidly growing Mycobacterium using an accelerated workup including sputum analysis for acid-fast bacilli in appropriate patients.
CASE: A 67 y/o man with a past medical history of hypertension and gastroesophageal reflux disease presented to the ER with weakness, chills, cough, dyspnea, nausea, and vomiting over a one-week period. He reported nocturnal regurgitation and dysphagia for solids and liquids over many months. He took no regular medications. Physical examination revealed a temperature of 39.9 °C, heart rate 109 beats/minute, respiratory rate 20/minute, BP 128/81 mm Hg, O2 84% on ambient air. There were coarse rhonchi in the right posteroinferior lung fields with localized right basilar dullness to percussion. Laboratory evaluation was notable for a serum sodium of 132 mg/dL, WBC 16,900 per mm3. Chest radiograph showed hazy air space opacity in the right lower lobe. Treatment was begun with ceftriaxone and azithromycin for community-acquired pneumonia. Esophagogastroduodenoscopy revealed a dilated, food-filled esophagus and esophageal manometry was consistent with achalasia. Due to persistent fever, clindamycin was added on hospital day 2 without improvement. Routine sputum culture was unrevealing. Piperacillin/tazobactam was substituted on day 4 but fevers persisted. Computed tomographic imaging revealed right lower lobe consolidation, scattered reticulonodular densities elsewhere, prominent middle mediastinal lymph nodes, and a small right pleural effusion. Bronchoscopy on day 7 showed no airway obstruction and quantitative brush culture yielded 1000000 AFB within 48 hours. Antibiotics were changed to imipenem, trimethoprim/sulfamethoxazole, and azithromycin pending sensitivities and the patient rapidly defervesced. Cultures yielded Mycobacterium goodii/smegmatis. The patient was treated for a total of 4 months and is doing well at 12-month follow-up.
DISCUSSION: Rapidly growing Mycobacterium are unusual causes of respiratory tract infection in immunocompetent adults. Our patient had a non-resolving pneumonia and while a longer duration of therapy prior to computed tomographic imaging and bronchoscopy is often appropriate, an accelerated evaluation in this case was undertaken given the presence of achalasia and its association with rapidly growing Mycobacterium. Internists must recognize that rapidly growing Mycobacterium may present with an acute or subacute course in immunocompetent hosts and that these organisms are associated with achalasia. Multilobar infiltrates are common and sputum analysis for acid fast bacilli can be diagnostic. Bronchoscopy can be appropriate to exclude these pathogens as they are associated with significant morbidity and mortality though a diagnosis can usually be made without lung biopsy. Since antibiotic choice and duration differ significantly from routine community acquired pneumonia treatment, appropriate therapy requires specific identification and susceptibility testing. Duration of appropriate therapy should be prolonged- usually many months.

A MAN WITH GENERALIZED EDEMA C.L. Nassaralla[1]; M. Laguna[1]. [1]Sixteenth Street Community Health Center, Milwaukee, WI. *(Tracking ID # 190205)*

LEARNING OBJECTIVES: 1) Recognize the similarities and differences in the clinical presentation of nephrotic syndrome and myxedema in the presence of elevated serum creatinine and hyperlipidemia.
CASE: A 32 y/o Mexican man, with a 11-year past medical history of kidney disease, hypertension and hyperlipidemia, presented to the clinic complaining of 9-kg weight gain in the past 2 months, increasing fatigue, irritability and dyspnea on exertion. His initial physical examination revealed a normal temperature, heart rate of 64 bpm, blood pressure of 120/90 mmHg, weight of 104 kg with a BMI 38. Patient had a generalized non-pitting edema with marked periorbital puffiness and coarsening of the skin over his knuckles bilaterally. The remaining of the physical examination was unremarkable. His initial laboratory work was remarkable for a serum creatinine of 1.7 mg/dL with GFR 50, fasting total cholesterol of 305 mg/dL, triglycerides of 208 mg/dL and LDL of 208 mg/dL. Further laboratory work showed a urinalysis with trace of protein but no red blood cells, casts, or oval bodies, and 24-hour urinary protein of 131 mg/dL. His serum TSH was 342 mIU/mL and free T4 was 0.17 ng/dL. He was diagnosed with myxedema secondary to severe primary hypothyroidism and started on levothryoxine. After 6 weeks, the patient had lost 8.6 kg, his lipid profile improved(total cholesterol 176 mg/dL, triglycerides 109 mg/dL and LDL 110 mg/dL) and serum creatinine (1.1 mg/dL with GFR 78) had normalized. Patient had regained his energy; and the generalized edema and periorbital puffiness were resolved. His TSH had decreased to 64 mIU/mL and free T4 increased to 0.64 ng/dL. Patient's levothryoxine dose was adjusted and a 6-week follow-up visit scheduled.
DISCUSSION: Differentiating nephrotic syndrome from myxedema by clinical presentation may be challenging. Nephrotic syndrome and severe hypothyroidism are similar in clinical presentations, which include the presence of generalized edema, fatigue, irritability, dyspnea on exertion and hypertension. There are, however, several clinical findings which are suggestive of hypothyroidism, such as dry & coarse skin, brittle & coarse hair, constipation, cold intolerance, muscle weakness, poor memory and hyporeflexia. In addition, there are other key differences in the physical examination, such as the presence of pitting (in nephrotic syndrome) versus non-pitting peripheral edema (in hypothyroidism) and systolic hypertension (in nephrotic syndrome) versus diastolic hypertension (in hypothyroidism). In summary, nephrotic syndrome and severe hypothyroidism are two separate disease entities that may sometimes present in similar manner. Careful history taking, physical examination and simple laboratory blood tests such as measuring serum TSH and free T4 & urinary studies may help to distinguish the illnesses.

A MEDICAL PARADOX: A NEUTROPHILIC DERMATOSIS IN A NEUTROPENIC PATIENT J.C. Velasco[1]; Z.A. Habib[2]; J. Peter[2]. [1]Henry Ford Hospital Detroit, Detroit, MI; [2]Henry Ford Hospital, Detroit, MI. *(Tracking ID # 190342)*

LEARNING OBJECTIVES: 1) To recognize that Sweet's syndrome can paradoxically present in a neutropenic patient. 2) To know that patients with Sweet's syndrome can present with pathergy. 3) To be aware of the increasing association of neutrophilic dermatosis with myelodysplastic syndrome.
CASE: A 67 year-old Caucasian man with a history of myelodysplastic syndrome on decitabine chemotherapy presents to the emergency department with fever, chills, fatigue and muscle aches of 1 week duration. He was hypotensive, tachycardic and febrile (38.3°C). His blood work showed pancytopenia and acute on chronic renal failure. The patient was started on vancomycin and cefepime for neutropenic fever and was transferred to the oncology ward. On the second day, abrupt painful erythematous patches over deep subcutaneous nodules appeared around his intravenous catheter insertion site and around all prior needle sticks. It was first thought to be cellulitis and parenteral anidulafungin (An Echinocandin) was added to his treatment regimen but he continued to be febrile. An extensive workup including a peripheral smear, repeat blood cultures, serology, 2-Dimensional echocardiography and computed tomography of the chest-abdomen-pelvis was unremarkable. Finally, a biopsy of the erythematous lesion was taken which showed neutrophilic dermatosis compatible with

Sweet's syndrome. Antimicrobials were stopped and the patient was started on prednisone 50 mg per day. On the next day the patient defervesced, his skin lesions improved and his renal function went back to baseline.
DISCUSSION: Sweet's syndrome is a rare disease described first by Dr. Robert Sweet in 1964. It is characterized by an abrupt onset of painful erythematous plaques or nodules, most commonly located in upper extremities and face, associated with fever and leukocytosis. Thus, it is not regularly considered in the initial differential diagnosis when those patients present with leukopenia instead of leukocytosis. These patients significantly improve after starting oral corticosteroids. This case highlights the association between myelodysplastic and Sweet's syndrome. It also supports the idea that Sweet's syndrome behaves like a systemic disease affecting multiple organs beside the skin. Cutaneous lesions in the setting of myelodysplatic syndrome, persistent fever and leukopenia should be promptly biopsied because of the difference in treatment: antibiotics vs. steroids. An association between skin hypersensitivity (pathergy) from IV punctures sites and Sweet's syndrome can also be inferred from this case. Finally, the presence of sweet's syndrome has been associated with a worse prognosis and increased mortality in patients with myelodysplastic syndrome.

A NEW FORM OF DIABETIC NEUROPATHY: METFORMIN-INDUCED VITAMIN B12 DEFICIENCY A.M. Defonseka[1]; E.T. Cheng[2]. [1]University of California, Los Angeles, Los Angeles, CA; [2]Greater Los Angeles Veterans Healthcare System, Los Angeles, CA. *(Tracking ID # 189417)*

LEARNING OBJECTIVES: 1. Recognize how metformin use leads to vitamin B12 deficiency 2. Appreciate the importance of screening for vitamin B12 deficiency in diabetics with high-risk metformin use
CASE: A 69 year old gentleman with a history of diabetes and hypertension presents with one day of disequilibrium, blurry vision, and nausea. He also describes a heaviness which has developed in his lower extremities over the past few years, making it difficult to rise from a seated position. His fasting blood sugars have been running in the 130s. His medications include metformin, simvastatin, and several anti-hypertensives. Vital signs including orthostatics are within normal limits. On neurological exam, cranial nerves II-XII are intact with no nystagmus, and strength is 5/5 in all extremities. Light touch and vibration sense are decreased in the lower extremities, but pin-prick and proprioception remain intact. Ankle reflexes are absent bilaterally; patellar reflexes are 2 + ; Babinski is equivocal. The patient walks with a normal gait, but is unsteady on tandem stance. Cerebellar signs are negative. The Romberg and Dix-Hallpike maneuvers are both negative. The remainder of the physical exam is unremarkable. Laboratory testing reveals a B12 level of 137 (normal range: 160–911). CBC, folate, TSH, RPR, and CK are all normal, and Hemoglobin A1C is 7.1%. These results lead to an underlying diagnosis of B12 deficiency. With proper supplementation, his neurologic symptoms resolve after several months.
DISCUSSION: Studies indicate that elderly, B12-deficient patients present with neuropsychiatric disease but without hematologic findings 28% of the time. Neurologic manifestations of B12 deficiency can include optic neuritis, encephalopathy, myelopathy, peripheral neuropathy, ataxia, upper motor neuron signs, urinary and fecal incontinence, impotence, and dementia. The most likely cause of B12 deficiency in our patient is his use of metformin, which decreases B12 uptake at the terminal ileum by competing with calcium for access to the cell membrane. Calcium is required for the binding of the B12-intrinsic factor complex to surface receptors for endocytosis. B12 malabsorption has been shown to occur in 30% of patients on long-term metformin therapy, leading to 14–30% lower levels of serum B12 compared to controls. The resulting B12 deficiency is clinically significant in up to 30% of cases. Recognized risk factors for developing clinically significant B12 deficiency are the dose of metformin and duration of therapy. Therefore, patients with such high-risk metformin use may benefit from screening of B12 levels. 50% of patients with tissue B12 deficiency, however, have normal serum B12 levels. Further, the rate of missed diagnosis of B12 deficiency is 10–26% when based on serum B12 levels alone. Therefore, patients would benefit further from measurement of methylmalonic acid and homocysteine levels, the most sensitive assays for tissue B12 deficiency. The fact that elevated homocysteine is itself a vascular risk factor makes it even more crucial not to miss B12 deficiency in these diabetic patients.

A NON-HEALING SKIN ULCER IN A PATIENT WITH A MYELOPROLIFERATIVE DISORDER: DISEASE-ASSOCIATED OR TREATMENT-RELATED? P.E. Bunce[1]; D. Barth[1]; W.L. Gold[1]. [1]University of Toronto, Toronto, Ontario. *(Tracking ID # 189954)*

LEARNING OBJECTIVES: 1. Recognize pyoderma gangrenosum as a cutaneous manifestation of essential thrombocytosis and other myeloproliferative disorders 2. Highlight the differences in diagnosis and management of pyoderma gangrenosum and hydroxyurea-related skin ulcers in this population
CASE: A 68-year-old woman presented for the assessment and management of a non-healing right leg ulcer. Past medical history was significant for asthma, hypertension, osteoarthritis, depression and type 2 diabetes mellitus. She also had a diagnosis of essential thrombocytosis for which she had received hydroxyurea > 1.5 g/day for 34 months. The leg ulcer was located over the right lateral malleolus and had gradually increased in size over the preceding 2 months. It was painful. There was no associated exudate. She denied systemic symptoms of infection. Two weeks prior to presentation her hydroxyurea was held, yet over the following 5 weeks the ulcer continued to increase in size. On examination, the ulcer was approximately 6 cm in diameter with evidence of granulation tissue in its base. It had a clearly demarcated border with surrounding erythema and hyperpigmentation. Peripheral pulses were palpable and lower extremity sensation was normal. Laboratory investigations showed a hemoglobin concentration of 129 g/L, leukocyte count of 4.7 bil/L, with a normal neutrophil count, and a platelet count of 229 bil/L. Peripheral arterial dopplers were normal. Bone and gallium scans did not reveal evidence of osteomyelitis. The patient declined skin biopsy. Infectious and non-infectious causes of leg ulcers encountered in this population were considered and a clinical diagnosis of pyoderma gangrenosum (PG) was made due to the appearance of the ulcer, its association with the myeloproliferative disorders and its progression despite discontinuation of the hydroxyurea. Empiric therapy with prednisone 40 mg po daily was initiated with near-complete healing of the ulcer at follow-up.
DISCUSSION: Skin ulcers occurring in the context of the myeloproliferative disorders may be associated with the primary hematological disorder or may be treatment-associated. Disease-related skin ulcers include PG and those caused by arterial insufficiency related to thrombocytosis or polycythemia. Skin ulcers related to treatment include infections related to neutropenia and drug-induced skin ulceration secondary to hydroxyurea. Ulcers related to hydroxyurea typically occur after prolonged therapy at doses >1 g/day, occur in a malleolar distribution and heal slowly over months following discontinuation of the medication. PG is a non-infectious neutrophilic dermatosis associated with systemic diseases. It is associated with inflammatory bowel disease, arthritis, or the myeloproliferative disorders in ~50% of cases. The diagnosis of PG is based on the appearance of the ulcer, thorough efforts to rule out alternative diagnoses and occasionally skin biopsy, which may not be diagnostic. The majority of cases of PG require systemic steroid therapy starting at doses of 40 to 80 mg of oral prednisone daily with tapering once a response is noted. Our patient's clinical history and rapid response to prednisone suggests PG as the likely diagnosis for the patient's skin ulcer but skin ulceration secondary to hydroxyurea cannot be ruled out. This case highlights the importance of recognizing the various causes of skin ulcers in patients with myeloproliferative disorders.

A PAINFUL UNILATERAL OPTHALMOPLEGIA ASSOCIATED WITH CN III OR VI PALSY M. Cho[1]; S. Wali[2]. [1]Olive View Medical Center - UCLA, Sylmar, CA; [2]University of California, Los Angeles, Sylmar, CA. *(Tracking ID # 189938)*

LEARNING OBJECTIVES: 1) Recognize the presentation of Tolusa-Hunt Syndrome (THS). 2) Review the conditions associated with THS and management of the disease.
CASE: A 40 year-old man without significant past medical history presented with a six day history of double vision and headache which started simultaneously and worsened gradually. The patient only had double vision when looking to his left, with no visual problems looking in any other direction, and was associated with nausea. The double vision dissipated when he would close one eye. The headache was centered behind the left eye, encompassing the left temple, and progressed from 1/10 to 9/10 in severity. The headache was a dull throb, constant in nature, worse when exposed to light or when

attempting to focus on objects. ROS was otherwise negative. Social and family history was unremarkable. The patient never had a headache like this before. On exam, the patient's vital signs were: BP 106/68, P 51, R 20, T 36.2, 98% RA. The patient was alert and oriented x3, with mild bilateral scleral erythema. Mild, diffuse tenderness around the left temporal area on palpation was also noted with no palpable arteries or veins. Pupils were equally reactive to light, with decreased abduction of the left eye and esotropia with leftward gaze. All other extra-ocular movements were intact. Bilateral facial sensation and cranial nerves II-XII, other than VI, were intact. The rest of the neuro exam was WNL. Fundosopic exam performed by ophthalmology was WNL. Audiometry noted decreased auditory acuity to higher frequencies consistent with acoustic trauma. Significant lab results included a low folate level of 2.9 (N>7) and blood count showed eosinophilia with 23.5% and AEC 2400. The rest of the lab work up was negative. MRI of the brain with and without gadolinium showed no evidence of cavernous malformation, with a developmental venous anomaly near the right gyrus rectus and mottled bone marrow intensity at the clivus. CSF studies were negative for infection and malignancy. The patient was started on high dose prednisone 80 mg PO daily and was noted to have a rapid improvement in symptoms overnight with a almost complete resolution of headache after two days of steroid therapy. The patient's left eye lateral gaze improved slower, with a concomitant decrease in diplopia.
DISCUSSION: THS is an idiopathic granulomatous inflammation of the cavernous sinus. The estimated annual incidence is one case per million per year. Lymphocyte and plasma cell infiltration, giant cell granulomas, and fibroblast proliferation can be seen on the cavernous sinus wall and septa, which is thought to cause the characteristic painful ophthalmoplegia. International Headache Society criteria for THS include one or more episodes of unilateral orbital pain lasting for weeks if untreated, cranial nerve III, IV, or VI palsy detected by MRI or biopsy, a temporal association between the palsy and orbital pain, symptom resolution within 72 hours of high-dose corticosteroid administration, and exclusion of all other causes. The most commonly reported cranial neuropathy in THS is cranial nerve III at 85%, with VI being reported about 70% of the time. THS is a diagnosis of exclusion.

A PANICKED PREGNANT PHYSICAN SEES A WALK-IN PATIENT WITH FEVER, RASH, AND ARTHRALGIAS O. Pearlstein[1]. [1]Long Island College Hospital, SUNY-Health Science Center, Brooklyn, NY. *(Tracking ID # 190376)*

LEARNING OBJECTIVES: 1. Identify clinical presentation of Parvovirus B 19 and diagnose acute infection. 2. Recognize and manage potential risks for pregnant physicians caring for patients with acute Parvovirus B19 infection.
CASE: A 43 year old man presented to a primary care practice with five days of fever, chills, night sweats, fatigue, and body aches. On the morning of presentation, he developed a pruritic erythematous rash over his whole body and bilateral ankle pain. He noted mild nasal congestion and reported that he had a sore throat and one episode of diarrhea a few days prior to presentation. He denied cough or shortness of breath. He had no recent travel or sick contacts. Past medical history was significant for low back pain and left ankle fracture. Vital signs revealed a Temperature of 98.7degrees Fahrenheit, BP 121/78, Pulse 80, Respiratory rate 16. Physical exam was notable for a diffuse erythematous rash over the trunk, arms, back, and upper legs. There was no joint swelling, warmth, or erythema. Laboratory results showed WBC 3.8, Hgb 14.6, Hgb 41.3, platelets 181. Basic metabolic and liver function tests were normal with the exception of ALT 50. Hepatitis B Surface Ag Negative, Hepatitis B Surface Ab Positive, Hepatitis C Ab Negative. ASO Antibody 477. Mononucleosis Screen Positive, EBV EA IgG Positive (1.43), EBV NA IgG Positive (4.67), EBV VCA IgG Positive (4.93), EBV VCA IgM positive (1.47). Parvovirus B19 IgM 10.5 (normal 0.00–0.89), Parvovirus B19 IgG 1.6 (0.00–0.89). The patient's symptoms completely resolved. He reported his son developed a "slapped cheek" rash. Serologic testing of the pregnant physician showed negative IgM and positive IgG antibody to Parvovirus B19.
DISCUSSION: Parvovirus B19 infection in immunocompetent adults is often asymptomatic or causes only mild symptoms. Initial symptoms may include nonspecific flu-like illness, with fever, malaise, myalgia, coryza, headache, and pruritus. Rash and or arthralgia occur one week later. Immunocompetent patients are most likely no longer infectious after the onset of the B19-associated rash, arthralgias, or arthritis. Exposure to patients presenting with Parvovirus B19 can cause emotional distress to the pregnant caregiver due to the potential risk of fetal loss or hydrops fetalis. Pregnant women who are exposed to Parvovirus B19 or have symptoms should have serologic testing for IgG and IgM antibodies. Positive IgG and negative IgM indicates maternal immunity protective to the fetus. Positive IgM and negative IgG points to an acute infection and the woman should be counseled regarding possible risks to the fetus. If the woman is beyond 20 weeks gestation, she should receive periodic ultrasounds (weekly after 24 weeks) looking for signs of fetal hydrops. A negative IgM and IgG indicates no prior immunity, and the serology should be repeated three to four weeks later. This case illustrates the need for recognizing the clinical presentation of Parvovirus B19, using serology to diagnose acute infection, and managing the risk of infection during pregnancy.

A PHYSICAL EXAM IN A MAN WITH PALPITATIONS PROVIDES THE MOMENTUM FOR A 'HOLEY' DISCOVERY. D.M. Geynisman[1]; F. Crock[1]. [1]University of Pittsburgh, Pittsburgh, PA. *(Tracking ID # 189529)*

LEARNING OBJECTIVES: 1) Recognize the signs and symptoms of an atrial septal defect (ASD). 2) Describe the 3 types of ASDs and identify indications for closure.
CASE: A 36-year-old healthy male presented to his PCP with a five-day history of palpitations, DOE and lightheadedness. He denied any chest pain or medication use. The patient was found to have an atrial tachyarrhythmia and was started on propranolol. His symptoms improved but did not abate, and he presented to the ED. His exam was benign except for tachycardia and a wide, fixed, splitting S2. The EKG showed atrial flutter. A TTE showed a normal EF with mild dilation of the right ventricle and atrium without an ASD; PA SBP was elevated to 41 mmHg. Based on clinical suspicion, a TEE was performed; it showed a mild decrease in RV function and an IVC venosus ASD measuring 31 mm at maximal diameter. Color doppler interrogation of the ASD revealed a predominantly left to right flow. Due to the size and location of the defect, a catheterization closure was not possible and the patient underwent surgical repair with an autologous patch from his pericardium, which he tolerated well.
DISCUSSION: ASDs are the most common congenital cardiac disorder in adults, with a prevalence of 0.2–0.7 per thousand and a 65–75% female predominance; they are associated with increased morbidity and mortality and can present at any age. While many individuals are symptom-free, most will eventually become symptomatic, commonly with DOE or fatigue. While a-fib/flutter—reflections of atrial dilatation and stretch—are not common in ASD patients before age 40, the incidence is 13- 52% thereafter. The over-40 ASD individual can also present with right heart failure due to tricuspid regurgitation, paradoxical embolus or TIA. On exam, there may be evidence of a right ventricular lift, a wide and fixed split S2, and a loud P2 if PAH exists. An EKG may show a tachyarrhythmia and right axis deviation. The three major types of ASDs are ostium secundum, a defect of the atrial septum that involves the region of the fossa ovalis; ostium primum, an endocardial cushion defect; and sinus venosus, a defect located either at the junction of the RA and SVC—where it is often associated with partial anomalous pulmonary venous return—or more rarely at the junction of the IVC and RA, as seen in this case. Indications for ASD closure are right heart dilatation with an ASD>10 mm or a Qp/Qs>1.5:1, while contraindications include defects that are to small to be hemodynamically important, advanced PAH and pregnancy. In most ASDs, device closure is the preferred method with a 95% success rate. If the defect is large, if the atrial rims are inadequate or close to the AV valves, or if the defect is not an ostium secundum, surgical closure is required. An ASD should be considered in young individuals presenting with a tachyarrhythmia, fixed split S2 and an abnormal TTE, as early closure leads to prevention of right heart failure and PAH.

A QUANDARY IN PREVENTIVE MEDICINE; WHAT MIGHT THE FUTURE HOLD? D. Kliner[1]; A.R. Gonzaga[1]. [1]University of Pittsburgh, Pittsburgh, PA. *(Tracking ID # 190716)*

LEARNING OBJECTIVES: 1) To identify a unifying systemic illness as the cause of multiple seemingly unrelated conditions; 2) To recognize the limitations of universally accepted guidelines and the need for patient specific considerations thereof

CASE: A 39-year-old male with history of mitral valve prolapse (MVP) presented to the Emergency Department with chief complaint of right foot pain. He was diagnosed with cellulitis and discharged on cephalexin. One hour later the patient returned with 10/10 epigastric pain. A CT scan revealed an area of low attenuation in the right kidney consistent with renal infarct vs. pyelonephritis. Admission to the hospital was recommended, however, the patient signed out against medical advice. He was given ciprofloxacin for presumed pyelonephritis, despite bland urinalysis. He returned 3 days later with right lower quadrant pain radiating to his right flank. A repeat CT revealed increased perinephric stranding consistent with evolution of pyelonephritis vs. infarct, and with a second bland urinalysis, infarct was the more likely diagnosis. The patient was admitted to the general medicine service and was placed on heparin and intravenous ciprofloxacin. Physical exam was notable for moderate discomfort secondary to pain, a new systolic murmur, right CVA tenderness, and tenderness to palpation over the dorsum of the right foot without overlying erythema. Laboratories revealed leukocytosis of 13,000. Given the new heart murmur, a transthoracic echocardiogram was obtained which showed an eccentric jet of mitral regurgitation and no obvious vegetation. On hospital day two, 2 sets of blood cultures returned positive for Streptococcus viridians. The diagnosis of infective endocarditis was made given the positive blood cultures, new mitral regurgitation, and evidence of embolic phenomena manifested by the renal infarct, right foot osteomyelitis, and the presence of Janeway lesions. A transesophageal echocardiogram revealed a 1.2×0.7 cm vegetation on the posterior leaflet of the mitral valve. The patient was placed on continuous penicillin infusion. He was eventually referred for valve replacement given persistent embolic phenomena despite adequate antibiotic therapy, which he underwent without complication.
DISCUSSION: This case illustrates an interesting progression to diagnosis as well as a quandary in preventive medicine. Multiple unrelated diagnosis were considered, and many therapeutic interventions implemented before the unifying diagnosis of infective endocarditis was made. Retrospectively, the patient's risk factors for the development of endocarditis were reviewed. He had a history of MVP with no history of mitral regurgitation, and had never been told that he had a heart murmur. He had no history of intravenous drug abuse. However, he did visit the dentist 6 weeks prior with no prophylactic measures taken. New guidelines concerning antibiotic prophylaxis for dental procedures were issues by the AHA in early 2007. In contrast to the previously accepted standard of care, their recommendations are to limit endocarditis prophylaxis to those with underlying cardiac conditions with the highest risk of adverse outcome, specifically personal history of endocarditis, prosthetic valve recipients, congenital heart disease, and cardiac transplant patients. As preventive guidelines such as these become more exclusive, it is important to identify exceptions and remain open-minded when pursuing an elusive diagnosis, as in the case described above.

A RARE CASE OF SQUAMOUS CELL BLADDER CARCINOMA PRESENTING AS A RIGHT VENTRICULAR MASS. J. Bonsall[1]; R. Hughes[1]; M. Mosunjac[1]; D.G. Harrison[1]; H. Samady[1]. [1]Emory University, Atlanta, GA. *(Tracking ID # 190740)*

LEARNING OBJECTIVES: Recognize clinical features of right ventricular tumors. Recognize clinical features of a rare presentation of metastatic squamous cell carcinoma. Identify patients with right ventricular tumors who are candidates for surgery.
CASE: A 74-year-old woman presented with a six month history of bilateral lower extremity swelling, worsening dyspnea on exertion, and mild cough with scant hemoptysis. Her exam was notable for an elevated jugular venous pulse, a 3/6 holosystolic murmur at the left lower sternal border which increased with inspiration, and peripheral edema. Her lungs were clear to auscultation. Laboratory testing was significant for severe thrombocytopenia. An echocardiogram showed a mass in the right ventricle that extended into the right pulmonary outflow tract. A CT of her chest showed occlusions of bilateral segmental pulmonary arteries. On MRI, the ventricular mass appeared avascular and originated from the intraventricular septum. There were multiple nodular irregularities on the visceral pericardium and a moderate pericardial effusion. The differential diagnoses of this right ventricular mass included thrombus and tumor. No thromboses were seen with lower extremity Doppler ultrasounds and localized tissue plasminogen activator therapy did not change the size of the mass. A transvenous biopsy was done under ultrasound guidance; the pathology of the sample was consistent with squamous cell carcinoma. A PET scan was positive only for the lesion in the right ventricle, a mildly hypermetabolic lymph node that was judged to be likely reactive, and a small hypermetabolic area of skin thickening which could not be clinically correlated with any lesion. As her severe thrombocytopenia precluded surgical intervention, palliative radiation was begun. Unfortunately, the patient continued to have worsening right heart failure. Twenty-five days after she was admitted to the hospital, she developed acute respiratory failure and, under agreement with her family and her, was not resuscitated. Upon autopsy, polyps were discovered in the bladder that were found to be moderately differentiated invasive squamous cell carcinoma. The tumor mass in the heart had focal residual nests of viable squamous cell tumor, similar in morphology to those found in the bladder. Her lungs contained multiple tumor emboli at different stages, the largest of which was 2.0 cm and fresh, and was likely the final cause of her demise.
DISCUSSION: This is the only reported case of a cardiac mass being the presenting symptom of metastatic squamous cell carcinoma of the bladder. Squamous cell carcinoma metastases to the endocardium are extremely rare and treatment has not been defined. For patients with right ventricular tumors, surgery can improve prognosis in those with benign tumors or in those with primary malignant disease with no evidence of metastases. In those with metastatic tumors that are symptomatic, palliative debulking can ease symptoms although will not generally improve prognosis. Currently, cases of metastatic cardiac squamous cell cancer are too rare to know if radiation improves survival. In this case, irradiation did seem to destroy a portion of the tumor as the final pathology showed extensive necrosis of the tumor; unfortunately, it did not change her symptoms and did not change the final outcome.

A RARE COMPLICATION OF A COMMON DISEASE: PYOGENIC LIVER ABSCESS DUE TO DIVERTICULITIS A. Dasari[1]; S. Malhotra[1]; C.L. Spagnoletti[1]. [1]University of Pittsburgh, Pittsburgh, PA. *(Tracking ID # 190476)*

LEARNING OBJECTIVES: 1) To define the stages of acute diverticulitis/diverticular abscess and discuss indications for surgical management 2) To recognize pyogenic liver abscess as a complication of diverticulitis and outline other causes of pyogenic liver abscess
CASE: A 65 year old male with hypertension developed diffuse myalgias, malaise, and high fevers two weeks prior to presentation. Severe generalized abdominal pain, nausea, vomiting, and persistent fever prompted him to go to a community ER. Exam revealed marked right upper quadrant (RUQ) abdominal tenderness with significant guarding and no rebound. Pertinent labs included a WBC count of 12,000 ALT/AST of 60/43, Alk Phos 154, gGTP 103, normal lipase and amylase. Initial CT abdomen without contrast showed multiple hypodense liver lesions suspicious for abscesses, and diverticulosis. The patient was started on empiric broad-spectrum antibiotics and was subsequently transferred to our tertiary referral center. Repeat abdominal imaging including a CT abdomen with contrast confirmed hepatic abscesses and extensive left colonic diverticulosis along with a 2.1×1.1 cm sigmoid diverticular abscess. Antibiotic coverage was modified to ampicillin/sulbactam and a percutaneous catheter was placed into the two largest abscesses. Twelve days later, the catheters were removed and the patient was discharged on a 6 week course of IV antibiotics. He was also advised to see a GI surgeon in 6 weeks for elective colonoscopy and possible elective partial colectomy.
DISCUSSION: Hinchey's criteria are used to grade severity and predict prognosis of diverticulitis. Stage 1 disease involves small, confined pericolic or mesenteric abscesses. In Stage 2, there are larger abscesses (>4 cm), often confined to the pelvis. Stage 3 indicates a peridiverticular abscess rupture with purulent peritonitis. Stage 4 indicates rupture of an uninflamed and unobstructed diverticulum (aka "free rupture") into the peritoneal cavity with fecal contamination. Mortality is less than 5% for with Stage 1 or 2, 13% with Stage 3, and 43% with Stage 4. Most cases of Stage 1 can be managed conservatively with bowel rest and antibiotics. Hospitalization and percutaneous drainage is usually indicated for Stage 2. Severe diverticulitis, (Stage 3 or 4) requires emergent surgery. Those with chronic complications such fistulas or strictures typically undergo elective colectomy. Significant controversy

exists with regard to the need for colectomy in recurrent uncomplicated diverticulitis. Although diverticulitis is a fairly common entity, hepatic complications are unusual. Diverticulitis is the cause of about 1–2% of pyogenic liver abcess cases. Often, these are cases of "silent" diverticulitis with liver abscess being the first manifestation. Treatment involves antibiotics and percutaneous drainage of the abscess in the acute stage, followed by elective colonoscopy and possible colectomy. Prior to the advent of effective antibiotics, appendicitis was the leading cause of pyogenic liver abscesses. Since then, biliary tract diseases such as gall stones, ascending cholangitis and strictures have emerged as the leading identifiable cause, accounting for about 25% of cases. About 50% of pyogenic liver abcesses are without an identifiable etiology, although some studies suggest that many of these are due to undiagnosed biliary tract disease. Non-biliary origin such as from pneumonia, endocarditis, and perinephric abcess accounts for about 20% of cases.

A RARE COMPLICATION OF CHRONIC METHOTREXATE THERAPY S. Arora[1]; G. Molter[1]; A.L. Spencer[1]. [1]Allegheny General Hospital, Pittsburgh, PA. *(Tracking ID # 189707)*

LEARNING OBJECTIVES: 1. To identify rare complications of chronic methotrexate therapy 2. To recognize the importance of monitoring patients on methotrexate
CASE: A 76 year old male with rheumatoid arthritis on prednisone 5 mg/day and methotrexate 10 mg/week for 4 years presented with dyspnea on exertion, abdominal distention, and peripheral edema for 2 weeks prior to admission. The patient denied any chest pain, palpitations, abdominal pain or diarrhea. On exam, he had decreased breath sounds in the lung bases bilaterally, elevated jugular venous pressure, distended abdomen with shifting dullness and peripheral edema. CT scan showed bilateral pleural effusions, ascites, and a moderate pericardial effusion with thickening of visceral and parietal pericardium suggestive of constrictive pericarditis. Transthoracic echo (TTE) showed an ejection fraction of 65% and moderate pericardial effusion without tamponade. Right heart catheterization showed diastolic equalization of the left and right sided cardiac filling pressures. The "dip and plateau" diastolic ventricular filling pattern on the right ventricular waveform (square root sign) was suggestive of constrictive pericarditis. The patient underwent pericardiocentesis with pericardial window with subsequent improvement of symptoms and pulmonary arterial pressures. Pericardial fluid revealed a straw- colored exudate with numerous polymorphs and reactive mesothelial cells with no malignant cells, normal ANA and normal complement levels. Fluid cultures were negative. These results helped eliminate other causes of pericardial effusion from our differential diagnosis. Our patient's pericardial effusion and subsequent constrictive pericarditis were most likely secondary to methotrexate-induced immune mediated serositis. His methotrexate was stopped and follow-up TTE showed no recurrence of pericardial effusion.
DISCUSSION: Methotrexate is a cytotoxic drug that acts as an antimetabolite. It is frequently used in the treatment of malignancies and autoimmune conditions such as rheumatoid arthritis. Its use can be associated with serious toxicities such as hepatic fibrosis and cirrhosis (8–14%), cytopenias, pleurisy or pneumonitis (2–8%). Pericarditis and pericardial effusion are rare complications of methotrexate but have been described; the first case was reported in 1995. Our patient was on a relatively low dose of methotrexate which highlights the need for increased vigilance and early recognition of the rare but serious adverse effects of methotrexate even at low therapeutic doses. The regular use of TTE may help in monitoring patients on methotrexate therapy and provide additional information on the incidence of isolated pericardial effusion or pericarditis in these patients.

A RARE SIDE AFFECT OF ATENOLOL: VASCULITIS. B.P. Oppermann[1]; R. Behm[1]. [1]Geisinger Medical Center, Danville, PA. *(Tracking ID # 189239)*

LEARNING OBJECTIVES: Awareness of an uncommon side affect of a commonly prescribed beta blocker.
CASE: An 88 year old gentleman who was referred to Geisinger Medical Center for evaluation of increasing lower extremity edema, visual hallucinations and a petechial rash. He had recently undergone coronary artery bypass grafting x1 vessel with aortic valve replacment and was discharged home on the following new medications: zocor, atenolol, coumadin, iron and vitamin C. A few weeks after his discharge he was evaluated on multiple occasions at his PCP's office for the new onset petechial rash and lower extremity edema. At that time he was started on lasix for presumed heart failure. The rash continued to progress so his PCP decided to do a punch biopsy and then send him to the Emergency Department for evaluation. He was hospitalized with a diagnosis of pericarditis, CHF (congestive heart failure) and concern for vasculitis was raised at this time. During his hospital stay he was placed on IV steroids, his atenolol was switched to Toprol and he had further dermatologic and rheumatologic workup. His laboratory studies included a sedimentation rate of 24, ANA, ANCA and cyroglobulins that were all negative. The biopsy revealed findings consistent with a leukocytoclastic vasculitis with IgA depositions. It was felt based on his presentation that his vasculitis was drug induced and likely secondary to his atenolol. Furosemide was also considered as a causative agent, however this therapy was begun after he developed the rash as well as being continued during his hospital stay for heart failure without worsening of his rash. His purpuric rash improved on IV steroids and he was eventually switched to decadron and discharged home with complete resolution of his rash over the next couple of weeks. His lasix therapy was continued as an outpatient without recurrence of his vasculitis.
DISCUSSION: Atenolol is a widely prescribed beta blocker used for hypertension with a low incidence of side affects including skin manifestations. Reported cutaneous side affects to atenolol are urticaria, psoriasiform eruptions (or exacerbation of psoriasis), skin necrosis, pseudolymphoma, drug induced lupus and vasculitis. For cutaneous vasculitis, it has been reported as a side affect of the beta blocker class but more commonly associated with propanolol and pracftolol. There has been one previous published report of vasculitis associated with atenolol. Atenolol is on the list of medications on up to date known to cause vasculitis but there are very limited published reports of this particular side affect. Conclusion: This case reports illustrates a rare manifestation of atenolol therapy – cutaneous vasculitis (leukocytoclastic vasculitis). Cutaneous vasculitis is more commonly associated with propanolol and practolol and even though there are limited case reports on atenolol, atenolol needs to be considered as a causative agent when a patient presents with leukocytoclastic vasculitis. This case reinforces previous reports of atenolol induced vasculitis.

A RARE SIDE EFFECT OF LASIX TO REMEMBER! V. Balasubramanian[1]; L. Lu[1]; S. Wali[1]. [1]Olive View UCLA, Sylmar, CA. *(Tracking ID # 190383)*

LEARNING OBJECTIVES: 1.Become aware of the association between Lasix and Bullous Pemphigoid. 2.Recognize signs and symptoms of drug-induced Bullous Pemphigoid.
CASE: A 61-year-old Hispanic female with hx of IDDM, COPD, CHF, and hypothyroidism was admitted for COPD exacerbation. Incidentally, she was found to have a diffuse rash that first appeared three weeks prior beginning along her hairline and progressing to involve her face, trunk, and extremities. The rash was pruritic and painful. She denied fevers, chills, and hx of any type of rash in the past. No recent travel or new medications. While she denied any recent additions to her extensive list of medications, she did recall an increase in the dose of her Lasix (from 40 mg BID to 80 mg BID) 3 weeks prior to admission and prior to the onset of her dermatologic symptoms. On physical exam of the skin it was noted that she had multiple tense, erythematous bullae in various stages of healing involving the face, trunk and extremities but sparing the palm, soles, and mucous membranes. The Nikolsky test was negative. On admission, lab values were significant for an elevated white count of 13,800 cells/uL with normal distribution except for an eosinophilic shift at 9.5% (ref 0–7). Infectious etiologies were considered, particularly varicella zoster and MRSA. However, her VZV titers (ACIF 1:32, IgM <1:20) were only suggestive of a remote infection and all blood, wound, and stool cultures remained negative. Rheumatological etiologies were ruled out with negative ANA and rheumatoid factor. ESR levels were mildly elevated to 38 mmol (1–30). Punch biopsies of the lesions were completed and sent for pathology which revealed subepidermal bulla with eosinophils, consistent with drug induced bullous pemphigoid. Since Lasix was identified as the only change in medication, it was immediately discontinued and replaced with Bumex. She was also started on high dose oral and topical steroids with immediate clinical improvement and resolution of peripheral eosinophilia.

DISCUSSION: Drug induced bullous pemphigoid is a rare dermatological condition. The drugs most commonly identified as inciting agents are penicillamine, furosemide, captopril, and penicillin derivatives. While the exact pathophysiologic mechanism remains unclear, it is believed that the sulfhydryl group common to most of these drugs may induce cleaving and modification of proteins in the lamina lucida, making them vulnerable to immunologic destruction. Diagnosis of this condition is dependent on characteristic histological findings of subepidermal blisters with a dense infiltrate of eosinophils. Clinically, the drug-induced variety is more likely to be associated with mucosal lesions, a positive Nikolsky's sign and a peripheral eosinophilia. However, to clearly distinguish idiopathic bullous pemphigoid from the drug induced condition requires clinical evidence with the latter resolving rapidly with discontinuation of the offending agent. Treatment includes topical or systemic corticosteroids with rapid tapers. The key to treatment, however, is proper identification of and withdrawal of the offending drug and the outcome is usually favorable.

A RASH REFRACTORY TO TREATMENTS MAY NOT BE A RASH AT ALL R.B. Delos Santos[1]; R. Chang[1]. [1]University of Michigan, Ann Arbor, MI. *(Tracking ID # 190017)*

LEARNING OBJECTIVES: 1. Recognize that Sezary syndrome is a cutaneous T-cell lymphoma that can present with an unrelenting symptomatic rash and should be considered prominently in the differential diagnosis of rash refractory to conventional treatments. 2. Appreciate that those with Sezary syndrome can also be subject to hematologic malignancies of other cell lineages and secondary solid tumors.
CASE: A 60 year old man with a history of hypertension, hyperlipidemia and ulcerative colitis status post colectomy presented with an intensely pruritic rash of 1 year duration. The rash started on his fingertips and then gradually spread to his limbs and trunk. He was treated with topical steroids and prednisone without improvement for over one year. On admission, the patient had diffuse erythroderma involving his arms, legs, trunk, and face. His WBC was 18 k and the differential showed atypical lymphocytes with cerebriform nuclei consistent with Sezary cells. Skin biopsy showed psoriasiform spongiotic dermatitis and an infiltration of lymphocytes with irregular nuclei. Flow cytometry showed an 85% population of aberrant T cells with T-cell gene rearrangement consistent with cutaneous T-cell lymphoma (CTCL), Sezary syndrome stage IIIB. In addition, an abnormal population of small monoclonal B-cell was identified [approximately 1.4% of peripheral blood lymphocytes indicative of chronic lymphocytic leukemia/small lymphocytic lymphoma (CLL/SLL)]. The patient was treated with narrow-band UVB light, hydrocortisone and triamcinolone cream treatments and started on interferon but was transitioned to bexarotene/Targretin due to side effects, which provided dramatic improvement.
DISCUSSION: Mycosis fungoides is the most common CTCL with 6 cases per million per year, comprising 4% of all non-Hodgkin's lymphoma. Sezary syndrome is an uncommon erythrodermic, leukemic variation of CTCL, with 0.3 cases per million per year. Typical presentation includes pruritic patches/plaques that present similar to eczema, psoriasis, or contact dermatitis, and can progress to a generalized form. This patient presented with rash unresponsive to treatment, which is typical in Sezary syndrome. Skin biopsy, CBC and examination for extracutaneous involvement are part of the initial evaluation. When classifying CTCL, Sezary syndrome purports a less favorable prognosis than mycosis fungoides, as does lymphadenopathy and visceral involvement. The additional finding in this patient of CLL/SLL is interesting, and has been described previously. More recent data show that patients with mycosis fungoides or Sezary syndrome have a higher likelihood of secondary malignancies of a different cell lineage as well as secondary solid tumors. This makes vigilant follow-up and cancer screening an important aspect of future care.

A RENAL MYSTERY V. Ivanova[1]; J. Pawloski[1]; A.L. Spencer[2]. [1]Allegheny General Hospital, Pittsburgh, PA; [2]University of Pittsburgh, Pittsburgh, PA. *(Tracking ID # 189536)*

LEARNING OBJECTIVES: 1. Identify strategies for diagnosing Light Chain Deposition Disorder (LCDD). 2. Outline treatment goals for LCDD.
CASE: A 22 year-old Caucasian male with no significant past medical history presented to his PCP with 3 months of headache, nausea, vomiting, decreased appetite, and 20 lb weight loss. He was found to be hypertensive with an elevated creatinine and was hospitalized. On admission, he was afebrile and hypertensive with an otherwise unremarkable exam. ROS was negative for fever, cough, hemoptysis, night sweats, dysuria, changes in urine color or amount, rash, edema, or joint pain. Initial labs revealed mild microcytic anemia, K=5.1, BUN/Cr=92/10.1, with normal TSH and LFTs. Urinalysis revealed protein >300 and spot protein/creatinine ratio=4.5. 24-hour urine protein was 8.5 gm. Renal ultrasound showed no hydronephrosis. HIV, ANA, ANCA, anti-GBM antibodies, hepatitis panel, and cryoglobulin were all normal. Serum and urine electrophoresis were also normal. Renal biopsy revealed nodular glomerulopathy with diffuse nodular glomerulosclerosis on light microscopy. Biopsy results suggested a differential diagnosis of diabetes, light chain deposition disorder, amyloidosis, and cryoglobulinemia. Congo red test was negative for amyloid. Immunofluorescent (IF) staining revealed granular Kappa chain deposits in the mesangium, glomerulus, and tubular basement membrane (TBM) suggestive of LCDD. Bone marrow biopsy showed scant plasma cell population with Kappa restriction suggestive of LCDD. Hemodialysis was initiated. He was also started on chemotherapy with plans for subsequent bone marrow transplant followed by possible kidney transplant.
DISCUSSION: LCDD is an uncommon monoclonal gammopathy that should be considered in patients presenting with renal disease and lymphoplasmacytic disorders. Diseases that produce monoclonal light chains (MLC) include multiple myeloma, macroglobulinemia, lymphoma, and chronic lymphocytic leukemia. Despite multisystemic involvement, patients usually present with nephrotic syndrome or asymptomatic proteinuria with progressive renal impairment. LCDD is similar pathogenetically to amyloidosis, but the light chain fragments do not have the necessary biochemical characteristics to form amyloid fibrils. It is therefore non-amyloid monoclonal LCDD that is caused by plasma cell proliferative disorder. Nodular glomerulosclerosis and thickening of the TBM are characteristic features of LCDD on renal biopsy. IF microscopy shows granular deposits of a single light chain isotype (kappa in 80% of cases) in the TBM, glomerular capillaries and mesangium. 40% of patients do not have a demonstrable lymphoplasmacytic disorder, MLC are present in the serum and urine only intermittently and in low concentrations making the diagnosis of LCDD difficult to establish. Diagnosis should be confirmed by: repeat immunofixation of serum and urine specimens for the presence of MLC; histologic examination with immunostaining of the TBM for Kappa and Lambda light chains. Progression to ESRD is usually rapid with a 20% one-year survival rate on hemodialysis. LCDD often recurs even after kidney transplant. For this reason, chemotherapy followed by bone marrow transplant are performed first in attempt to eradicate free light chains prior to curative kidney transplant. New serum free light chain assay is utilized to provide a marker for monitoring response to chemotherapy.

A SECOND STROKE OR A RED HERRING? N. Yalamanchili[1]; S. Chandrashekaran[2]; A. Aravapalli[2]; S. Vasireddy[1]; P. Prodduturi[1]. [1]UND, fargo, ND; [2]University of North Dakota, Fargo, ND. *(Tracking ID # 189473)*

LEARNING OBJECTIVES: Identify femoral neuropathy as a complication of iliopsoas hematoma resulting from anticoagulation. Recognize that this complication can occur even when INR (International normalized ratio) is therapeutic.
CASE: A 77-year-old Caucasian man presented with aphasia and right facial droop. His medical history included diabetes, hypertension and recently diagnosed atrial fibrillation for which he had been started on warfarin a week earlier. His INR was 1.3 at the time of presentation. Examination revealed global aphasia, right central VII cranial nerve palsy, flaccid right upper extremity (power 0/5) and weak right lower extremity (power 2/5). Power in the other extremities was normal. EKG showed atrial fibrillation. CT of the head did not show any acute changes. The patient was diagnosed with left middle cerebral artery cardioembolic stroke. He was started on intravenous heparin and oral warfarin for presumed embolic stroke. Heparin was discontinued once INR was in the therapeutic range (2 to 3). Three weeks after this initial event, the patient developed left leg weakness and numbness. He was able to wiggle his toes but was unable to lift his left leg off the bed. On

examination, he had significantly decreased hip flexion, knee extension and loss of left knee and ankle reflexes. He also had mild pain on passive flexion of the left hip. MRI of the head did not demonstrate an acute ischemic event. A 3 gm/dl drop in hemoglobin was noticed around the same time. CT scan of the abdomen showed a new left iliopsoas hematoma. The new weakness in the left lower extremity was due to femoral nerve compression from the large iliopsoas hematoma. INR was 2.3 at that time. Anticoagulation was reversed. The patient was managed conservatively as he did not wish to have surgical evacuation of the hematoma.
DISCUSSION: This case illustrates one of the lesser known complications of anticoagulation. It is important to bear in mind that bleeding from warfarin can result in compressive neuropathy and present as extremity weakness that mimics a stroke. When the femoral nerve is involved groin pain, weakness of hip flexion, weakness of leg extension or paresthesias along the leg may be observed. Retroperitoneal hematoma is a well documented complication of anticoagulation. 40% of the cases occur even when the INR is within the therapeutic range. The bleed may occur in any muscle but it is more common in the iliopsoas for unknown reasons. It may be spontaneous or result from minor trauma. Adding other anticoagulants or antiplatelet drugs further increases this risk. Iliopsoas hematoma resulting in femoral nerve compression has also been reported with enoxaparin therapy. The femoral nerve traverses between the psoas and iliacus muscles, along the posterior abdominal wall down through the pelvis until it emerges under the inguinal ligament. It is therefore prone to injury in retroperitoneal bleeding. Management may be conservative or surgical and there is no conclusive evidence demonstrating the superiority of either approach. CT or MRI of the abdomen may help in visualizing the hematoma.

A SORE THROAT—POTENTIALLY LIFE THREATENING?? A. Cincere[1]; H. Li[1]; A. Kaako[1]; R. Jones[1]. [1]University of Tennessee, Chattanooga, TN. *(Tracking ID # 190439)*

LEARNING OBJECTIVES: 1. Review an uncommon but potentially life-threatening complication of pharyngitis. 2. Emphasize the importance of repeated physical examination in establishing the source of infection in septic patients.
CASE: An 18 year old Caucasian female was transferred to our facility because of septic shock. She had presented to another hospital one week prior because of sore throat, fever, nausea, vomiting, abdominal pain and fatigue where she was treated symptomatically. During the next week, her symptoms worsened and fever persisted. She returned to the outlying hospital where she was admitted for treatment of presumed sepsis. CXR showed bilateral infiltrates and pleural effusions. She was transferred to our hospital. Upon arrival, she was in acute respiratory distress and complained of right sided pleuritic chest pain. She denied any rashes, recent travel, sick contacts or IV drug abuse. Past medical history was unremarkable. Vital signs included BP of 102/58 mmHg, HR 110/min, RR 47/min. Oropharynx was normal. Neck was supple. Chest exam disclosed tachypnea, labored breathing and bilateral rales with decreased breath sounds and dullness to percussion in the bases. There were no cardiac murmurs. The rest of the physical exam was normal. WBC was 7,400/mm3, Hgb 9.5 g/dL, Hct 26.5%, platelets 42 th/mm3. ABG showed pH of 7.43, pCO2 28, pO2 63, on 40% FIO2. IV fluids and broad spectrum antibiotics were continued. CT of the chest revealed bilateral septic emboli and loculated right pleural effusion which was drained with a chest tube. Drug screen was negative. Echocardiogram showed no valvular abnormalities. Repeated physical exam revealed a tender, fluctuant mass on her left neck. CT scan showed a 3 cm abscess medial to the sternocleidomastoid and suggested jugular vein occlusion. Blood cultures from the other facility grew Fusobacterium nucleatum. The patient was switched to Penicillin G intravenously and continued to improve. Our patient appears to have developed a pharyngitis followed by a paraphyrangeal abscess, internal jugular vein thrombophlebitis and septic pulmonary emboli with bilateral lung abscesses and sepsis.
DISCUSSION: Lemierre's syndrome was first reported in 1936 as a severe oropharyngeal infection followed by septic thrombophlebitis of the internal jugular vein and disseminated metastatic infections. It occurs typically in previously healthy young adults and children. Fusobacterium necrophorum is the usual culprit, however, other species including F. nucleatum, the pathogen in our patient, have also been reported in the literature. Lemierre's syndrome was relatively common in the pre-antibiotic era, but virtually disappeared in the 1950s and 1960s following the widespread use of antibiotics for upper respiratory tract infection. In the past 15 years, incidence has increased possibly due to restrictions on antibiotic usage for sore throats. Awareness of the significance of Fusobacterium sepsis and repeated physical exam were essential in correctly diagnosing and treating our patient's illness.

A STAB IN THE BACK J. Layton[1]. [1]Tulane University, New Orleans, LA. *(Tracking ID # 190807)*

LEARNING OBJECTIVES: 1: Identify the causes of aseptic meningitis. 2: Recognize the importance of sterile technique as a measure to prevent medical errors.
CASE: A 47 year-old woman with hypertension presented with two weeks of a progressively worsening headache. Over the last several days she has noted subjective fevers, occasional chills, and sensitivity to light. She had a ten-year history of chronic low-back pain and underwent a myelogram (with isovue contrast media) two weeks prior to admission. Her headache began shortly after this procedure and progressively worsened; she was subsequently diagnosed with a "post-lumbar puncture headache" and a blood-patch was performed. She had symptomatic relief following the patch, but the headache returned one day later, steadily progressing to the time of admission. She had a temperature of 100°F, a blood pressure of 160/80 mmHg, and a heart rate of 93 bpm. She appeared acutely ill, with evidence of photosensitivity on examination. Her pupils were normal and reactive; there was no evidence of papilledema or cranial nerve deficits. She had neck stiffness augmented by jolt acceleration Her skin has no rashes or petechia. The remainder of her physical examination was normal. Her laboratory values were normal. Blood cultures were normal. A head CT was negative. The lumbar puncture Gram stain revealed many white blood cells, but no bacteria. The glucose was 28 (the serum glucose was 107), the total protein was 140, and xanthochromia was present. There were 978 white blood cells with 74% neutrophils, 10% lymphocytes, and 15% monocytes; 10 red blood cells were present. The culture remained negative, and a repeat LP three days later was normal with the exception of 87 white blood cells.
DISCUSSION: Meningitis can be a life-threatening disease, commonly encountered by the general internist. Our patient's initial presentation was concerning for iatrogenic-induced infection due to her recent myelogram and blood patch, and she was empirically covered with antibiotics. Iatrogenic meningitis is most commonly due to Staphylococcus (MRSA), Streptococcus, or Pseudomonas, and is usually related to improper technique. Importantly, the use of the face mask in addition to sterile technique has been shown to decrease the incidence of post-procedure meningitis. Secondary blood patches for symptomatic relief of post-lumbar-puncture headaches are an additional risk factor for iatrogenic meningitis (IM). Aseptic meningitis is defined as the presence of elevated white blood cells and protein, but no evidence of bacteria by Gram stain and culture. Common causes include viruses, rheumatologic diseases, malignancies, and medications, especially non-steroidal and sulfa-containing drugs. Importantly, the general internist should recognize chemical meningitis as a cause of aseptic meningitis. Meningitis due to the myelogram contrast is an inflammatory reaction that mimics bacterial meningitis with the identical clinical presentation and time course. The sole difference is the absence of bacteria on Gram stain and culture. If contrast-induced meningitis is suspected, antibiotics are not indicated but close observation is recommended.

A STORM PASSES UNNOTICED A. Radhakrishnan[1]; M. Gordon[1]. [1]Allegheny General Hospital, Pittsburgh, PA. *(Tracking ID # 189795)*

LEARNING OBJECTIVES: Recognize that thyroid storm may produce tako-stubos cardiomyopathy which is reversible. Recognize uncommon causes of acute ECG changes in the critically ill.
CASE: A 65 year old female with history of hypertension presented for evaluation of a 50 lb weight loss and diarrhea for 8 weeks.The patient also complained of dyspnea, loss of appetite and heat intolerance. On examination the patient was lethargic. Her temperature was 38.5 degrees, HR 150 beats/min, BP 190/90 mmHg bilaterally, RR 30/min, and was 100% SaO2 on RA. Her thyroid gland was firm, lobulated

and diffusely enlarged. Her eyes demonstrated lid lag but no evidence of orbitopathy. She had bibasal crackles on lung exam and bilateral pedal edema. An EKG showed new anterior ST elevations. Her CXR illustrated cardiomegaly, bilateral pleural effusions, and pulmonary vascular congestion. Investigations revealed a TSH of <.005(0.4–4.0)mcU/mL free T4 of 3.04(0.7–1.9)ng/dL and free T3 of 6.43(1.76–3.78)pg/mL. TSH receptor antibody titer was elevated, consistent with Graves' disease. Cardiac enzymes were positive for a Troponin T of.11(0.00–0.03)ng/mL,CK of 512(30–140)U/L, and CKMB of 7.2(<1.1)ng/mL. The remaining laboratory data were within normal limits. A transthoracic echocardiogram (TTE) showed concentric left ventricular(LV) hypertrophy with moderate LV systolic dysfunction. There was a large area of transient akinesis of the LV apical segments with regional wall-motion abnormalities. The ejection fraction (EF) was 25%. A diagnosis of thyroid storm was made by the presence of fever, lethargy, diarrhea, tachycardia, and new onset heart failure. She was commenced on propylthiouracil 200 mg Q4hours, inderal 80 mg bid, hydrocortisone 100 mg IV Q8hours, lasix and lisinopril. A cardiac catheterization done the next day found her coronaries to have no atherosclerotic disease. Over the course of her stay, the patient symptomatically improved. A repeat TTE done three days later showed dramatic improvement; she had normal LV function, resolution of apical regional wall abnormality and an EF of 60%. However the patient's thyroid function tests demonstrated no improvement. She was diagnosed with Tako-tsubo's cardiomyopathy also known as stress induced cardiomyopathy.
DISCUSSION: Tako-tsubo's(octupus trap) cardiomyopathy was first described in Japan. Its clinical features resembles an acute coronary syndrome, with chest pain, anterior ST-segment changes on EKG, elevation of cardiac enzymes, and transient LV dysfunction with marked apical asynergy and ballooning. Triggers are acute medical illness, intense emotional or physical stress. The pathogenesis of this disorder is diffuse catecholamine-induced microvascular dysfunction, resulting in myocardial stunning. Despite the severity of the acute illness, it is a transient disorder managed with supportive therapy. Resolution of the stressor usually results in rapid resolution of symptoms. Short-term use of medications for systolic dysfunction may help. Thyrocardiac disease is reversible with treatment once a euthyroid state has been achieved but our patient's cardiac function returned before she was euthyroid. This suggests the possibility that a thyroid storm may produce other forms of cardiomyopathy such as Tako-tsubo's. It is a distinct type of heart failure with a good prognosis once past the acute illness. An earlier evaluation of resolution of heart failure may avoid unnecessary diagnostic tests and treatment.

A SUPERINTENDENT PRESENTING WITH THE WEIL'S SYNDROME IN THE BRONX S. Leung[1]; N.H. Patel[1]; D. Lefrancois[1]. [1]Albert Einstein College of Medicine and Montefiore Medical Center, Bronx, NY. *(Tracking ID # 189919)*

LEARNING OBJECTIVES: 1. Recognize Leptospirosis as a re-emerging disease found in dogs in urban settings 2. Recognize clinical manifestations of Leptospirosis are broad and require detailed history taking and a high index of suspicion.
CASE: A 43-year-old man with no significant medical history presented with high-grade fever, lethargy and myalgia for four days. He worked as a superintendent and lived with two cats and three dogs in the Bronx, New York. On arrival, his blood pressure was 67/38 mmHg, pulse was 119 beats/min and temperature was 100.2 F. Also notable on exam was jaundice, conjunctival suffusion, right upper quadrant tenderness, positive Murphy's sign and significant hepatomegaly without splenomegaly. Patient was anuric. Laboratory results were significant for white blood cell, 5.8 k/uL with a peak of 20.8 k/uL and a left shift; hemoglobin, 11.5 g/dL from a baseline of 13.9 g/dL; platelet, 63 k/UL from a baseline of 205 k/UL; coagulation panel was normal. Sodium, 127 mEq/L; creatinine, 3.3 mg/dL from a baseline of 1.2 mg/dL with a peak of 9.5 mg/dL; anion gap 19; creatinine phosphokinase, 305 U/L; aspartate aminotransferase, 104 U/L; alanine aminotransferase, 154 U/L; alkaline phosphatase, 182 U/L; total bilirubin, 4.3 mg/dL; direct bilirubin, 3.8 mg/dL. Chest x-ray showed multifocal infiltrates. Sonogram of abdomen showed gallbladder wall thickening without identified stones. HIDA scan was positive suggesting acute acalculous cholecystitis (AAC). Based on the patient's presentation, appropriate antibiotics were started on hospitalization day one. Leptospira antibody was negative on day of admission and seroconverted with titer of 1:400 on day thirteen from symptom onset. The patient recovered fully within one month.
DISCUSSION: Leptospirosis was predominantly a disease of wild animals living in rural areas a decade ago. It is a re-emerging disease and now it can be found in domestic animals especially dogs living in the U.S. cities. The disease is caused by leptospires, a spirochete, which is transmitted primarily in the urine of rodents, especially rats. Certain occupational groups, such as superintendents and sewage workers, are particularly high risk. Leptospirosis is characterized by a wide spectrum of clinical manifestations from mild flu-like illness to the most severe form, the Weil's syndrome, which is characterized by jaundice, renal failure and hemorrhagic diathesis. Mortality is between 5 to 15%. A definite diagnosis requires either isolation of the organisms from cultures or positive ELISA or microscopic agglutination test. Antibodies as well as cultures generally will not reach detectable levels until the second week of illness as illustrated in this case. Thus, a high level of suspicion and detailed history taking are critical in diagnosing leptospirosis. This case highlights an adult who is at high risk for contracting the leptospires and developed the Weil's syndrome also presenting with possible AAC. AAC is a rare manifestation in children and only a few case reports have been found in adults to date. Our patient's AAC likely resulted from septic shock caused by leptospirosis. Surgical intervention would be problematic especially in patients with Weil's syndrome because of the thrombocytopenia and coagulation disorders. Thus, early diagnosis and prompt treatment with antibiotics is particularly critical in this disease.

A TALE OF PTOSIS, THROMBOSIS AND SEVEN PLATELETS: CAVERNOUS SINUS THROMBOSIS IN A WOMAN WITH APLASTIC ANEMIA B.K. Johnson[1]; C. Harris[2]. [1]New York Presbyterian Hospital Cornell, New York, NY; [2]New York Presbyterian Hospital Cornell, Long Island City, NY. *(Tracking ID # 190364)*

LEARNING OBJECTIVES: 1. Assess the predisposing factors, physical findings and imaging modalities associated with cavernous sinus thrombosis. 2. Recognize that severely thrombocytopenic patients can develop thrombosis which requires a delicate balancing of risks and benefits of anticoagulation.
CASE: 44 y.o. woman with aplastic anemia, failed stem cell transplant and multiple admissions for sepsis, presents to clinic two weeks after falling and fracturing her left maxilla with headache and a change in mental status over the past week. The patient was noted to be febrile and delirious with an isolated left eye ptosis and associated mydriasis. The patient was also noted to have loose and somewhat necrotic maxillary teeth. Labs were significant for neutropenia and platelets of 7, and she was admitted to the hospital for transfusion, broad spectrum antibiotics and further neurologic investigation. A noncontrast head CT scan was significant only for left maxillary sinusitis. Lumbar puncture was unremarkable. Overnight the left eye ptosis worsened and the left pupil became more dilated and was minimally reactive. She could no longer adduct, elevate or depress the eye, and had a flattened left nasolabial fold with decreased sensation of the left side of the face. Twelve hours after the CT, a non-enhanced MRI revealed a left cavernous sinus thrombosis and a left internal carotid artery thrombosis. Given her severe thrombocytopenia and recurrent falls it was initially decided not to immediately anticoagulate the patient. However, less than a day after the MRI her mental status further declined and she was transferred to the ICU for platelet transfusion and emergent anticoagulation. However, within twenty four hours the patient went on to develop a left MCA thrombosis and worsening cerebral edema resulting in herniation and brain death.
DISCUSSION: Cavernous sinus thrombosis is a rare complication of central facial infections including sinusitis, maxillary teeth infections and facial trauma. Due to the intimate juxtaposition of several cranial nerves in the cavernous sinus patients classically present with ophthalmoplegia from dysfunction of cranial nerves III, IV, and VI as well as hypo or hyperesthesia due to involvement of the ophthalmic and maxillary branches of cranial nerve V. The mainstay of treatment for cavernous sinus thrombosis is broad spectrum intravenous antibiotics, although anticoagulation, steroids and surgery are appropriate adjunctive treatments in selected cases. Anticoagulation is controversial due to lack of prospective data, however, it is generally accepted that heparin can improve mortality and prevent clot propagation with rare bleeding complications. However, this case presents a unique twist on manage-

ment given the patient's impressive thrombocytopenia. The decision to initiate anticoagulation always calls for a weighing of risks and benefits, and given the patient's rapid clinical decline the best option was ultimately clear but nonetheless a source of debate amongst those involved in the case.

A TWIST ON A CHANGE IN MENTAL STATUS N. Ahuja[1]; R. Granieri[2]. [1]University of Pittsburgh, Pittsburgh, PA; [2]UPMC, Pittsburgh, PA. *(Tracking ID # 190329)*

LEARNING OBJECTIVES: 1. Recognize the clinical and laboratory presentation of Legionnaires' disease 2. Recognize how to diagnose Legionnaires' disease 3. Outline the most effective treatment for Legionnaires' disease

CASE: 59-year-old minister, residing near a lake in eastern Pennsylvania, with a past history of diabetes and hypertension, presents with a 1 day history of altered mental status. The patient was in his usual state of health until 2 weeks prior to presentation when he noted the onset of a nonproductive cough, without chest pain or dyspnea. 3 days prior to presentation he developed fevers (T max 103°(F)) and diarrhea. He denied photophobia, neck stiffness, nausea, vomiting, recent alcohol use or other ingestions. On the day prior to admission, the patient was pulled over on the highway because he was swerving his car while driving. His family was contacted. They stated that earlier that day, he was oriented to person, place, and time. On presentation to an outside hospital, he was febrile to 103° F. Labs included Na 137, Cr 1.8, WBC 5.0 (2 bands), H/H 14/35 MCV 90, and platelets 103. CT head and abdomen and CXR were normal. An LP was attempted, but unsuccessful. The patient was empirically treated with ceftriaxone and azithromycin and transferred to our hospital. Upon presentation, his vitals signs were T 102° F, RR 26 and pulse ox 100% (room air). He was alert and oriented x3, and lungs were clear. Labs included Na 133, Cr 1.5, WBC 5 (2 bands) H/H 14/35, platelets 93, microscopic hematuria and a Tbili of 3.0. Peripheral smear showed no schistocytes, CXR revealed LUL infiltrate. Urinary legionella antigen returned positive the next day. The patient was started on levofloxacin, ceftriaxone and azithromycin were discontinued. Bronchoscopic culture specimens returned positive 3 days later. The County Public Health Department was notified. The patient did well on treatment and was discharged home. One month later, the patient had a normal mental status.

DISCUSSION: This case highlights the presentation of Legionnaires' disease, an important consideration in a patient with mental status change, hyponatremia, renal failure, thrombocytopenia, microscopic hematuria and a pneumonic infiltrate on CXR. The literature reports the most common symptoms in Legionnaires' disease as fever >39 (88–90% patients), cough (42–92%), chills (42–77%), headache (50%), diarrhea (21–50%), and neurologic changes (4–53%). Typical laboratory presenting findings are hyponatremia, thrombocytopenia, and hematuria. The diagnosis of Legionnaires' disease relies on the urinary Legionella antigen and respiratory culture for Legionella. In clinical use, the urinary Legionella antigen is preferred over culture because specimens can be difficult to obtain, the urinary antigen may remain positive despite antibiotic treatment, and results are readily available. The gold standard for diagnosis is a positive urinary Legionella antigen and respiratory culture. Although this patient was initially treated with azithromycin, he was changed to levofloxacin. Observational studies show faster defervescence with levofloxacin compared to azithromycin with treatment for 7–10 days.

A UNIQUE CASE OF HYPERCALCEMIA OF MALIGNANCY A.A. Haque[1]; H. Benjamin[1]; K. Pfeifer[1]. [1]Medical College of Wisconsin, Milwaukee, WI. *(Tracking ID # 190081)*

LEARNING OBJECTIVES: 1. Consider malignancy as a cause of hypercalcemia in patients with risk factors for and symptoms suggestive of cancer. 2. Review typical mechanisms of hypercalcemia of malignancy. 3. Describe a very unusual presentation of paraneoplastic hypercalcemia.

CASE: A 52 year-old-male with no significant past medical problems except a long history of smoking presented with complaints of progressively worsening chest, abdominal, and back pain for four days prior to admission. Associated with his pain was an unintentional weight loss of 25 pounds over the preceding 6 months, constipation, and polyuria. On physical exam, the patient appeared cachectic but otherwise had normal vital signs and no other remarkable findings. His laboratory studies revealed a calcium level of 12.6 mg/dL (normal range 8.4–10.5 mg/dL), ionized calcium of 1.78 mmol/L (normal range 1.18–1.33 mmol/L), and normal albumin. Subsequent studies showed a suppressed PTH level with normal 1–25 hydroxy vitamin D and PTH-related peptide (PTHrP) levels and normal serum and urine protein electrophoresis. The patient was given aggressive intravenous fluid administration followed by pamidronate with normalization of his calcium level. Malignancy evaluation with chest, abdomen and pelvis CT revealed two large hepatic masses with several adjacent satellite nodules but no other adenopathy or solid organ lesions. Needle aspiration of his liver lesion revealed an adenocarcinoma with staining consistent with a gastrointestinal source. EGD and colonoscopy were unrevealing for a primary or metastatic lesion. A bone scan revealed diffuse uptake consistent with a paraneoplastic process, and a staging PET/CT scan demonstrated the areas of involved malignancy with no other organ metastasis. The patient was referred for transcatheter arterial embolization (TACE) prior to surgical hepatectomy; however, the patient's tumor did not respond to this therapy. In addition, the patient's hypercalcemia continued to recur despite repeated bisphosphonate therapy, and his functional status declined significantly. As a result of his poor prognosis and lack of viable therapeutic options, the patient chose to pursue hospice treatment.

DISCUSSION: Hypercalcemia of malignancy accounts for about 10–20% of hypercalcemia cases, but accounts for about 65% of hospital admissions related to symptomatic hypercalcemia. Hypercalcemia of malignancy usually occurs through three main mechanisms: PTHrP release from tumor cells, osteolytic metastases with local cytokine release, or tumor production of calcitriol. Treatment involves aggressive fluid hydration, intravenous bisphosphonates, corticosteroids, or calcitonin. Our case is very unusual as there are very few reports of hypercalcemia related to intrahepatic adenocarcinoma, and while his PET scan was very consistent with a paraneoplastic etiology, no evidence of the typical mechanism was found.

A UNUSUAL COMPLICATION OF HIV A. Radhakrishnan[1]; M. Patel[1]; T. Haddad[1]. [1]Allegheny General Hospital, Pittsburgh, PA. *(Tracking ID # 189815)*

LEARNING OBJECTIVES: •Identify a rare cause of malignant pleural effusion in HIV. •Recognize that Kaposi's Sarcoma often presents with cutaneous manifestations and visceral manifestations need to be further investigated in this particular population.

CASE: A 54 year old Caucasian male with history of AIDS with Kaposi's sarcoma(KS) (stage T1 I0 S1) on antiretroviral therapy presented with complaints of dyspnea and fatigue for 7 months. Patient had recently received treatment for KS with a doxirubicin based chemotherapeutic regimen, which resulted in clinical improvement of his skin lesions. On his third cycle of chemotherapy he presented complaining of progressive dyspnea upon minimal exertion and prolonged fatigue. A CXR taken at that time showed a right sided pleural effusion and he was admitted for further evaluation. He also complained of nausea, loss of appetite and weight loss of more than 15 lbs over 2 months. On examination he appeared cachectic but his vitals were stable with normal oxygen saturation. His lung exam revealed stony dullness on percussion at bases and decreased breath sounds bilaterally R>L with no wheezes or rales. On examination of his skin, he was pale with a patchy maculopapular violeceous rash (Kaposi's) involving his midchest, groin and upper back. Routine laboratory data was unrevealing. His CD4 count was 37cells/mL and his viral load was < 50copies/mL. A CXR showed a large right sided pleural effusion. This was later confirmed by a CT Chest. A thoracocentesis performed showed blood stained pleural fluid with an exudative pattern. Examination of the pleural fluid cytology revealed large highly atypical, markedly degenerated lymphocytes with prominent nucleoli. A panel of immunohistochemical study was performed. The neoplastic cells were immunohistochemically positive for CD45, CD138, CD30, CD38, and CD43. MIB-1 positivity was observed on most of the neoplastic cells. The pleural fluid was also human herpes virus type 8 (HHV-8) positive. The above findings were consistent with a diagnosis of primary effusion lymphoma.

DISCUSSION: Infection with HIV predisposes to the development of neoplasms, including lymphoma. AIDS-related lymphomas are generally divided into three types: Systemic non hodgkins lymphoma(NHL), Primary central nervous system lymphoma, and the Primary effusion

lymphomas(PEL). PEL is a rare lymphoma that accounts for approximately 2% of all HIV-associated NHL. PEL has a unique clinical presentation in having a predilection for arising in body cavities such as the pleural space, pericardium, and peritoneum. PELs express a common gene profile that is distinct from that of other AIDS-related NHLs. PEL cells are monoclonal B cells that express cell surface CD38 and contain genomic material from HHV-8. PELs are invariably infected by HHV-8 and often co-infected by Epstein-Barr virus (EBV) in approximately 50–80% of the cases. There is possible synergy between HHV 8 and EBV in the pathogenesis of this disease. Treatment is usually with combination CHOP (cyclophosphamide, doxorubicin, vincristine, and prednisone) chemotherapy and antiretroviral therapy (if HIV positive). The prognosis for PEL is poor, with a median survival time of around 6 months. Conclusion: Primary effusion lymphoma should be considered in the differential diagnosis of AIDS patients who present with pleural effusions. It is hoped that this classic case will lead to the awareness of this rare lymphoma.

A URINARY INFECTION THAT WAS "OUT OF SIGHT" L. Kaur[1]; A. Spencer[1]. [1]allegheny general hospital, Pittsburgh, PA. *(Tracking ID # 189628)*

LEARNING OBJECTIVES: 1) To outline the risk factors for Candida endopthalmitis 2) To describe the presentation, diagnosis, and treatment of Candida endopthalmitis
CASE: A 81 year-old female with no significant past medical history reported blurry vision and floaters ten days after hemicolectomy performed for complicated diverticulitis. Post-surgical course was complicated by a Candida UTI and non-oliguric acute renal failure. She was placed on TPN post-operatively for 7 days. She denied headaches and her neurological ROS was negative outside of her blurred vision. Fundoscopic examination revealed bilateral white fluffy exudates in the vitreous consistent with fungal endopthalmitis. Her central line was removed and her Foley catheter was changed. Subsequent blood cultures grew out Candida Albicans. She was started on IV antifungal agents and intravitreous amphotericin B after which her vision improved dramatically.
DISCUSSION: Candida endopthalmitis is a common cause of blurred vision in hospitalized patients. It can develop exogenously following trauma or surgery to the eye or endogenously as a complication of candidemia through hematogenous seeding of the retina. Risk factors for its development in immunocompetent patients include the presence of central lines, prior abdominal surgery, TPN, and steroid therapy. Case reports have also noted the use of propofol during surgery as a cause. While ocular symptoms are often the first manifestation of disseminated Candida infection, patients with chorioretinitis may not have any eye symptoms until late in the disease process. By the time a patient complains of decreased visual acuity or floaters, there is likely to be extensive vitreal inflammation. In order to preserve vision, it is imperative that Candida endopthalmitis be detected as soon as possible. It is therefore recommended that all patients in whom candidemia is documented should have a dilated retinal examination by an ophthalmologist. Retinal examination classically reveals focal white lesions with a vitreal haze. Treatment consists of intravitreous and intravenous antifungal agents. While amphotericin B is an excellent choice for intravitreous therapy, caution should be used with its systemic use given its renal toxicity. Surgical vitrectomy may be necessary in severe or refractory cases.

A WANDERING DIAGNOSIS: VAGAL NEUROPATHY DUE TO THE OLDEST OF DISEASES J. Fowler[1]. [1]Tulane University, New Orleans, LA. *(Tracking ID # 190582)*

LEARNING OBJECTIVES: 1. Recognize systemic manifestations of Treponema pallidum 2. Develop a differential diagnosis of epigastric pain and anemia
CASE: A 44 year-old man presented with six days of constipation and abdominal pain. He also reported post-prandial vomiting of undigested food without blood or bile. He complained of intermittent epigastric pain unassociated with eating, and relieved with vomiting. He denied having these symptoms in the past, and did not have a history of reflux disease, diarrhea or hematochezia. His vital signs were normal, as was his cardiac and pulmonary examinations. His abdomen was distended, but he had normal bowel sounds and no evidence of ascites. Signs of pernitonitis were not present and his rectal examination was normal. Neither his spleen nor liver were enlarged. His extremities were normal with the exception of a stock and glove neuropathy and macular hyperpigmented lesions on the palms of his hands and soles of his feet. He had a normocytic anemia with a hematocrit of 19%; his electrolytes and liver enzymes were normal. An EGD revealed a large ulcer in the antrum of the stomach. His HIV test was negative. Because of the macular lesions and the unexplained neuropathy, an RPR was ordered that was found to be positive at a titer of 1:32. This was confirmed with treponema particle agglutination assay that was also positive. He was treated with intramuscular penicillin G and his symptoms resolved.
DISCUSSION: Syphilis remains a common infection, especially among the underserved, and it is important for the general internist to be aware of the multiple organs that can be affected by T. pallidium. Gastrointestinal involvement of T. pallidium is not uncommon, and can manifest as a gastrointestinal hemorrhage from direct ulcerations, or as constipation or bowel obstruction due to intra-abdominal vagal neuropathy. Endoscopic evaluation of gastric lesions can have a wide array of morphologies from mucosal erythema to deep ulceration, but all lesions occur primarily in the antrum or pyloric regions. It is also important for the general internist to incorporate systemic clues in evaluating a patient with abdominal pain. Our patient's presentation with the macular skin lesions and the unexplained peripheral neuropathy prompted consideration of a vagal neuropathy as an explanation for his abdominal pain. As the third longest nerve in the body, it is third in incidence for syphilis neuropathy. Because treatment for syphilis results in a definitive cure, it is important that it be considered in all patients with risk factors for syphilis, especially those presenting with systemic manifestations of the disease.

A YOUNG WOMAN WITH RECURRENT UNILATERAL PLEURAL EFFUSION D.J. Wong[1]; G. Frank[1]. [1]University of California, Los Angeles, Los Angeles, CA. *(Tracking ID # 190903)*

LEARNING OBJECTIVES: 1. Identify predisposing factors, presenting symptoms and signs of thoracic endometriosis. 2. Manage thoracic endometriosis.
CASE: A 30-year-old African American woman presented with a one month history of recurrent orthopnea and dyspnea on exertion. She endorsed a preceding upper respiratory tract infection, but denied fevers, chills, or weight change. She denied any hemoptysis, recent foreign travel, or tuberculosis contacts. Her physical exam was notable for decreased breath sounds at the right lung base. Chest X-ray demonstrated a moderate right-sided pleural effusion. Thoracentesis yielded 900 cc of bloody, exudative pleural fluid. Cytology, bacterial, acid-fast bacterial and fungal cultures were negative. Despite therapeutic thoracentesis the pleural effusion re-accumulated, requiring additional drainage. Given the recurrent nature of the effusion, the patient underwent bronchoscopy and video-assisted thoracoscopic surgery (VATS). VATS revealed numerous brown, dark-colored lesions involving the pleura, chest wall, major fissure, and multiple segments of the right lung, consistent with endometriosis. A small microperforation was also identified in the mid portion of the diaphragm. The patient underwent a parietal pleurectomy, wedge resections of affected areas of the right lung, and resection of the area of the diaphragm encompassing the microperforation. Treatment with oral contraceptives was initiated post-operatively.
DISCUSSION: Thoracic endometriosis, the presence of endometrial glands and stroma within the thoracic cavity, is an uncommon disorder affecting menstruating women. It may present as catamenial pneumothorax (73%), catamenial hemothorax (14%), catamenial hemoptysis (7%) or lung nodules (6%). Fewer than 120 cases are reported in the literature. As it often presents in young, nulliparous women, it is an important diagnosis to consider in menstruating female patients with spontaneous pneumothorax, recurrent exudative effusions, hemoptysis or lung nodules. Surgical management may include pleurodesis, resection of the affected areas of the lung and resection of diaphragmatic defects. Medical therapy with oral contraceptives, gonadotropin-releasing hormonal agonists, progestin, or danazol has also been efficacious, though 50% of cases recur.

ABDOMINAL PAIN – GETTING TO THE HEART OF THE MATTER M.J. Hitron[1]. [1]Beth Israel Deaconess Medical Center, Boston, MA. *(Tracking ID # 190583)*

LEARNING OBJECTIVES: To recognize the occult presentation of idiopathic dilated cardiomyopathy, a serious and potentially treatable disease.

CASE: A 45-year old, otherwise healthy and physically active male with no past medical history presented to the emergency department with abdominal pain. The patient returned from Puerto Rico several days prior at which time he developed an insidious onset of abdominal swelling, epigastric and right upper quadrant pain. He noticed his pants were tight and the pain was worse with eating. He denied nausea, vomiting, diarrhea, constipation, or dark stools. He noted mild shortness of breath, which was worse when lying flat. His exam was notable for a heart rate of 122 and a non-tender, distended abdomen. He had clear lung sounds, normal heart sounds, a jugular venous pressure 7 centimeters above the sternal angle, and no pereipheral edema. His laboratories were notable for negative cardiac enzymes, normal bilirubin and alkaline phosphatase, and normal transaminases, save an ALT of 55. A chest roentogram showed cardiac prominence without infiltrates or edema. Given the patient's risk factors for pulmonary embolism and his tachycardia, a computed axial tomography (CT) was performed, which was negative for pulmonary embolism. A CT scan of the abdomen and abdominal ultrasound were both negative. An electrocardiographic exercise tolerance test was performed, and stopped at 7.5 minutes due to worsening abdominal pain and shortness of breath, without diagnostic EKG abnormalities. Patient was discharged to home with outpatient follow-up. Over the next 10 days, he initially noted some improvement, but then had severe shortness of breath during a round of golf, which resolved with rest. He continued to have general malaise and abdominal pain and sought medical attention prior to his scheduled follow up appointment. Again, patient was tachycardic with continued abdominal distention and pain. Laboratories revealed a mild transaminitis and a chest roentogram demonstrated persistent moderate cardiomegaly. He was admitted to the medical service. An echocardiogram revealed dilated cardiomyopathy, with severe biventricular dilatation, global biventricular hypokenesis with an estimated ejection fraction of 30% and severe mitral regurgitation. He was aggressively diuresed ten kilograms of fluid and treated with carvedilol and lisinopril, with complete resolution of his symptoms and transaminitis. At four month follow-up, his ejection fraction was still poor at 30%.
DISCUSSION: Dilated Cardiomyopathy (DCM), defined as an enlargement and impaired contraction of one or both ventricles, is a common condition, responsible for approximately 10,000 deaths and 46,000 hospitalizations each year in the United States. Idiopathic DCM (IDCM) is in fact the primary indication for cardiac transplantation. Approximately 50% of dilated cardiomyopathies are classified as idiopathic, 9% as post-viral myocarditis, and with a lower prevalence, 7% of DCM are classified as due to ischemic heart disease. Connective tissue disorders, substance abuse, infiltrative disease, the peripartum period, and chemotherapy make up other potential causes. The clinical presentation of DCM is broad and varied, depending upon etiology, but need not present with traditional heart failure symptoms. In this case, the abdominal distention, severe pain, and transaminitis without signs of pulmonary or extremity edema is atypical and caused his diagnosis to be initially elusive.

ACUTE LOWER EXTREMITY WEAKNESS AND PAIN: FINDING LERICHE IN THE HEART S.S. Nichani[1]; S.A. Flanders[1]. [1]University of Michigan, Ann Arbor, MI. *(Tracking ID # 190593)*

LEARNING OBJECTIVES: 1) Recognize the clinical presentation of acute aortoiliac occlusion. 2) Recognize an uncommon source of arterial embolism.
CASE: A 58-year-old woman presented with acute onset of bilateral lower extremity weakness and inability to walk. She described aching pain, "pins and needles" and numbness over both thighs and buttocks that was worse on exertion. She denied bladder or bowel incontinence, low back pain, fever or recent trauma. Her medical history was significant for coronary artery disease with placement of a coronary stent two months ago, cerebral aneurysm clipping, hypertension and tobacco use. She had normal heart and lung sounds. Neurologic examination revealed bilateral lower extremity flaccid weakness with 2/5 power on the left and 0/5 on the right, absent knee and ankle reflexes, and a decreased rectal tone. Sensation was decreased over both lower extremities, buttocks and lower back, but no truncal sensory level could be delineated. There was no leg edema and bilateral dorsalis pedis pulses were diminished. Laboratory tests showed a hemoglobin of 8.8 g/dl, creatine kinase 4616 U/l and troponin 0.47 ng/ml. An urgent neurology evaluation was requested for suspected cord compression. MRI imaging was delayed pending information of her brain clips. However, a thoracolumbar CT revealed an atherosclerotic aorta with a large, partially occluding infrarenal aortic thrombus extending into both common iliac arteries. The patient underwent emergent catheter-guided aortography and thrombolysis of the acute clot, and successful recanalization of the affected vessels with bilateral aortoiliac stents. An echocardiogram, ordered to rule out emboli, showed a 24×11 mm highly mobile, pedunculated left atrial mass. Surgical evaluation showed an atrial myxoma that was successfully excised.
DISCUSSION: Leriche's syndrome refers to buttock, hip and thigh claudication in the setting of aortoiliac occlusive disease. Acute aortoiliac occlusion is rare but potentially catastrophic. The majority of cases are due to in-situ spontaneous thrombosis from plaque rupture in the setting of an atherosclerotic aorta. Embolic aortoiliac occlusion is less common. A few cases of aortic saddle embolism from a cardiac myxoma have been reported. As in this case, patients often present with neurologic findings that lead to a neurologic evaluation before the vascular cause is recognized. Paresis, sensory loss and pain are the most common findings in the ischemic limb. Prolonged ischemia results in rhabdomyolysis and ischemic neuritis. Emergent surgical treatment for restoration of blood flow and preservation of limb function is the goal. The diagnosis of acute aortoiliac occlusion is challenging. A simple vascular examination is required in all patients presenting with acute neurologic deficits. The constellation of buttock and thigh pain, paresis, and diminished peripheral pulses should prompt suspicion for Leriche's syndrome. Early diagnosis and treatment is crucial for an optimal outcome, and as this case highlights, you may need to look to the heart to find Leriche.

ACUTE MANIA: AN ATYPICAL PRESENTATION OF A MYSTERIOUS DISEASE R.R. June[1]; S.M. Domsky[1]. [1]Temple University, Philadelphia, PA. *(Tracking ID # 189942)*

LEARNING OBJECTIVES: 1. Recognize the variable presentations of neurosyphilis. 2. Review the diagnosis and management of neurosyphilis with the Jarisch-Herxheimer Reaction.
CASE: A 43 year-old African-American male presented to the E.D. with a 2 week history of progressive emotional labiality, agitation and decreased sleep. History was only significant for a hospital discharge 3 days prior after a negative new-onset tonic-clonic seizure workup, and negative for neurologic or psychiatric disease. Social history included a remote history of crack cocaine use and occasional ETOH. On exam, patient was afebrile with a heart rate of 116 and blood pressure of 164/96. Patient was sitting up in bed, talking loudly and inappropriately. Neurologic exam showed strength 5/5 bilaterally with+3 deep tendon reflexes. Sensation was intact throughout, and cranial nerve exam was unremarkable. The remainder of the exam was normal. On admission, laboratory results included a normal chem 7, a plasma ammonia of 48 mcm/L, serum ethanol of 2 mg/dl, and a TSH of 2.10 miu/ml. WBC count was 13.3 K/mm3(82% neutrophils, and 12% lymphocytes), and drug screen was negative. MRI from previous admission, and CT Head were negative. The initial agitation and mania improved markedly with antipsychotic medication. Initially, the Mini-Mental Examination score was 24/30, but improved to 28/30 by discharge. Given the acute onset of mania without a psychiatric history, infectious causes were sought. Serum immunology revealed a RPR + 1:128 with a reactive TPPA. Serum ANA, Lyme, and HIV were negative. Lumbar puncture revealed a VDRL reactive to 4 dils and a reactive TPPA. Treatment was initiated for neurosyphilis. Patient was febrile to 101.5 F approximately 12 hours following initiation of penicillin. Patient's temperature returned to normal within 24 hours of initiating penicillin, and he was discharged home to family to continue therapy.
DISCUSSION: Syphilis is a sexually transmitted disease caused by the spirochete Treponema Pallidum. Neurologic involvement occurs in any stage of the disease with a large continuum of presenting symptoms. Previously, neurosyphilis has been reported as a cause of chronic mania and schizophrenic-like psychosis, but acute mania has not been reported. Treatment with penicillin is necessary to eradicate the disease from the CNS. The Jarisch Herxheimer Reaction occurs typically between 12–24 hours following initiation of penicillin. It is a transient mild systemic reaction with elevated temperatures, myalgias, headache, tachycardia, increased respiratory rate, increased circulating neutrophil count, and vasodilation with mild hypotension. This case demonstrates acute mania as a possible presentation of neurosyphilis, and

highlights the Jarisch Herxheimer Reaction as a response to proper treatment.

ACUTE ONSET VIRILISM—A POSSIBLY HAIRY DIAGNOSIS D.A. Mendenhall[1]; L. Altman[2]; B. Bean-Mayberry[3]; D. Dumitru[2]. [1]Greater Los Angeles HealthCare System/West Los Angeles Veteran's Hospital/ United States Government, Los Angeles, CA; [2]VA Greater Los Angeles Healthcare System, Los Angeles, CA; [3]VA Greater Los Angeles Health Services Research and Development (HSR&D) Center of Excellence, Los Angeles, CA. *(Tracking ID # 190905)*

LEARNING OBJECTIVES: 1.) Recognize that a thorough history and physical are paramount in the differential diagnosis of virilism. 2.) Review the primary etiologies of virilism, distinguish it from hirsutism, and recognize alternative exogenous androgen sources.
CASE:..26 year old G0PO Hispanic female with no significant past medical history referred for annual exam and complaining of amenorrhea x2 months. The patient had menarche at age 12, regular periods of normal duration, and no facial or back acne until 3 months prior to her visit. She also noted increased thickness and amount of hair on her face and abdomen over the same time span. She is sexually active with one male partner and reported an increase in libido and new vaginal dryness. She denied using any medications or hormones prescribed or otherwise. Physical exam was notable for a muscular young female with facial and back acne, a deep voice, male pattern hirsutism on face and abdomen, and mild clitoromegaly. Uterus and ovaries were unremarkable and there was no adenexal fullness bilaterally on pelvic exam. Urine pregnancy test was negative. Basic labs were within normal limits. On obtaining further history, the patient denied use of testosterone but did admit to use of an internet obtained nutritional supplement to help build muscle mass for the last 3 months. She was unaware of it containing any hormones. The patient was advised to stop its use and complied with this recommendation. On exam 6 months later she continues to have a deep voice and increased hirsutism, but does have decreased clitoromegaly and acne with regular periods.
DISCUSSION:: Rapid-onset virilism in a previously normal female suggests the possibility of an androgen secreting tumor or use of exogenous androgens. Hirsutism and virilism are clinical signs associated with androgen excess states. Virilism may or may not be accompanied by hirsutism, menstrual disorders, and/or acne. Virilism usually consists of at least 2 or more physical findings including increased muscle mass, deepened voice, temporal balding, breast atrophy, and clitoromegaly. The etiology of virilism can be grouped into 4 main categories: Nonspecific (exogenous, iatrogenic, and paraneoplastic), Ovarian (polycystic ovarian syndrome, stromal hyperthecosis, ovarian tumors), Pregnancy-related (Luteoma, hyperreactio luteinalis) and Adrenal (adrenal tumors, Cushing syndrome, adult-onset congenital adrenal hyperplasia.). Adrenal carcinoma frequently causes virilism, while it is rare in polycystic ovarian syndrome. In this case, expanding the history and obtaining a good physical exam revealed the etiology without need for further testing. It also demonstrates that patients and physicians may differ in their viewpoint toward the significance of nutritional supplements. Nutritional supplements are not FDA regulated and this patient was taking one that contained high amounts of DHEA which is converted to testosterone. They also often carry no specific warnings for females in regard to potential permanent virilization and may not be seen as a form of hormone or a medication by the patient.

ADALIMUMAB: THE FEAR OF FEVER, FUNGUS, AND FAILURE A. Gordian[1]; S. Sarebahi[1]; D.U. Ambrocio[1]; W.N. Jarjour[1]; J.E. Lewis[1]. [1]University of Virginia Division of Clinical Rheumatology, Charlottesville, VA. *(Tracking ID # 190353)*

LEARNING OBJECTIVES: 1. Identify the risk of opportunistic infections including histoplasmosis in patients using TNF-alpha antagonist therapy 2. Recognize the clinical presentation of disseminated histoplasmosis and subsequent management.
CASE: A 56 year old white male with rheumatoid arthritis receiving weekly injections of methotrexate 20 mg and adalimumab 50 mg admitted with a one month history of high grade fevers, a twenty-seven pound weight loss, night sweats, and intermittent dyspnea. His medications were discontinued one week after the onset of these symptoms. An outpatient workup for infectious causes was unrevealing. On exam, the patient appeared acutely ill and was spiking fevers as high as 103. Laboratory data demonstrated pancytopenia with a white blood count of 2.4, hemotocrit of 23.4, and platelet count of 45,000. He had an elevated sedimentation rate of 54 and a high sensitivity CRP of 96.50. His symptoms persisted despite broad spectrum antibiotics. A chest x-ray showed a fine bilateral diffuse reticulonodular appearance. Chest CT scan demonstrated diffuse parenchymal reticular opacities with multiple small pulmonary nodules and mediastinal adenopathy. A bone marrow biopsy was performed which demonstrated scattered small granulomas and increased histiocytes containing yeast forms. The diagnosis was confirmed by a positive urinary histoplasmosis antigen. He was initiated on amphotericin B (15 mg per kilogram) followed by itraconazole (200 mg per day). The patient's recovery has been uneventful.
DISCUSSION: Adalimumab is a recombinant human immunoglobulin G monoclonal antibody specific for human tumor necrosis factor (TNF)-alpha approved for the treatment of rheumatoid arthritis. It is one of three TNF-alpha antagonists available for clinical use. Early clinical trials suggested a mild increase in bronchitis, upper respiratory and urinary tract infections of 1 per patient year compared to 0.9 of patients receiving placebo and serious infections such as sepsis of.04 versus.02, respectively. Additionally, six cases of invasive opportunistic infections including disseminated histoplasmosis were reported. However, post-surveillance literature has demonstrated an increased incidence of systemic bacterial, viral, and fungal infections. Histoplasmosis is the most common endemic mycosis in the United States. It affects the HIV/AIDS population and transplant recipients but recently with the advent of increased utilization has presented in patients taking TNF-alpha antagonists. Clinical presentation can include fevers, night sweats, anorexia, and weight loss and typically occurs within the first six months of exposure. Common laboratory findings include bone marrow suppression and transaminitis. Disseminated histoplasmosis can be diagnosed via antigen (92% sensitivity), culture (85%), histopathology (43%), or serology (71%). Detection of antigen in the urine is considered less invasive and more rapid test than the serum, CSF or bronchoalveloar lavage fluid. The treatment regimen for patients with disseminated histoplasmosis commonly involves a short course of amphotericin B followed by subsequent treatment with itraconazole for six months to a year. There are no formal recommendations for prophylactic or maintenance treatment in this population. Histoplasmosis can be a life-threatening condition that should be considered early in the evaluation of patients presenting with constitutional symptoms who are undergoing treatment with TNF alpha antagonists.

ADULT ONSET ATYPICAL TYPE 1 DIABETES MELLITUS S. Leung[1]; D. Morrison[1]. [1]Albert Einstein College of Medicine, Bronx, NY. *(Tracking ID # 189805)*

LEARNING OBJECTIVES: 1. Recognize late adult onset type 1 diabetes 2. Recognize the difference between type 1A and 1B diabetes
CASE: Case 1: A 51 year-old African American woman was admitted for nausea, vomiting, polydipsia, polyuria and generalized weakness for four days. Past medical history was significant for diabetes diagnosed at the age of 48 and multiple episodes of diabetic ketoacidosis (DKA). She had failed a trial of oral therapy for diabetes in the past and was now insulin-dependent. Physical exam was remarkable for a body mass index (BMI) of 19.5. Laboratory data was significant for glucose 619 mg/dL, bicarbonate <6 mEq/L, anion gap 32, pH 7.014, HbA1c 12.6%, large serum acetone and no microalbuminuria. Anti-glutamic acid decarboxylase antibodies and anti islet cell antibodies were positive. C-peptide was undetectable. The patient was diagnosed with type 1A diabetes. Case 2: A 42 year-old Hispanic man presented with vomiting for two days. Past medical history was significant for diabetes diagnosed at the age of 35, complicated by neuropathy and multiple episodes of DKA. Physical exam was significant for a BMI of 23 and decreased sensation and proprioception in his toes bilaterally. Laboratory data was significant for glucose 599 mg/dL, bicarbonate 12 mEq/L, anion gap 39, pH 7.183, HbA1c 9.9%, large serum acetone and no microalbuminuria. Anti-glutamic acid decarboxylase antibodies, anti islet cell antibodies and C-peptide were all undetectable. The patient was diagnosed with type 1B diabetes.
DISCUSSION: In 1997, the American Diabetes Association eliminated the terms IDDM (insulin-dependent diabetes mellitus) and NIDDM (non insulin-dependent diabetes mellitus), proposing a classification based

on pathophysiology rather than treatment. Two subcategories for type 1 diabetes were proposed: immune mediated (type 1A), and idiopathic (type 1B). Most type 1 diabetes is type 1A, characterized by the presence of insulin autoantibodies that leads to beta cell destruction. Those who have no evidence of autoimmunity are classified as type 1B. These two cases highlight these subcategories. In the first case, the patient has classical immunomediated type 1A diabetes with recurrent DKA, positive anti-glutamic acid decarboxylase and anti-islet cell antibodies, and an undetectable C-peptide level. The second patient has type 1B diabetes, supported by his negative antibodies and undetectable C-peptide level. Type 1B diabetes is strongly inherited, with negative cell autoimmunity markers and no HLA association. Ten to 15% of patients with type 1 diabetes have type 1B, and most of them are of African or Asian descent. The pathogenesis is unclear, but it is likely related to insulin resistance and transient beta cell dysfunction which may be caused by glucose toxicity. Individuals with type 1B diabetes develop episodic ketoacidosis and exhibit fluctuating degrees of insulin deficiency between episodes. Their physical characteristics are more typical of patients with type 2 diabetes. These patients require insulin therapy as the initial treatment; however, the beta cell function can partially recover. Within months, glycemic control can often be achieved with diet and oral diabetes medication. The appropriate time to change these patients from insulin to oral agents has not been established, and prospective clinical trials are needed to determine the optimal treatment for this disease.

AIP: AN INTERESTING PREDICAMENT A.A. Patel[1]; K. Pfeifer[1]. [1]Medical College of Wisonsin, Milwaukee, WI. *(Tracking ID # 189362)*

LEARNING OBJECTIVES: 1. Recognize the clinical signs of acute intermittent porphyria. 2. Effectively treat acute intermittent porphyria.
CASE: A 32-year-old woman presented with abdominal, back, pelvic, and upper leg pains following a motor vehicle accident. She noted nausea, vomiting, and darkening of the urine accompanying her pains. Upon further questioning she recalled having episodes of abdominal pain during her teenage years and dark urine following her second pregnancy. She also noted hallucinations involving objects or people during these episodes. Her hospital workup included abdominal and spinal CT and MRI, EGD, transrectal ultrasound, intravenous pyelogram, cystoscopy, and a laparoscopy all of which were negative. Blood chemistries were normal. During her hospital stay a 24-hour urine was collected for porphobilinogens and returned elevated at 150 micromoles (normal range: 0.0–11.0 micromoles/24hours). Confirmation of acute intermittent porphyria (AIP) was made with repeat elevated urine porphyrin studies. The patient was placed on a high-carbohydrate diet, educated on abstaining from alcohol, and began taking lupron injections to lower her estrogen and progesterone levels. She also received hematin and dextrose infusions. These interventions provided relief of symptoms.
DISCUSSION: The acute porphyrias are genetic disorders of heme biosynthesis characterized by acute attacks of neurological symptoms, such as neuropathic abdominal pain, peripheral neuropathy, and cognitive disturbances. Other symptoms include dark-colored urine, nausea, vomiting, constipation, diarrhea, tachycardia, hypertension, and muscle weakness. These symptoms are often mistaken for other medical and psychiatric conditions leading to delayed treatment. AIP is the most common and most severe porphyria with a prevalence of 1 to 2 per 100,000 in most countries. It results from low levels of porphobilinogen deaminase (PBGD) activity, the enzyme responsible for the third step in heme production. Approximately 80–90% of people with reduced PBGD enzyme activity never experience signs or symptoms of AIP. Factors such as menstruation, poor nutritional status, certain drugs and chemicals, stress, and smoking interfere with the activity of the nonspecific delta-aminolevulinic acid synthase (ALAS), the rate-limiting and the first enzyme of heme biosynthesis in the liver, causing expression of the disease. AIP is usually expressed after puberty and more often in women than men. The most effective diagnostic test for AIP is measurement of urinary porphobilinogen during an acute attack. Dietary restriction of carbohydrates, infections, alcohol, and high levels of estrogen and progesterone can cause porphyria attacks. Management of AIP involves preventive measures such as adequate nutritional intake and treatment of concomitant infections in order to prevent inducing heme oxygenase activity which can lead to ALAS induction. Also important is avoiding certain drugs, hormones, and steroids which induce the synthesis of the cytochrome P450 system leading to an increased demand for heme synthesis and ALAS activity. Luteinizing hormone-releasing hormone (LHRH) agonists inhibit ovulation and are used to avoid attacks of AIP during menstruation. Finally, treatment with intravenous hemin represses ALAS and helps to prevent acute neurovisceral attacks. Measurement of porphobilinogen deaminase in red blood cells or DNA testing identifies carriers of this autosomal dominant disease.

ALL "MIXED" UP A. Small[1]; M. Palmer[1]; G.E. Menard[1]. [1]Tulane University, New Orleans, LA. *(Tracking ID # 190896)*

LEARNING OBJECTIVES: 1. Identify autoimmune hemolytic anemia as a complication of early HIV infection 2. Identify the clinical presentation and treatment of HIV-associated autoimmune hemolytic anemia 3. Recognized the difference between cold and warm autoimmune hemolytic anemia.
CASE: A 40 year-old HIV-positive woman presented with two weeks of dizziness upon standing from a seated position. Her past medical history has been complicated by several opportunistic infections including cytomegalovirus retinitis and esophagitis, peritoneal herpes simplex virus, Pneumocystis jiroveci pneumonia and a stroke one year prior to presentation. She noted that her HIV medication regimen had been recently changed. Her vital signs were normal with the exception of orthostatic hypotension by pulse, blood pressure and symptoms. Her head and neck examination was normal with the exception of pale conjunctiva; there were no carotid bruits. Her cardiac and pulmonary examinations were normal. The abdomen was normal with the exception of a palpable spleen tip. She had a right upper and lower extremity hemiparesis as residual from her prior stroke. Her hemoglobin was 6 gm/dl; her baseline hemoglobin was 9 gm/dl. The remaining CBC was normal. She had an elevated lactate dehydrogenase of 389 U/l and a total bilirubin of 1.2 mg/dl. Her most recent CD4 count was 232 cells/mm3. The peripheral smear showed evidence of hemolysis; the direct Coombs test to IgG and C3b were both positive. His citalopram and valganciclovir were discontinued as they have been associated with hemolytic anemia. After excluding all other causes, his hemolytic anemia was attributed to HIV-associated autoimmune hemolytic anemia (AIHA) with both warm and cold antibodies.
DISCUSSION: HIV is a common clinical comorbidity in the general internist's practice, and recognizing the complications associated with HIV is important to optimal HIV care. As was the case with our patient, parvovirus B19, mycobacterial disease, fungal disease, and drug-induced hemolytic anemias should be excluded prior to ascribing the hemolytic anemia to HIV. The clinical presentation of HIV-associated AIHA can vary from mild to severe anemia, and can vary from an insidious to a fulminant time course. Hemolysis on the peripheral smear and an elevated LDH are suggestive, and the diagnosis is confirmed by a positive Coombs test to either IgG or C3b. Importantly, the hemolysis associated with HIV can occur within the bone marrow, leading to a reticulocytopenia not commonly associated with other types of hemolytic anemia. Early in the presentation of HIV, a dysregulated presentation of antigens due to defective CD4 cells can lead to an oligoclonal proliferation of antibodies, causing excessive IgG or IgM antibodies reacting to red blood cells. Importantly, the internist must know to order the Coombs test for both IgG (warm antibodies), and C3b (the residual of IgM binding to red cells). The treatment is largely supportive, with blood transfusions only as necessary. Corticosteroids, plasmaphoresis, intravenous immunoglobulin, and splenectomy should be reserved for IgG antibody disease only, as the addition of additional plasma (as in plasmaphoresis) may exacerbate the complement-mediated hemolysis of IgM (cold) hemolytic anemia. Although anemia is common in HIV, the general internist should be cognizant of HIV-associated autoimmune hemolytic anemia, especially in refractory anemias or in the presence of other signs of hemolysis.

ALL DRESSED UP, AND NOWHERE TO GO C.E. Coffey[1]; M. Pfeffer[1]; N. Afsarmanesh[1]. [1]University of California, Los Angeles, Los Angeles, CA. *(Tracking ID # 189827)*

LEARNING OBJECTIVES: 1. Recognize and diagnose DRESS Syndrome (Drug Rash, Eosinophilia, and Systemic Symptoms) 2. Identify treatment options for patients with DRESS Syndrome

CASE: A 45-year-old Caucasian woman was admitted to the hospital with two weeks of diffuse, blistering rash and two days of watery diarrhea and a non-productive cough. The patient first developed a rash four weeks prior to her admission. A skin biopsy obtained at that time was consistent with a drug reaction. The offending medication was believed to be paroxetine, which had been started two weeks prior to the onset of the rash. She discontinued her paroxetine and completed a one-week steroid taper. Although the blisters resolved with steroids, her rash evolved into an exfoliative dermatitis by the time of presentation. On admission, the patient had a WBC count of 8 with 18% eosinophils. Initial work-up for infectious diarrhea and community-acquired pneumonia was negative. Additional workup for HIV, vasculitis, and rheumatologic diseases was also negative. A chest CT was consistent with atypical pneumonia, and an abdominal CT showed distal ileitis and diffuse pancolitis. Initial treatment of her rash, cough, and diarrhea, however, was ineffective. Her symptoms persisted, and her eosinophilia peaked at 39% on the sixth day of her hospitalization. Further evaluation included a colonoscopy, which revealed a diffuse, non-bloody exudative colitis, and biopsies of the skin and colon, which were consistent with a drug reaction. Given the drug rash, eosinophilia and involvement of her lungs and colon, the patient was diagnosed with DRESS syndrome—Drug Reaction, Eosinophilia, and Systemic Symptoms. She was started on methylprednisolone 50 mg IV daily, cortisol enemas daily, and inhaled steroids. Shortly after initiating steroid treatment, her eosinophilia, cough and diarrhea resolved. Her rash improved with steroids, but remained intensely pruritic despite treatment with anti-histamines. She was discharged with an 8-week steroid taper.
DISCUSSION: Drug Rash, Eosinophilia, and Systemic Symptoms (DRESS) Syndrome, also known as eosinophilic hypersensitivity reaction, is a type of severe hypersensitivity reaction defined by widespread papulopustular skin lesions. These lesions can last weeks to months, and can evolve into an exfoliative dermatitis. Systemic symptoms like fever, lymphadenopathy, and visceral involvement, including hepatitis, pneumonitis, nephritis, myocarditis, and pericarditis, can accompany the skin findings and help complete the diagnosis of DRESS. Drugs often identified as agents causing DRESS include anticonvulsants, sulfonamides, dapsone, allopurinol, and gold salts. To our knowledge, this is the first reported case of DRESS associated with an SSRI. Prompt diagnosis of DRESS is crucial, as without treatment, DRESS carries an estimated 10% mortality rate. Treatment of DRESS begins with immediate removal of all offending drugs. Mild cases of DRESS may be treated with topical steroids only, but severe cases require treatment with systemic steroids (0.5–1 mg/kg per day). Additional treatment is determined by the other organ systems involved. The progression of the disease is variable, as patients will often get worse before improving as the steroids are tapered. Continuing supportive skin care throughout the course of the illness can often help symptomatically while also preventing infection.

AMOXICILLIN-CLAVULANIC ACID-INDUCED HEPATITIS: A RARE SIDE EFFECT OF A COMMON DRUG E. Kelly[1]; J. Hariharan[2]. [1]no, Milwaukee, WI; [2]Society of General Internal Medicine, Milwaukee, WI. *(Tracking ID # 190515)*

LEARNING OBJECTIVES: 1. Increase the awareness and review the clinical presentation of hepatotoxicity associated with amoxicillin-clavulanic acid (AC). 2. Recognize the importance of obtaining a thorough drug history in older patients with jaundice.
CASE: A 68 year old lady was transferred from an outlying hospital with history of 3 weeks of fatigue, 2 weeks of pruritis, jaundice and clay colored urine. Her medical problems included history of breast cancer 9 years ago, hypertension and anxiety. She had no history of prior liver/biliary disease, blood transfusions or travel. Pt denied any drug or alcohol use. About 5 weeks prior to admission, patient completed a 14 day course of amoxicillin-clavulanic acid (AC) for left leg cellulitis in Florida. Patient's medications included propranolol,valsartan and multiple dietary supplements. Hydroxyzine and lorazepam were started about a week prior to transfer for itching and anxiety. On physical exam; pt had severe jaundice with mild hepatomegaly. Laboratory investigation showed abnormal liver function tests. Total bilirubin 38.9 mg/dL, direct bilirubin 26.4 mg/dL, AST 598U/l, ALT 1219U/l, Alk phos 1143U/l, albumin of 2.7 gm/dL, PT was 10.2s. Serologic tests for hepatitis A, B and C viruses, Epstein-Barr virus, Cytomegalovirus and HIV were negative. Test results for brucellosis, leptospirosis and autoantibodies (ANA, ASMA and p ANCA) were all negative. ERCP and CT abdomen revealed no significant abnormality. Liver biopsy showed moderate pericentral cholestasis with viable hepatocytes consistent with AC induced hepatitis.Total bilirubin peaked at 42.6 mg/dl, and Alk phos to 1403 U/l. The patient was diagnosed with AC induced hepatitis. All meds were discontinued. Pt was treated with supportive therapy. Pt improved significantly over the next 2 weeks and at discharge, ALT was 308 U/l; T Bili was 13.6 mg/dl. The jaundice resolved after 5 weeks, but ALT levels were still elevated at 202U/l after 3 months.
DISCUSSION: Drug-induced hepatic injury accounts for approximately 2 to 5 percent of hospitalizations for jaundice, and more than 40 percent of cases in adults older than 50. AC is a widely prescribed antibiotic and is rapidly absorbed by the gastrointestinal tract. The amoxicillin component is primarily excreted by the kidneys; whereas clavulanic acid is excreted by both the kidneys and liver. Drug induced hepatitis is a rare side effect of AC use. The estimated risk of significant hepatic injury is 1 case per 100,000 patients exposed. The mechanism of injury is a hypersensitivity drug allergy resulting in centrizonal cholestasis, which rarely progresses to hepatocellular damage. Risk factors include history of liver disease, age >50, and male gender. Symptoms of nausea, vomiting, fatigue, abdominal pain, fever, pruritus, or jaundice occur 2–4 weeks after initiation of the antibiotic. Affected patients usually experience mild to moderate hepatitis, with usually complete recovery in one to four months. Older age, males and prolonged AC therapy are associated with slow recovery. Unfavorable outcome is rare. Our patient was an older female with profound cholestastic hepatitis and very slow recovery. This case illustrates the importance of a detailed drug history especially in the older patient.

AN "ATYPICAL" CAUSE OF PNEUMONIA J. Litsky[1]; L.D. Ward[1]. [1]Temple University, Philadelphia, PA. *(Tracking ID # 190186)*

LEARNING OBJECTIVES: Learning objectives- 1.Recognize bronchial carcinoid as a rare but curable cause of lung cancer 2.Learn how to diagnose bronchial carcinoid tumor
CASE: A 24 yo man was admitted to the hospital with five days history of fever, chest pain, and dyspnea. The pain was pleuritic and non-radiating. Past medical history was significant for asthma diagnosed 5 years previously. He had no history of recent travel or contact with animals, however, he was released from prison 3 months ago. Prior to the onset of symptoms, he felt at his baseline, but did feel that his asthma had been progressively worsening. Prior to admission he had treated his symptoms with albuterol MDI. He lived in an apartment with his mother and girlfriend. He was a current smoker and admitted to occasional marijuana and alcohol use. On presentation, he was febrile to 102.3F, BP 127/62, pulse 120 bpm, respirations 18 per minute, with an O2 sat. 94% on RA. Physical exam was unremarkable other than decreased breath sounds at the right base. Laboratory tests: WBC of 24,000 yet other tests were unremarkable. ECG showed a sinus tachycardia. A CXR showed a left lower lobe infiltrate and right middle lobe atelectasis. Specimens of blood and urine were sent for cultures. IV Ceftriaxone and azithromycin were initiated and over the next 24 hours the patient defervesced. Repeat CXR showed a completely opacified right lung. Bronchoscopy revealed a large obstructing endobronchial lesion. Brushings and washing of the mass were obtained. An extensive laboratory evaluation was negative. The pathology showed a well differentiated neuroendocrine tumor with high mitotic activity - likely atypical carcinoid. The patient's tumor was resected with a sleeve resection with preservation of distal parenchyma and clean margins. Three days post-op he was discharged from the hospital in good condition with no supplemental oxygen requirement.
DISCUSSION: Bronchial carcinoid tumors are rare neuroendocrine pulmonary neoplasms characterized by indolent clinical behavior. Bronchial carcinoid was previously described as bronchial adenoma; however, it is now recognized as a malignant condition due to the ability to metastasize. Carcinoid tumors can occur in numerous locals in the body with lung second to the gastrointestinal tract. Of total bronchial carcinoids 75% are described as typical. The majority of bronchial carcinoids can be found on routine imaging. Most bronchial carcinoid lesions can be visualized by bronchoscopy. Brushings or biopsy can be taken during bronchoscopy, Histologically, carcinoids are made up of bland cells with round nuclei and finely dispersed chromatin. Typical carcinoids are characterized by less than two mitotic figures per HPF and the absence of necrosis. Intermediate-grade atypical carcinoid is characterized by carcinoid morphology and the presence of at least one of the

following: 2 to 10 mitotic figures per HPF or necrosis. Immunohistochemical identification is confirmed by staining of cytoplasmic products synaptophysin and chromogranin. The preferred treatment of bronchial carcinoid is surgical. Complete surgical resection gives the only chance of cure. The prognosis for typical carcinoid is excellent with five-year survival rates reported between 87–100%. Five-year survival rates for atypical carcinoid have been reported between 30–95%. In summary bronchial carcinoids are neuroendocrine tumors with indolent clinical behavior having an excellent prognosis after surgical resection.

AN AIDS PATIENT PRESENTING WITH MULTIPLE STROKES

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LEARNING OBJECTIVES: 1. Recognize the diagnostic challenges of neurosyphilis in immunosuppressed patients 2. Recognize the difficulties underlying the treatment of syphilis in AIDS patients

CASE: A 49 year-old Hispanic man with AIDS (CD4, 5/uL; VL, 254K copies/mL; never on HAART) was admitted for social placement. The patient was known to have a positive RPR 1:1 and reactive TP-PA. Previous cerebrospinal fluid (CSF) showed negative VDRL with CSF pleocytosis and increased protein level. The patient was not previously treated. Repeat serum testing on this admission showed the same results. On hospitalization day 4, the patient acutely became lethargic and developed right hemiparesis and dysarthria. MRI showed acute infarct of the posterior limb of the left internal capsule. Penicillin treatment was started based on the positive repeat testing the next day. The patient had no significant clinical improvement. On day 11, he became stupor and responded to only painful stimuli. MRI showed new infarcts on left frontal lobe, right basal ganglia, anterior limb of the right internal capsule and superior midbrain. On day 14, the patient's oxygen saturation acutely lowered to 83%. Brainstem infarct was suspected. Lumbar puncture was negative. The patient's clinical condition continued to deteriorate and he expired on day 16. Neuropathology showed chronic inflammation with lymphocytes, monocytes and plasma cells in the subarachnoid space at all levels of the neuraxis, especially at the base of the brain, brainstem and spinal cord. This vasculopathy, characterized as chronic endarteritis, was consistent with meningovascular syphilis causing the multiple infarcts in this patient.

DISCUSSION: The effect of AIDS on the central nervous system (CNS) is profound and widespread. CNS disease related to AIDS includes those arising from the primary HIV infection as well as those secondary to opportunistic processes. Ten percent of AIDS patients present with neurological illness; nearly 40% have significant neurological symptoms and 75% have neuropathological abnormalities on autopsy. About 30% of AIDS patients are symptomatic with multiple CNS pathological processes. Once the patient complains of neurological abnormalities identified on physical examination, a careful workup and CSF examination is indicated. Neurosyphilis is common in HIV infection. A review of literature showed a reactive CSF VDRL was found in 9.1% HIV patients with untreated positive serology. However, diverse clinical manifestation, coexistent with other CNS pathological processes and improvement of symptoms after treatment for other infections make diagnosis particularly difficult. Studies showed the most common forms of neurosyphilis observed with HIV infection were syphilitic meningitis (64%) and meningovascular syphilis (27%). Syphilis appears to be more aggressive and more difficult to treat when co-infected with HIV. The development of meningovascular syphilis despite treatment with penicillin has been reported. Meningovascular syphilis may affect the brain and spinal cord, and many of the stroke-like findings were indeed meningovascular syphilis producing discrete lesions of the brainstem as illustrated in our patient.

AN ANEMIC, JAUNDICED MAN WITH HIGH CHOLESTEROL

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LEARNING OBJECTIVES: 1. Identify the unique clinical features and presentation of Zieve's syndrome 2. Recognize the syndrome as a reversible cause of painless jaundice

CASE: A 46 year-old gentleman reported to the Emergency Department complaining of yellowish discoloration of his skin for one week. His symptom emerged after a busy holiday weekend, and was accompanied by generalized malaise and fatigue. He acknowledged dark urine, pale stools, and significant pruritus. Review of systems was significant for 15–20 pound weight loss over the past month. He denied abdominal pain, fever, chills, shortness of breath, or dysuria. Past medical history was significant for hypertension. Social history manifested significant alcohol use, drinking approximately 1.5 pints of vodka per day for several years, with tapering down recently. On physical examination, patient was afebrile, normotensive, and mildly tachycardic. Skin was jaundiced and sclerae were icteric; there were no spider angiomata or other stigmata of chronic liver disease. Abdomen was obese but soft, non-tender, non-distended, with normoactive bowel sounds and no appreciable hepatosplenomegaly. Stool was clay-colored and guiaic negative. Laboratory analysis on admission revealed a white cell count of 10,000 with 0 Bands. Hemoglobin was 11.9 g/dL, Hct 34.4%, with MCV 100 fL, RDW 18.5%. Platelets were 358,000. Reticulocyte count was 8.0% and Haptoglobin was less than 20 mg/dL. Renal function and electrolytes were within normal limits. Liver studies were remarkable for ALT 99 IU/L, AST 199 IU/L, Alkaline Phosphatase 358 IU/L, Total Bilirubin 38.8 mg/dL, Direct Bilirubin 27.9 mg/dL. Serum amylase and lipase were normal. Dipstick urinalysis was notable for large bilirubin and urobilinogen of 8. Hepatitis serologies were negative. Total cholesterol was 252 mg/dL. An abdominal ultrasound showed an echogenic liver consistent with fatty infiltration without evidence for biliary ductal dilatation or cholecystitis. A liver core biopsy revealed mild portal mixed-cell inflammation with patchy lobular neutrophilic infiltrate and pronounced micro- and macro-vesicular steatosis. After inpatient supportive therapy for 3 days, patient was discharged home. Alcohol abstinence was strictly emphasized. At 6-months follow-up, Total Bilirubin was 3.8 mg/dL, Hemoglobin was 12.8 g/dL, and Total Cholesterol was 170 mg/dL.

DISCUSSION: Zieve's syndrome is an often unrecognized, self-limiting condition marked by three cardinal features: jaundice, hyperlipemia, and hemolytic anemia. Leslie Zieve first described the triad in 1958 after a retrospective analysis of data from 20 male patients with heavy alcohol use history. According to Zieve, the "defining measurements" were hemoglobin, reticulocyte count, serum cholesterol, and serum bilirubin, all of which were abnormal in the aforementioned case. Clinically, these patients presented with generalized malaise and fatigue, cramping abdominal pain, with or without nausea and vomiting. Zieve concluded that this distinctive syndrome existed and improved rapidly once drinking ceased. The exact mechanism of hemolysis in Zieve's syndrome is unknown. The hyperlipidemia of Zieve's syndrome is transient. It is important to note that this pattern of abnormal liver function studies could be mistaken for other causes of extrahepatic obstruction and lead to unnecessary procedures. Recognizing its existence can shed light on an otherwise peculiar combination of findings.

AN ATYPICAL PRESENTATION OF SYSTEMIC LUPUS ERYTHEMATOSUS

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LEARNING OBJECTIVES: 1)Recognize an atypical presentation of systemic lupus erythematosus (SLE); 2)Consider SLE in the differential diagnosis of pericardial effusion;

CASE: A 48-year-old woman with a history of right-sided cerebrovascular accident at age 40 was seen for mild abdominal pain. An incidental finding of cardiomegaly was noted on chest X-ray, but the patient was free of any respiratory or cardiac complaints. Physical examination showed JVP at 7 cm, pulsus paradoxus of 40 mm Hg, and no rubs. An echocardiogram revealed hypertrophic obstructive cardiomyopathy (HOCM) with a moderate pericardial effusion, but no evidence of hemodynamic compromise. Although the diagnosis of HOCM was made, an isolated lymphopenia, elevated PTT, false-positive rapid plasma reagin (RPR), and the pericardial effusion remained unexplained. Despite not having symptoms or exam findings of arthritis, photosensitivity, rash, or oral ulcers, the lab abnormalities prompted our suspicion for an autoimmune etiology. Autoantibody testing was positive for speckled ANA (1:160 titer), anticardiolipin antibodies, and lupus anticoagulant. Additionally, a mild transaminitis and ultrasonographic evidence of cirrhosis were found,

but a workup for an etiology (excluding biopsy) was unrevealing. Given the constellation of symptoms and laboratory findings, this patient fulfilled SLE diagnostic criteria based on: 1)pericarditis with a pericardial effusion; 2)lymphopenia; 3)positive ANA; 4)positive lupus anticoagulant and anticardiolipin antibodies. Oral prednisone was started to promote resolution of the effusion. Because she was asymptomatic, a pericardiocentesis was not indicated.
DISCUSSION: Although pericardial involvement constitutes the most common cardiac abnormality in SLE, it occurs as the presenting feature of the disease in just 8 percent of cases. As lupus progresses, pericardial effusions become more frequent and are seen in nearly half the patients over the course of the disease, although tamponade is rare. A strong association between high anticardiolipin antibody titers and cardiac involvement in SLE has been established, but it is not specific for pericardial effusions. Collagen vascular disease accounts for 5–12% of pericardial effusions and should be considered alongside other causes, such as malignancy, tuberculosis, myxedema, uremia, Dressler's syndrome, trauma, radiation, and viral pericarditis. The course of pericardial effusions in lupus patients is generally benign. Initial treatment consists of indomethacin or prednisone (0.5–1.0 mg/kg/day), with other immunosuppressive agents reserved for refractory cases. Although several case reports have identified nine patients with both SLE and HOCM, no causal relationship between the two entities has been established. HOCM likely led to right heart failure and congestive hepatopathy in this patient, prompting her initial visit, although other causes of cirrhosis cannot be excluded. A false positive RPR, arising from serum antibodies to the cardiolipin-cholesterol-lecithin antigen, is commonly seen in SLE, although it is also noted in other conditions including chronic liver disease, viral hepatitis, IV drug use, mononucleosis, HIV, multiple transfusions, advanced malignancy, malaria, and Rickettsial disease. An elevated PTT can be observed in lupus and results from antibodies that interfere with the prothrombinase complex. This possibility may be suspected when the PTT fails to correct after a mixing study.

AN EXOTIC CAUSE OF VENTRICULAR TACHYCARDIA J.W. Turner[1]; A.M. Vanderwalde[1]; W.R. Maclellan[1]. [1]University of California, Los Angeles, Los Angeles, CA. *(Tracking ID # 190316)*

LEARNING OBJECTIVES: 1. Identify the clinical and diagnostic features of chronic Chagas heart disease.
CASE: A 69 year old man originally from South Mexico presented to a large academic teaching hospital with palpitations, dizziness, and shortness of breath. He had previously been diagnosed with dilated cardiomyopathy (DCM) of unknown etiology and had a biventricular pacemaker/defibrillator placed for severe congestive heart failure. He never had a myocardial infarction and denied recent viral infections. Physical examination findings disclosed only mild congestive heart failure. The patient's defibrillator was interrogated revealing frequent runs of sustained ventricular tachycardia (VT) at a rate below the threshold for discharge. The patient underwent left heart catheterization revealing non-obstructive coronary artery disease and transthoracic echocardiography demonstrated severe left ventricular dysfunction with an ejection fraction of 20–30%. CT coronary angiography disclosed apical left ventricular myocardial thinning without scarring and global atrial and ventricular dilatation. Viral titers were unrevealing, but Trypanosoma cruzi indirect fluorescent antibody (IFA) IgG returned greater than 1:256 (normal IgG <1:16) and IgM <1:20 consistent with chronic Chagas disease. The patient's VT was ultimately suppressed with amiodarone, mexiletine, and carvedilol, and he was discharged with infectious diseases follow up.
DISCUSSION: Chronic Chagas heart disease, caused by longstanding infection with the Trypanosoma cruzi parasite, is an uncommon disease entity in the United States. Nevertheless, it should be considered in current or past residents of endemic areas—notably Mexico, Central America, and South America—who present with congestive heart failure, conduction disturbances, dysrhythmias, and/or thromboembolic disease. This case is typical of late-stage Chagas cardiomyopathy which presents with DCM with systolic dysfunction and myocardial thinning without scarring. Conduction disturbances are also common including bundle branch block, atrioventricular block, and VT leading to sudden cardiac death. Diagnosis requires two or more positive serologic titers in the setting of typical cardiac findings. IFA testing has a sensitivity and specificity of almost 95% but false positives may occur in patients with leishmaniasis, malaria, and other parasitic and collagen-vascular diseases. Use of anti-parasitic therapy is controversial, but most experts agree that treatment of adults with late-stage Chagas cardiomyopathy does not alter the course of disease and may have substantial morbidity due to serious drug-related toxicities. Other unproven treatment modalities include amiodarone for VT suppression. Some studies have suggested that amiodarone may have in-vitro activity against the T. cruzi parasite and it was an integral part of therapy in our patient.

AN INFECTIOUS MIMIC: A 40-YEAR OLD WOMAN WITH ABDOMINAL DISTENSION A. Vanka[1]; A. Carbo[1]. [1]Beth Israel Deaconess Medical Center, Boston, MA. *(Tracking ID # 190003)*

LEARNING OBJECTIVES: 1. List the risk factors for miliary tuberculosis. 2. Identify the treatment regimen for disseminated tuberculosis.
CASE: A 40 year-old woman originally from Cameroon with a history of hypertension and untreated positive PPD with a negative chest x-ray 18 months prior, presented to the hospital with three weeks of fatigue and progressive abdominal pain and distension. She also reported low-grade fevers and a 30-pound weight loss over four months. Her exam was notable for a fever of 101 and a distended abdomen. A CT of the abdomen/pelvis on admission demonstrated ascites, bilateral adnexal lesions, and small lesions in a miliary pattern at the lung bases. A chest x-ray and chest CT demonstrated diffuse miliary lung nodules and intrathoracic lymphadenopathy. She had an elevated CA-125 of 612, but due to the miliary pattern, her adnexal lesions were thought to be more consistent with disseminated TB peritonitis. A paracentesis was remarkable for a WBC of 430 and negative cytology. Cultures of the fluid grew out acid-fast bacilli consistent with Mycobacterium tuberculosis. Three sputum cultures returned positive for Mycobacterium tuberculosis and were pan-sensitive. She was started on a four-drug regimen of ethambutol, pyrzinamide, isoniazid, and rifampin. At a two month follow-up, her CA-125 had decreased to 45 with overall improvement of the lung lesions and peritoneal involvement.
DISCUSSION: Miliary tuberculosis results from the uncontrolled hematogenous dissemination of Mycobacterium tuberculosis. It can arise as a result of progressive primary infection or from reactivation of a latent focus, as in the case of this patient. Reactivation of a latent focus can occur at anytime after the primary infection, but most commonly presents years to decade after the initial infection. The clinical picture of miliary tuberculosis can be highly variable and diagnosis is often missed due its non-specific presentation. For example, peritoneal tuberculosis can mimic ovarian cancer in some cases, as both can present with ascites, diffuse abdominal pain, adnexal lesions, and elevated CA-125 levels. Older age and underlying medical conditions, including alcohol abuse, renal failure, malignancy, HIV, diabetes, and chronic steroid use; are the most significant risk factors for miliary tuberculosis. However, a significant percentage of patients in case reports have no known risk factors for dissemination, such as the patient in this case. Treatment for miliary tuberculosis is typically a four-drug regimen, including isoniazid, ethambutol, pyrazinamide, and rifampin. Duration of treatment should be specifically tailored to the patient's underlying immune status, burden of disease, and clinical response.

AN INR OF 18: THE ETIOLOGY DIAGNOSED BY X-RAY W.M. Tsuang[1]; I. Conner[1]; V. Cantrell[1]; R. Song[1]; A. Gelrud[1]. [1]University of Cincinnati, Cincinnati, OH. *(Tracking ID # 190350)*

LEARNING OBJECTIVES: Recognize a rare cause of a supratherapeutic INR that can be diagnosed by x-ray
CASE: 42 year-old male with medical history significant for aortic valve replacement presented with a right snuffbox hematoma. The patient was on chronic anti-coagulation due to mechanical valve placement in 2006. Laboratory tests showed an INR of 18 (therapeutic goal 2.5–3.5), which had been 2.1 one month prior. The patient was urgently given oral vitamin K and fresh frozen plasma (FFP) and admitted. The patient denied over-ingestion of his warfarin or any new medications such as antibiotics. His medication list showed cardiovascular drugs not known to interact with warfarin. Liver enzymes showed: AST 183u/l (10–40 u/l), ALT 209u/l (9–60 u/l), total bilirubin 2.4 mg/dl (0.2–1.2 mg/dl) and

an alkaline phosphatase of 823u/l (40–115 u/l). There was initial concern for hepatitis; however, the patient denied IV drug use or blood transfusions before 1990. Serologies for hepatitis A, B, C, D and an HIV test were negative. The patient was afebrile and did not have an elevated white cell count. There was no abdominal tenderness suggestive of cholangitis. Another considered cause of the elevated INR was worsening congestive heart failure, but the patient had an annual echocardiogram one month prior that showed heart failure but no changes from the year before. Concern then arose for an obstructive liver pathology possibly due to Budd-Chiari, malignancy, or post-operative changes from a cholecystectomy in 2003. An abdominal ultrasound showed normal hepatic blood flow, but the common bile duct was dilated to 17 mm (normal <8 mm). No definitive obstruction was seen. On further questioning, the patient reported a post-surgical common bile duct (CBD) stricture which was stented, but could not recall whether or not the stent was removed. As a result of this new information, an abdominal x ray was ordered, which demonstrated a retained CBD stent. The patient was sent for urgent endoscopic retrograde cholangiopancreatography (ERCP) for stent removal, which further demonstrated infected bile. 48 hours after ERCP, the INR fell from 4.2 to 1.3, with subsequent normalization of liver transaminases and bilirubin. After a second ERCP for sphincterotomy, the patient was bridged to warfarin and continued his antibiotic on discharge to home.
DISCUSSION: In patients with supratherapeutic INR, the initial assessment includes a search for active bleeding. Any active bleeding requires holding warfarin, and giving vitamin K (either IV or PO) and FFP. Vitamin K is recommended with an INR >5 without bleeding. In this patient, IV vitamin K was necessary because of CBD obstruction preventing the flow of bile salts needed for PO absorption into the gut. Common causes of elevated INR include over-ingestion of warfarin, vitamin K deficiency, worsening heart failure, and impaired liver function. Although other causes were initially considered in this patient, his etiology was ultimately mediated by ineffective vitamin K deficiency caused by incomplete gut absorption in the absence of bile salt excretion secondary to CBD obstruction. Other causes of elevated INR include heparin contamination when collecting blood samples, and medications known to potentiate anticoagulation, most notably antibiotics such as macrolides and fluoroquinolones. Iatrogenic causes such as retained bile duct stent are extremely rare and can be diagnosed by eliminating common causes of supratherapeutic INR and visualizing the stent on xray.

AN UNCOMMON CAUSE OF BOWEL OBSTRUCTION M. Sonenshine[1]; J. Cohen[1]; S.D. Sisson[1]. [1]Johns Hopkins University, Baltimore, MD. *(Tracking ID # 190579)*

LEARNING OBJECTIVES: 1. To review the differential diagnosis of bowel obstruction, both common and rare etiologies 2. To review the extrapelvic gastrointestinal manifestation of endometriosis
CASE: A 33-year-old female with infertility, endometriosis, and Crohn's disease presented with 5 months of abdominal pain and 30 pound weight loss. Abdominal pain was intermittent, umbilical, non-radiating and occasionally associated with nausea and vomiting. She had twice been hospitalized with small bowel obstruction (SBO), attributed to Crohn's disease, and managed with antibiotics, steroids, and mesalamine. During those prior admissions, CT scan showed obstruction and mucosal thickening of the distal small bowel. EGD and colonoscopy with biopsies were non-pathologic, without crypt abscesses or granulomas. Systems review revealed no fevers, arthralgias, uveitis, mucosal ulcers, peripheral neuropathy, mucus or blood in the stool. On exam, she appeared ill, tachycardic, and orthostatic with a diffusely tender, tympanic abdomen with borborygmi. WBC was 15K; hematocrit was normal. Contraction alkalosis was present, with normal ESR, CRP, and liver panel. Both CT and MRI showed partial SBO with small bowel loop thickening compatible with Crohn's disease without abscess or colitis. After no improvement, she underwent laparoscopic ileal resection and appendectomy. Pathology revealed an endometrioma and endometriosis in the terminal ileum and appendix. No pathologic evidence of Crohn's disease was present.
DISCUSSION: SBO accounts for 15% of admissions for acute abdomen. Symptoms include pain, nausea, vomiting with exam findings of a tender abdomen with high pitched borborygmi. Prior abdominal surgery with resultant fibrotic adhesions is the greatest risk factor for SBO, accounting for 70% of cases. Other common causes include hernia, infection, neoplasm and Crohn's disease. Uncommon causes include gallstone ileus, Meckel's diverticulum, volvulus, intussusception, bezoars, foreign bodies and endometriomas. Diagnosis is made by history and physical exam, often supported by conventional radiography. CT scan is increasingly used, as it provides information about strangulation and bowel ischemia. Management includes surgical consultation with consideration of non-operative conservative management or emergent laparotomy. Endometriosis is a rare cause of SBO. The classic triad of endometriosis is dysmenorrhea, dyspareunia, and dyschezia, often accompanied by infertility. The most common location for extrapelvic endometriosis is the gastrointestinal tract (5–10%), with implants involving the serosa, muscularis propria, and rarely the mucosa. All abdominal organs can be affected, but the rectum and sigmoid colon are the most common sites with the terminal ileum and appendix the most common location for small bowel involvement. Although frequently asymptomatic, gastrointestinal involvement may cause abdominal pain, anorexia, bleeding, diarrhea, constipation, distention, and infrequently, obstruction. Endometriosis causing SBO is often misdiagnosed by physicians because of its rarity and overlap with other causes, but should be considered in female patients with a history of endometriosis. Due to lack of mucosal involvement, endoscopy rarely helps make the diagnosis. The gold standard for diagnosis is laparotomy/laparoscopy. Therapeutic options are generally anecdotal, but include hormonal manipulation, ovarian ablation, surgical resection and most commonly expectant management with symptomatic control.

AN UNLUCKY LADY WITH LOFGREN'S: A HEALTHY 27 YEAR OLD WOMAN WITH ACUTE SARCOIDOSIS S.K. Mueller[1]. [1]Beth Israel Deaconess Medical Center, Boston, MA. *(Tracking ID # 189272)*

LEARNING OBJECTIVES: 1) Recognize the clinical manifestations of Logren's Syndrome 2) Review diagnostic options for diagnosis of Lofgren's Syndrome 3) Discuss the management of patients with Lofgren's Syndrome
CASE: A 27 year old Caucasian woman presented with fevers and polyarthralgias. The patient had been well until 1 week prior to presentation when she developed fevers to 102, pain in her knees, elbows and ankles prompting a visit to the emergency room. ED work up included normal physical exam. Labs showed Hct 33.4, CRP 64.6, ESR 9, normal ANA, RF, CCP-IgG, Ro and La, negative Lyme serologies. CXR and urinalysis were normal. In her first office visit, the arthralgias had migrated to her ankles and elbows, with continued fevers, and palpitations. Social History notable for recent travel to Portugal and Ireland. She is sexually active with 1 partner. She recently moved from New Jersey to Boston. Family History negative for arthritis. Pertinent exam findings included HR 110, regular rhythm, pain with active movement of ankles and elbows bilaterally without any swelling or erythema of the joints. Further laboratory testing demonstrated negative repeat lyme serologies, negative blood cultures x 2, IgG positive and IgM negative parvovirus serologies, repeat CRP 49.2, repeat ESR 26. 2 weeks later, patient complained of continued fevers to 102, continued bilateral ankle pain, night sweats, palpitations, and a "bump" on her right shin. Exam unchanged except for new 2×2 cm nodule on right shin, non erythematous, non tender to palpation. X-ray of right shin and bilateral ankles were unremarkable. Patient was referred to ID and rheumatology for further work up. Further laboratory testing demonstrated negative hepatitis serologies, normal ACE. Abdominal CT scan to assess for occult lymphoma was normal, Chest CT scan demonstrated bilateral hilar lymphadenopathy. She was diagnosed with Lofgren's syndrome. EKG, urinalysis, PFTs, TB skin test, ophthalmalogical exam, LFTs, Chem 10, repeat CBC were normal. All symptoms resolved spontaneously over next 4–6 weeks, including normalization of lab values.
DISCUSSION: Lofgren's syndrome is acute onset sarcoidosis, and is classically characterized by the triad of bilateral hilar lymphadenopathy, erythema nodosum, and migratory polyarthralgias (often involving the ankles). Fevers are often present. It is generally seen in young caucasian women, and is strongly associated with HLA-DQB1*0201. Although overt arthritis can be present, arthralgias without joint erosion are more common. Patients that go on to develop chronic sarcoidosis are subject to the extensive organ involvement and symptoms that are associated with sarcoidosis. Diagnosis of Lofgren's syndrome is generally clinical. Laboratory abnormalities are usually

non-specific and include the presence of anemia, leukopenia, thrombocytopenia, and elevated inflammatory markers (ESR, CRP). ACE is elevated in approximately 50 to 75% of patients with sarcoidosis. The gold standard for diagnosis is a lymph node biopsy demonstrating non-caseating granulomas, although is not necessary with a clear clinical picture. It is also important to test for and rule out other possible etiologies that could explain the patient's symptoms (i.e. TB skin test). Patients are managed with evaluation of EKG, urinalysis, chemistry panel, LFTs, CBC, PFTs, and ophthalmologic exam to rule out involvement in these organs. Lofgren's syndrome has a favorable prognosis for spontaneous remission.

AN UNUSUAL CASE OF 'HEMATURIA' M.S. Sey[1]; K.A. Myers[1]. [1]University of Western Ontario, London, Ontario. *(Tracking ID # 189357)*

LEARNING OBJECTIVES: 1. Recognize causes of a positive urine dipstick test for blood other than hematuria 2. Diagnose intravascular hemolysis associated with intracardiac devices
CASE: A 20 year old man presented to hospital with a five day history of reddish brown urine. He was otherwise asymptomatic. Past medical history was significant for a congenital secundum type atrial septal defect (ASD) which was percutaneously closed with an Amplatzer septal occluder three weeks prior to presentation. Post procedure echocardiography showed good positioning of the device. Two weeks after the procedure, the patient developed atrial fibrillation with a rapid ventricular response, for which he was cardioverted successfully. His only medication was aspirin 325 mg daily. On examination, his vital signs were stable. Cardiac exam revealed a S1, S2 with fixed splitting, no S3 or S4, and a systolic ejection murmur, 2/6 loudest over the pulmonic area. The jugular venous pressure was not elevated and the remainder of the examination was normal. Initial laboratory testing showed: creatinine 1.57 mg/dL, urea 22.1 mg/dL, hemoglobin 12.4 mg/dL(15.6 one week prior). CXR was normal. Urine dipstick demonstrated blood 3 + while microscopy revealed <10 RBC/hpf. Hemolytic work up showed a LDH of 1780, total bilirubin 1.9 mg/dL, reticulocyte count 108, haptoglobin <0.07, and a negative direct/indirect Coombs test. In light of his positive hemolytic work up and the absence of RBCs in his urine sediment, his red urine was felt to be on the basis of hemoglobinuria secondary to an intravascular hemolytic process. Due to his recent ASD closure and the auscultation of a murmur, a cardiac cause of his hemolysis was suspected. An urgent trans-esophageal echocardiogram revealed a new ASD (8 mm) at the inferior aspect of the atrial occluder device with left to right shunting and a new aorto-atrial fistula connecting the non-coronary sinus of valsalva to the RA with high velocity turbulent flow (4.0 m/s). Subsequently, the patient was stabilized and urgently transferred for surgical correction of the fistula and ASD.
DISCUSSION: The initial evaluation of red urine should include microscopy to distinguish between hematuria and pseudohematuria. Discordance between a strongly positive urine dip for blood and microscopy should prompt evaluation for hemoglobinuria or myoglobinuria. In our case, the cause of hemoglobinuria was intravascular hemolysis due to an aorta-atrial fistula and ASD at the inferior edge of the Amplatzer device. There have been six case reports of Amplatzer septal occluder associated fistulas involving the aorta and right or left atria. Although no case fatalities have been reported, five cases required urgent surgical correction. The mechanism behind fistula formation is unknown but it is speculated that deficient retroaortic rims and the oversizing of septal occluders are risk factors for fistula formation. By decreasing the distance between the occluder and the atrial wall, both increase the likelihood of contact between the two surfaces and subsequent fistula formation. In our case, the contribution of cardioversion to fistula and ASD formation is unknown and there have been no case reports of cardioversion associated device malfunction.

AN UNUSUAL CASE OF ABDOMINAL PAIN IN A 41-YEAR OLD MALE P. Radhakrishnan[1]; *S. Boddupalli*[2]. [1]University of Arizona, Phoenix, AZ; [2]St.Joseph's Medical Center, Phoenix, AZ. *(Tracking ID # 190789)*

LEARNING OBJECTIVES: • To recognize the clinical presentation and diagnosis of Pica syndrome • To understand and recognize the associated co-morbidities of Pica syndrome
CASE: We present here a rare case of a 41 year old white male, an environment inspector, who presented with a 1 week history of vague abdominal discomfort and passage of bright red blood per rectum. The patient's associated complaints were substernal chest pressure, nausea, restlessness and worsening fatigability. The patient had a history of multiple hospitalizations at different hospitals in the past for myocardial infarction, deep venous thrombosis, pulmonary embolism, vague abdominal pain and a recent exploratory laprotomy for acute intestinal obstruction of unknown etiology. Physical examination was unremarkable except for generalized abdominal tenderness with no signs of obstruction. Hematological values were consistent with iron deficiency anemia with hemoglobin of 11.0 g/dL and a serum ferritin level of 13 ng/mL. A peripheral blood smear revealed hypochromic, microcytic red blood cells. A plain X-ray of the abdomen revealed two distinct radiopaque "foreign bodies" in the bowel which was confirmed by a CT-scan. Records obtained from other hospitals revealed several admissions some requiring endoscopic and even surgical removal of ingested "granite stones" confirming the diagnosis of Pica syndrome.
DISCUSSION: According to DSM IV, Pica is defined as persistent eating of non-alimentary substances for more than one month. It has been commonly found to be associated with iron deficiency anemia and/or psychopathology. Several cases of Pica in literature have involved either children or pregnant women. This is a unique case of a middle-aged white male who presented with abdominal pain and intermittent bleeding per rectum. The patient's history of multiple hospitalizations with fabricated complaints makes the diagnosis of an associated Munchausen's syndrome highly likely. Although an exact pathophysiology of Pica syndrome still remains unknown, it is hypothesized that it is closely related to the obsessive and compulsive disorder. The theory of correction of iron deficiency anemia still remains controversial and has not proven to be very effective in treating the Pica syndrome. Treatment is complicated and involves psychotherapy along with psychosocial and environmental modifications. It is therefore necessary for modern day physicians to be vigilant in identifying this commonly missed diagnosis at an early stage to avoid life-threatening complications.

AN UNUSUAL CASE OF BACK PAIN IN A MIDDLE-AGED WOMAN K. Hochman[1]; R. Rajagopal[1]; R. Smith[1]; Y. Nguyen[1]; L. Parnell[1]; J. Spevick[1]. [1]New York University School of Medicine, New York, NY. *(Tracking ID # 190684)*

LEARNING OBJECTIVES: 1. To review the "red flags" of back pain. 2. To learn the incidence, diagnosis and treatment of neuroendocrine tumors (NETs).
CASE: A previously well 59 year-old woman with hypothyroidism presented to the Emergency Department with a six month history of back pain. Despite the efforts of several healthcare providers, the pain had intensified to 10/10 and rendered her debilitated. She denied trauma, loss of continence but affirmed an unintentional 10 pound weight loss over the preceding six weeks. The findings of tachycardia and hypoxia on presentation prompted a spiral CT to rule out pulmonary embolus. While the study did not show clot (rather atelectatic changes), it did in fact demonstrate innumerable hepatic and bony lesions (including multiple vertebral body lesions) suspicious for metastatic disease. EGD and colonoscopy failed to demonstrate a GI primary. The patient had undergone breast examination and mammography the month prior to presentation which were also negative. CEA and CA 19–9 levels were within normal limits. However, serum chromogranin A and urinary 5-hydroxyindolacetic acid (5-HIAA) levels were massively elevated at 22,900 ng/ml (normal 0 – 375 ng/ml) and 118 mg/day (normal 0 – 15 mg/day) respectively. An ultrasound-guided FNA biopsy of the patient's hepatic lesions revealed poorly differentiated cells which stained strongly positive for chromogranin A. These results were consistent with a NET, likely of gastrointestinal origin. Unfortunately, the patient's clinical condition deteriorated; she was not able to complete the work-up to locate the primary lesion.
DISCUSSION: It is imperative for every clinician to know when to suspect more worrisome pathology in patients with back pain. The "red flags" of back pain include: immunosuppressive state (including use of corticosteroids), history of cancer, intravenous drug abuse, neurologic symptoms (bowel/bladder incontinence), age greater than 70 years, unexplained fever, unexplained weight loss and duration of pain greater than 6 weeks. Of note, this patient experienced both weight loss and a prolonged history of back pain. Gastrointestinal NETs are rare tumors

originating from neuroendocrine cells of the GI tract. The incidence at autopsy is approximated to be 20–80 cases per million population per year. These neoplasms may be dormant or highly functional. While many classification systems exist, Dr. Guido Rindi has proposed that NETs be stratified into well-differentiated and poorly- differentiated carcinomas. Poorly differentiated tumors are fast growing and highly malignant (as seen in this patient). The most common metastatic sites are the liver, lymph nodes and bones. The presence of liver metastasis is the single most important prognostic factor for NETs. Chromogranin A (CgA), a secretory granule present in neuroendocrine cells, is elevated in 56–100% of patients with NETs. The level of CgA correlates with tumor bulk. Pathologists also immunostain for CgA, in addition to many other markers to make the diagnosis. Somatostatin receptor scintigraphy has become an important imaging modality for NETs (a somatostatin analog, radioactive octreotide, attaches to tumor cells that have receptors for somatostatin). Long-acting somatostatin analogs have been used in the treatment of NETs with stabilization of tumor growth in 36 – 70% of cases. In addition, alpha interferon has been used with mixed success. Patients with metastatic midgut tumors typically do not respond to chemotherapy.

AN UNUSUAL CASE OF COLIC M. Fitzpatrick[1]; J. Frank[1]. [1]University of Pittsburgh, Pittsburgh, PA. *(Tracking ID # 190030)*

LEARNING OBJECTIVES: 1) To recognize that renal infarct, although uncommon, is a cause of acute colic. 2) To identify the potential causes of renal infarct in an otherwise healthy patient.
CASE: A 36-year-old female smoker with no significant PSH/ PMH presented with a primary complaint of abrupt-onset "stabbing" 10/10 abdominal pain confined to the LLQ. She was afebrile, the only associated symptom was nausea, and there were no exacerbating/ alleviating factors. Abdominal exam revealed only focal tenderness in the LLQ with voluntary guarding but no peritoneal signs; pelvic exam was normal. Back exam revealed left-sided CVA tenderness. Basic labs (including b-HCG, CBC, CMP/lipase) were wnl, UA was bland, and AP xray was negative. Despite her normal UA, the acute onset of pain with the finding of left flank tenderness led to a suspicion of nephrolithiasis and prompted a contrasted CT, which demonstrated the surprising result of an "area in the lateral mid pole cortex, which does not enhance normally" consistent with a focal vascular insult. Thus, subsegmental renal infarct was incidentally diagnosed. Hypercoaguable panel, TTE, and renal US were wnl, but CTA demonstrated an aneurysmal dilatation of the left anterior segment of the renal artery which was not amenable to vascular intervention. All infarct territory was within the supply of the dilated vessel branch; supporting the theory that blood within the aneurysm had formed an eddy current and generated the embolus. As the infarct was no longer classified as "idiopathic," systemic anticoagulation was discontinued. The patient remains well with normal Cr at 6 month follow-up.
DISCUSSION: Renal infarct is a rare cause of abdominal pain which does not have an easily recognizable symptom complex. Its presentation is varied - including abdominal or flank pain, nausea, leukocytosis, and fever - and mimics more common presentations including pyelonephritis, urinary calculus, diverticulitis, and gyn pathology. As in this case, renal infarct is often not specifically sought, but is discovered fortuitously on a contrasted CT scan performed for workup of the more common abdominal pathologies. For this reason, estimated delay in diagnosis ranges from 6 hours to 3.5 days. Once renal infarct is identified, the workup focuses on the most frequently cited causes. These include embolic sources (usually associated with underlying cardiac disease), systemic disorders (hypercoaguable/hyperviscous states, vasculitis), and pure renal pathologies (renal trauma, fibromuscular dysplasia, renal artery dissection, and renal artery aneurysm). Even in the presence of a known underlying condition, experts advocate that a full workup be pursued as precipitant causes (e.g. Factor V Leiden and FMD) may overlap. The treatment of renal infarct is controversial and varies according to the etiology. Hypercoaguable states require lifelong anticoagulation, and idiopathic cases of infarct are anticoagulated for at least 6 months given the risk for undetected thrombophilia. When an intrarenal cause is determined, selected cases (specifically FMD and dissection) are amenable to angioplasty, stenting, or revascularization. Embolization may be considered for patients with renal aneurysm; however, predicted success depends on the location and size of the aneurysm. Management is determined on a case-by-case basis given the limited literature and the protean etiologies of this rare disorder.

AN UNUSUAL CASE OF ELDER ABUSE A. Prica[1]; J. Teitel[1]. [1]University of Toronto, Department of Medicine, Toronto, Ontario. *(Tracking ID # 190013)*

LEARNING OBJECTIVES: 1. Recognize the clinical features of acquired hemophilia A in the bleeding patient. 2. Manage the life-threatening complications of acquired hemophilia A.
CASE: An 89-yr old man presented with a 1 week history of bruising on his torso and arms, 5 days into a course of amoxicillin for pharyngitis. His past medical history included an upper GI bleed, and an anterior MI. His only medications were metoprolol and ASA. The patient had no other active bleeding and no joint or muscle pains. He did not have any personal or family history of bleeding. On physical exam, his vital signs were stable. He had large ecchymoses on his torso, neck and upper arms. Initial investigations revealed a hemoglobin of 99 g/L and platelets of 244×10^9/L. INR and fibrinogen were normal, but the aPTT was elevated at 109.3 s. Initially, the patient was referred for possible elder abuse. The abnormal aPTT was not appreciated and investigated until the next day. A 1:1 mixing assay did not correct the aPTT. Clotting factors were assayed, and factor VIII (FVIII) activity was <0.01U/ml. A factor VIII inhibitor was present at a titre of 93 BU/ml. The patient was given a diagnosis of acquired hemophilia. He was started on Cyclophosphamide 50 mg twice a day and Prednisone 1 mg/kg daily. On day 5 of admission, he developed severe swelling and pain of the left arm and his hemoglobin fell to 60 g/L. The diagnosis of intramuscular hematoma was made. He was transfused 4u pRBCs and treated with a 1 week course of activated Prothrombin Complex Concentrate (aPCC) 100 U/kg every 12 h. His arm was elevated; there was no evidence of a compartment syndrome, and he had no further active bleeding. His aPTT and inhibitor levels gradually decreased, while his FVIII recovered. He was discharged on a tapering regimen of prednisone, and a 2 month course of cyclophosphamide. Currently he remains asymptomatic, with normal aPTT and FVIII levels. Investigations for malignancy or autoimmune diseases were negative. It is possible that the antibiotic had a role in the etiology of his acquired hemophilia.
DISCUSSION: This case demonstrates that, although rare, acquired hemophilia A is potentially life-threatening and can be easily missed. The mortality rate is in the range of 8% to 22%. It usually presents in elderly patients and it is associated with malignancy, autoimmune disease and allergic drug reactions. The clinical presentation differs from congenital hemophilia, as patients more frequently have hematomas and mucosal bleeding despite measurable FVIII activity. Life or limb threatening bleeding may occur in muscles, retroperitoneum, and the gastrointestinal and genitourinary tracts. The diagnosis is suspected in a patient with a prolonged aPTT associated with reduced FVIII levels. Confirmation of the diagnosis requires the demonstration of an inhibitory antibody to FVIII. Prompt recognition in the bleeding patient with an isolated prolonged aPTT is critical, as early intervention directed at achieving hemostasis and eradicating the inhibitor can be life-saving. Acutely, bleeding is controlled with FVIII inhibitor bypassing agents, namely aPCC or recombinant factor VIIa. Eradication of the inhibitor is achieved using immunosuppresion, often with prednisone and cyclophosphamide. In our patient, the late diagnosis could have been disastrous in the case of a severe bleed. Once the diagnosis was made, bypassing agents did prove potentially life-saving in the face of a severe intramuscular hematoma and profound anemia.

AN UNUSUAL CAUSE FOR A BROKEN HEART S. Megalla[1]; S. Murthy[1]; V. Muggia[1]; A.P. Burger[1]. [1]Albert Einstein College of Medicine, Bronx, NY. *(Tracking ID # 190636)*

LEARNING OBJECTIVES: 1) Describe the clinical course of Chagas disease 2) Recognize Chagas disease as a cause for nonischemic cardiomyopathy
CASE: 44 year old Honduran male with no past medical history presented to an outside medicine clinic with increasing abdominal girth and decreasing exercise tolerance. A diagnosis of nonischemic cardiomyopathy was made with an EF of 13%. Despite therapy and AICD/ PPM placement, his symptoms worsened requiring multiple hospital

admissions. He was transferred to our hospital for further management. Physical exam: BP 118/86 HR 117 RR 23 T 97.9 and 97% on RA. He was in mild respiratory distress, had JVP at 13 cm and moist MM. Heart exam was significant for a systolic murmur and an S3. He had decreased breath sounds at the lung bases. His abdomen was soft and distended. There was trace lower extremity edema. Labs were significant for Na 134, proBNP 4580 (nl <450 pg/ml). HIV test was negative. EKG was v-paced with PVCs. An echo showed four-chamber dilatation, a mural LV thrombus, severe diffuse hypokinesis and an EF of 15%. Right heart catheterization showed elevated pressures and poor cardiac output. He was placed on a milrinone drip with improvement. Given the patient's nationality and clinical picture, testing for Trypanosoma cruzi yielded a positive ELISA (enzyme linked immunosorbent assay) and confirmatory RIPA (immunoflorescent antibody test). A diagnosis of Chagas cardiomyopathy was made. The patient was dependant on inotropes and subsequently evaluated for LVAD placement, but was thought to be a poor candidate due to inadequate social support. He subsequently expired.
DISCUSSION: This case illustrates a diagnostic challenge for physicians in the US. Chagas disease affects 8–10 million people in endemic areas of Latin America and about 500,000 people in the US. Using the triatomine bug as a vector, the T cruzi parasite is transmitted via stool contaminating a bite wound or mucosa. The acute phase lasts 4–8 weeks and typically manifests with nonspecific symptoms: diarrhea, fever, malaise and myalgias. This is due to active parasitemia. During this phase, diagnosis can be made visualizing organisms on peripheral smear. Patients then progress to the "indeterminate" form, a chronic disease state defined as positive serology without organ damage. No single serological test available has high enough sensitivity and specificity to be relied upon alone. Of available tests, including ELISA, RIPA, PCR and culture, two different tests are done in parallel to increase sensitivity and specificity. If there are discordant results, a third test may be utilized. Up to 30% of indeterminates advance to hypertrophic organ damage affecting cardiac, gastrointestinal or nervous systems. Chagas cardiac disease is the most common manifestation. Presentations vary from arrhythmias to heart block to heart failure. The most important factors in mortality risk stratification are EKG findings and heart failure symptomatology. Studies show that EKG abnormalities are associated with an increase in mortality of 12 times the seropositive controls without these findings. Recent data suggests that treatment in the acute phase with anti-parasitics may slow the progression to heart failure. Larger studies may clarify the role of treatment in the chronic phase. Thus, the diagnosis of Chagas disease should be considered in patients with nonischemic cardiomyopathy presenting from an endemic area in Latin America so that risk stratification and treatment may be directed.

AN UNUSUAL CAUSE FOR LOW BACK PAIN: MYCOTIC ABDOMINAL AORTIC ANEURYSM S. Malhotra[1]; A. Lertratanakul[2]; A. Dasari[1]; C.L. Spagnoletti[1]. [1]University of Pittsburgh Medical Center, Pittsburgh, PA; [2]University of Pittsburgh, School of Medicine, Pittsburgh, PA. *(Tracking ID # 189947)*

LEARNING OBJECTIVES: (1) To describe the epidemiology and pathogenesis of mycotic aneurysms (2) To recognize the clinical manifestations and diagnosis of mycotic abdominal aortic aneurysms, including back pain as a presenting symptom.
CASE: Mr. F is a previously healthy 66 year old male who presented to the hospital with lower back pain for five weeks. A recent outpatient non-contrast MRI of the spine showed mild lumbar disc disease for which he was prescribed analgesics and prednisone by his PCP. At the time of presentation to the hospital, he denied numbness or tingling in his lower extremities or pain elsewhere. He noted increasing urinary incontinence and brownish-colored urine over the previous two days. On examination, his temperature was 36.9, BP 157/97, HR 104. His legs appeared atrophic and he had several tender punctate purpuric lesions on the plantar surfaces of his feet and toes. He exhibited tenderness on palpation of the proximal portion of his thighs, bilateral hip, and plantar surfaces of his feet. Pertinent laboratory findings include a WBC count of 22.5 and an ESR of 56 in the setting of prolonged prednisone treatment. Blood cultures grew MRSA in 4/4 bottles and empiric treatment with IV vancomycin was begun. Biopsy of a plantar foot lesion confirmed septic vasculitis. An MRI of the spine with contrast showed a mass in the L4-L5 region that was suspicious for malignancy. A CT angiogram of the abdomen was performed for staging. However, this test revealed the mass to instead be a ruptured abdominal aortic pseudoaneurysm. The patient underwent a successful repair of this aneurysm that was positive for MRSA on histopathology.
DISCUSSION: Back pain is one of the most common presenting symptoms to a doctor's office. This case illustrates the importance of suspecting an intra-abdominal cause when back pain is accompanied by unusual symptoms and signs or fails to respond to conventional therapy. Mycotic aneurysms result from a localized irreversible destruction of the arterial wall by infection. They are formed by exposure of a preexisting aneurysm to bacteremia. They are rare accounting for 1%of all aneurysms and are most commonly caused by Staphylococcus aureus, two-thirds of which have been reported to be methicillin resistant. Other causative organisms are Streptococcus sp., Salmonella sp. and Pseudomonas sp. Risk factors include advanced age, immunosuppression and arterial trauma. Mycotic aneurysms can grow rapidly to a size of 4–5 cm within a week to a month and can rupture resulting in death. A small percentage may survive this rupture and develop a chronic pseudoaneurysm. The symptoms of a chronic mycotic aneurysm may include fever, profound leukocytosis, back and abdominal pain, and a pulsatile abdominal mass. Sometimes it presents with osteomyelitis of the spine from local extension, embolic phenomena, and distal limb ischemia. Based on the concordance between the location of the aneurysm and the neurological exam findings, it was felt that the cause for our patient's back pain was direct compression of the spinal column by the aneurysm. A CT scan with contrast is the preferred test for diagnosing and determining the extent of the aneurysm. The causative organism can be isolated from blood cultures (positive in 50 to 85% of cases) and from the aneurysmal tissue post-surgery. Surgical repair is always required and should be performed in an emergent manner.

AN UNUSUAL CAUSE OF CHEST PAIN: METABOLIC BONE DISEASE. A. Kemble[1]; M.J. Fagan[1]. [1]Brown University, Providence, RI. *(Tracking ID # 189835)*

LEARNING OBJECTIVES: 1) Recognize metabolic bone disease as a cause of chest pain. 2) Diagnose autosomal dominant osteopetrosis Type II.
CASE: A 43 year-old woman presented with several years of pressure-like pain in her chest and back that worsened with changes in position and inspiration. The pain was intermittent but had been increasing in frequency and severity. The patient reported no alleviating factors, and denied shortness of breath, palpitations, or dyspnea on exertion. She had no history of heart disease, thyroid disease, diabetes, hyperlipidemia, hypertension, or renal disease. She had no history of fractures or joint complaints. She did not smoke and had no family history of coronary disease. She was pre-menopausal. The patient had undergone no prior evaluation or testing. Physical examination revealed normal vital signs. Lungs were clear to auscultation. Cardiac exam was normal, with no rubs or murmurs. The patient had mild spinal and para-spinal tenderness diffusely, especially at the T12 level. Neurological exam was normal. EKG was normal. Radiographs demonstrated marked sclerotic bands along the superior and inferior endplates of the cervical, thoracic, and lumbar spine, consistent with autosomal dominant osteopetrosis (ADO) Type II.
DISCUSSION: Although metabolic bone disease is an uncommon etiology of chest pain, it may present as sternal or referred spinal pain. Metabolic bone disease should therefore not be overlooked in the differential diagnosis of atypical chest pain. Pain with movement and spinal tenderness to palpation may provide important diagnostic clues. Metabolic bone diseases include renal osteodystrophy, osteomalacia, osteoporosis, Paget's disease, and ADO Type II. Also known as Albers-Schönberg disease, ADO Type II is a rare, genetic, sclerosing bone disorder, resulting in widespread fragility of bones despite increased bone mass. The disease is genetically heterogeneous, involving defective oscteoclast bone resorption and subsequent osteosclerosis. Incidence is estimated to be 1/100,000–500,000. While it is not uncommon for this genetic disorder to be asymptomatic or present later in adulthood, patients frequently present in their early twenties with a history of bone pain and recurrent long bone fractures. The disease worsens with time. Other complications include osteomyelitis (usually of the mandible or maxilla), vision loss, and cranial nerve palsies due to basilar skull sclerosis. Radiographs are diagnostic, appearing as generalized osteosclerosis occurring in the vertebral endplates, skull base, iliac wings and long bone epiphyses. A bone biopsy may be confirmatory but is not

usually necessary. There is no curative therapy, thus patients may be treated symptomatically. Children with ADO Type II should be followed for vision loss, and adults should be educated about osteomyelitis and fracture risk.

AN UNUSUAL CAUSE OF FAILURE TO THRIVE K. Tucker[1]; J. Jevtic[1]. [1]Medical College of Wisconsin, Milwaukee, WI. *(Tracking ID # 190085)*

LEARNING OBJECTIVES: 1. Recognize how a thorough, detail oriented history and physical exam can guide one to the diagnosis of an unusual cause of Failure to Thrive(FTT). 2. Recognize the clinical features of POEMS Syndrome.
CASE: 60 year old male with multiple medical problems including diet-controlled diabetes ×5 yrs, HTN, remote PUD and Monogammopathy of Undetermined Significance (MGUS) presents to clinic reporting progressive weakness and myalgias that included difficulty standing from sitting, as well as exertional muscle fatigue. This has occurred insidiously over several months. Complains of numbness over both hands and feet as well as hoarseness and dysphagia with a 30# weight loss over one year. Physical exam revealed a thin male with dysphonia, tongue fasciculations, and proximal muscle weakness involving his hips and shoulders bilaterally without tenderness or wasting. Abdomen was mildly distended, no masses. Skin with hyperpigmentation and ecchymotic patches diffusely. Initial labs revealed ESR 23 mm/h, protein(t) of 6.4 g/dl, albumin 3.8 g/dl, creatinine 0.8 mg/dl with normal urinalysis. Pt was hospitalized for further evaluation due to hypoxia. EGD revealed a duodenal ulcer and gastromegaly with partial gastric outlet obstruction. A gastric emptying study showed delayed gastric emptying, t 1/2=1273 min (nl <90 min). Brain MRI showed nonspecific microvascular disease, while EMG revealed a distal sensorimotor polyneuropathy. Further workup revealed unremarkable SPEP, TFT's, CPK, and aldolase levels. Contrast CT scan showed moderate bilateral pleural effusions, hepatomegaly, with precarinal and subcarinal lymphadenopathy. A transthoracic echocardiogram (TTE) suggested cardiomegaly with diastolic dysfunction secondary to an infiltrative process and a cardiac MRI confirmed these findings. Skeletal survey was normal. Bone marrow biopsy revealed hypercellular marrow with ~30% plasma cells. A sural nerve biopsy with congo red staining revealed diffuse amyloidosis. His clinical findings of Polyneuropathy, Organomegaly, Endocrinopathy, Monoclonal protein, and Skin changes supported the diagnosis of POEMS syndrome.
DISCUSSION: POEMS Syndrome (aka osteosclerotic myeloma, Crow-Fukase syndrome, or Takatsuki syndrome) is a rare, multisystemic disorder with a peak incidence in midlife. POEMS is an acronym of the most common findings which include Polyneuropathy, Organomegaly, Endocrinopathy, Monoclonal protein, and Skin changes. Polyneuropathy is distal, symmetric, and bilateral, involves both motor and sensory nerves (with motor predominance), and has a gradual proximal spread. Respiratory compromise due to neuromuscular weakness can rarely occur. Hepatosplenomegaly and lymphadenopathy are often present (approximately 50% of cases). Multiple endocrinopathies exist, many related to increased estrogen with resultant impotence and gynecomastia in men and amenorrhea in women. Diabetes mellitus, hypothyroidism and -parathyroidism, and hyperprolactinemia are seen. Serum protein electrophoresis classically reveals monoclonal IgG-lambda, which is small and may be missed in 1/3 of patients if immunofixation is not used. Skin findings include hyperpigmentation, hypertrichosis, scleroderma-like skin thickening, and angiomas. In order to make the correct diagnosis of POEMS syndrome one must have a high clinical suspicion that there is a unifying diagnosis. This case illustrates how a rare, debilitating disease can be diagnosed with careful review of symptoms and thorough physical exam.

AN UNUSUAL CAUSE OF HYPOTENSION IN A PATIENT ON ANTICOAGULATION G.D. Valdez[1]; G. Teran[1]; R.D. Smalligan[1]. [1]East Tennessee State University, Johnson City, TN. *(Tracking ID # 189976)*

LEARNING OBJECTIVES: 1- Identify spontaneous rectus sheath hematoma as an unusual complication of anticoagulation in elderly patients. 2- Recognize Carnett's sign as a simple clinical finding helpful to distinguish abdominal wall pathology from intra-abdominal pathology.
CASE: A 77-year-old woman with a history of HTN and DM presented in hypertensive crisis with vomiting and confusion. After blood pressure stabilization, an initial troponin of 0.21 prompted the administration of aspirin, metoprolol and enoxaparin. The next day the Cardiology Service was consulted and an adenosine stress test was performed. During the study, the patient's blood pressure dropped from 161/51 to 70/50 and she again became confused, nauseated and had diffuse abdominal pain. Physical exam at that time revealed a distressed woman with a blood pressure of 70/50, HR 68, RR 22, T 97.2, no JVD or bruits, clear lungs, a regular heart rhythm without murmurs, gallops or rubs, tenderness in the RLQ of the abdomen with a new 12×5 cm mass palpable in the same region. Carnett's sign was positive, bowel sounds were present and there was no organomegaly, and the remainder of the exam was normal. Troponins had decreased to 0.02, hemoglobin had decreased from 10 to 7.1, WBC 19,800, platelets 306,000. ECG: NSR, no ST abnormalities. Hospital Course: Enoxaparin was stopped, IV fluids were given and a stat CT scan of the abdomen showed a right rectus sheath hematoma and pelvic hematoma. She received 3 units of PRBCs, Surgery Service was consulted and they opted for conservative management. The patient's hemodynamic status and hemoglobin stabilized and she recovered over several days.
DISCUSSION: This case illustrates a rare but potentially life-threatening condition: rectus sheath hematoma. Risk factors associated with this condition include advanced age, systemic anticoagulation, intrabdominal injections, abdominal wall strain, minor trauma, and pregnancy. Our patient had only age and 24-hours of anticoagulation as risk factors without any history of trauma but rapidly developed an abdominal mass with an abrupt 3 point drop in her hemoglobin. A positive Carnett's sign (increase in abdominal pain when lifting head and shoulders off the examination table) in this case suggested the origin of the pain was extra-abdominal. Rectus sheath hematomas in general present with abdominal wall pain and an abdominal mass (Fothergill's sign: an abdominal mass that does not cross the midline and remains palpable with rectus muscles flexed) (84%), decrease in hematocrit (69%), ecchymoses and a positive Carnett's sign. The diagnosis is confirmed by ultrasound or CT scan of the abdomen. Treatment is usually expectant including blood transfusions and pain management with occasional need for intravascular embolization or surgery. Although the outcome is usually good, there are reported fatal cases. Physicians must be alert to this rare but dangerous condition, especially in elderly patients on anticoagulation.

ANABOLIC STEROID INDUCED MINIMAL CHANGE DISEASE N. Shah[1]; R.J. Fortuna[2]; D. Kaelber[2]. [1]Harvard University/MGH, Boston, MA; [2]Harvard University, Boston, MA. *(Tracking ID # 190726)*

LEARNING OBJECTIVES: Understand potential adverse risks from illicit drug use. Recognize complications of minimal change disease.
CASE: A previously healthy 19-year-old male presented with a 20-lb weight gain, generalized edema, malaise, abdominal pain and nausea/vomiting. Two weeks prior to presentation, he completed a 10-week course of Internet obtained illicit biweekly IM anabolic steroids (trenbolone enanthate), using clean needles only. Immediately thereafter, he embarked on a vacation cruise where he presented with the above symptoms. The cruise physician discovered proteinuria, hematuria, and elevated creatinine and started prednisone and ceftriaxone for presumptive nephrotic syndrome. Upon disembarking, he was found to have bilateral pleural effusions and was admitted for evaluation. He denied recent history of pharyngitis, skin infection, or other recent illnesses, gross hematuria, dysuria, abdominal or flank pain arthralgias, acute rashes, headaches or fever. No significant past medical history or prescription medications. He was a well-appearing male with stable vitals signs. He had a distended abdomen with ascites on ultrasound, scrotal edema, bilateral 2 + pitting leg edema and diffuse new acne. Initial notable labs: Na-128, K-5.1, Cl-101, HCO3–26, BUN-29, Cr-1.2 (baseline 0.8), glucose-106, Ca-7.0, Albumin-0.9, Protein-4.6, cholesterol-451, triglycerides-436, LDL-355 and HDL-49, Protein/Creatinine-9.95, WBC-23.9 (77% PMN), Hemoglobin/Hematocrit-18.9/56.2 and platelets-293. Coagulation studies were initially normal. Urine dipstick had specific gravity-1.023, pH-6.5, large heme and protein. Urine microscopy revealed few hyaline casts with cellular inclusions and rare coarse granular casts. Renal biopsy demonstrated minimal change disease. Initial treatment was diuresis (lasix/albumin) and fluid restriction. Steroids were started upon return of his biopsy results.

Because of hypercoagulability associated with nephrotic syndrome, low-molecular weight heparin (LMWH) was initiated for DVT prophylaxis—post-biopsy. On hospital day 2, he developed sudden shoulder and back pain found secondary to multiple subsegmental pulmonary emboli (PEs). Argatroban was begun. His proteinuria and other laboratory findings and symptoms responded to a steroid taper over 4 months. LMWH continued for 6 months, without further clotting issues.
DISCUSSION: Patients with nephrotic syndrome can be hyper- or hypocoagulable secondary to proteinuria, leading to loss of clotting and inhibitory factors. This patient's nephrotic syndrome caused hypercoagulability leading to his PEs. Coagulation studies showed 55% decrease in ATIII and 45% decrease in Protein S function, as well as Factor 2 and Factor 10 deficiency. Given ATIII deficiency, LMWH was initially ineffective. This case illustrates two significant complications of anabolic steroid use – nephrotic syndrome and PEs – and given the ease of availability demonstrates the need to ask about anabolic steroid use. Anabolic steroids can cause many complications including hepatic toxicity (elevated transaminases, cholestasis and hepatocellular injury); reproductive effects (testicular atrophy and impotence); endocrine dysregulation (impaired glucose tolerance and hyperlipidemia); acne and hypertension. Several case reports document mebranoproliferative nephrotic syndrome related to anabolic steroids. However, this case appears to represent the first known case of minimal change nephrotic syndrome coincident with anabolic steroid use.

ANAPHYLAXIS WITH PROPHYLAXIS K. Siddiqui[1]; H. Paydak[1]; K. Pfeifer[1]. [1]Medical College of Wisconsin, Milwaukee, WI. *(Tracking ID # 190683)*

LEARNING OBJECTIVES: 1. Recognize the risk of anaphlyaxis with the use of prophylactic cefazolin. 2. Emphasize the potential for cefazolin hypersensitivity in the absence of other beta lactam reactivity. 3. Review diagnosis and management of anaphylaxis.
CASE: A 70-year-old gentleman with a past medical history of cardiac arrest with subsequent intracardiac defibrillator placement presented for a routine generator change. Although no previous exposure to cephalosporins could be confirmed, the patient did report being treated with penicillin in the past without any adverse outcomes. However, shortly after the patient was given prophylactic cefazolin for the procedure, he became severely hypotensive and edematous. He was intubated and hemodynamically stabilized with intravenous hydrocortisone, diphenhydramine, and an epinephrine drip. Subsequent pulmonary artery catheterization measurements were consistent with anaphylactic shock. He required mechanical ventilation and vasopressor support for more than 24 hours, but eventually recovered fully and was discharged home in stable condition.
DISCUSSION: Fatal anaphylaxis causes approximately 500 to 1000 fatalities per year, with drugs being the most common etiology in adults. Anaphylaxis is a rare but well-known adverse reaction from penicillin exposure. Also well-recognized is the approximately 10% cross-reactivity of penicillin hypersensitivity with cephalosporins. The implicated mechanism of this cross-reactivity is an IgE-mediated allergy to the beta lactam ring that these medications share. However, cefazolin hypersensitivity in the absence of an allergy to other beta lactams is quite uncommon and theorized to be side chain specific. Treatment of any medication-induced anaphylaxis is similar and depends on the severity of symptoms. Epinephrine is the first-choice for reversal of hypotension and bronchospasm, while antihistamines and bronchodilators are considered second-line agents. Corticosteroids, though not advantageous in the acute phase, are efficacious in preventing later biphasic reactions. This case is one of only a handful of reported cases of anaphylaxis from a first-generation cephalosporin in the absence of other beta lactam reactivity. This infrequent yet unpredictable adverse drug reaction is significant given cefazolin's frequent use as a prophylactic antibiotic prior to surgery.

ANA-VIVAXIS C. Kroner[1]; P. Skelding[1]; C. Miller[1]. [1]Tulane University, New Orleans, LA. *(Tracking ID # 190559)*

LEARNING OBJECTIVES: 1. Recognize a rare presentation of anaphylaxis. 2. Understand the importance of avoiding repeated antigen exposure in atopic patients. 3. Recognize that a thorough history is important for atypical presentations of disease.
CASE: A 59 year-old Nicaraguan man presented with the sudden onset of dyspnea and hypotension. Three days prior, he noted intense pruritis of his left hand that progressed to involve his arm, chest and face. The pruritis was accompanied by erythema and urticaria, prompting self-administration of diphenhydramine with no relief of his symptoms. Prior to this event, he could not relate any associated illnesses, sick contacts, or contributory allergies. He was a traveler, and had been diagnosed with malaria secondary to Plasmodium vivax nine months earlier. He completed a course of chloroquine and had no further complications since that time. His blood pressure was 60/40 mmHg, his heart rate was 120 beats/min., and his temperature was 38.7°C. He was flushed and tachypneic, noting a sense of impending doom. After the administration of a salmeterol inhaler and epinephrine, his tachypnea resolved and his blood pressure improved. The remainder of his physical examination was normal. Laboratory studies were normal except for a total bilirubin level of 1.6 mg/dL. Because of the prior history of malaria, a thick blood smear was ordered, revealing numerous intracellular parasites, including trophozoite rings. Upon further questioning, he noted that during the prior episode of malaria, he had experienced similar warning symptoms of spreading pruritis and urticaria. He was diagnosed with anaphylaxis secondary to reactivation of P. vivax; a course of chloroquine and primaquine resulted in resolution of his symptoms.
DISCUSSION: Malaria remains one of the most prevalent diseases world wide, and general internists practicing in port cities must recognize the symptoms suggestive of the disease. The recurrence of the disease is common, especially with Plasmodium vivax and Plasmodium ovale, or in patients who do not complete the full course of their chloroquine. In addition to the signs commonly associated with malaria, such as malaise, chills, weakness, and vomiting, symptoms of anaphylaxis in a patient who has been previous infected with Plasmodium should prompt consideration of a recurrence1, 2. His previous episode of hypersensitivity and progression to anaphylactic shock was consistent with a Type I immediate hypersensitivity reaction. Each exposure to the stimulus increased the severity of the next reaction. Type I immediate hypersensitivity, the most severe form being anaphylaxis, is usually mediated by IgE or complement activation. During the dormant hypnozoite stage there is no hypersensitivity, as was the case with our patient, but once Plasmodium vivax matures into a merozoite stage and becomes blood-borne, hypersensitivity ensues.. Patients with reactivation Plasmodium vivax should receive a combination of chloroquine and primaquine to target both active and dormant forms of Plasmodium vivax and prevent future antigen exposure from reactivation. Because under-treatment with recurrence of blood forms and re-infection are both possible, patients should be prescribed an epinephrine injector (EpiPen) to keep with them at all times.

AORTOBRONCHIAL FISTULA: AN UNUSUAL PERPETRATOR OF MASSIVE HEMOPTYSIS Z.T. Young[1]; W.P. Tillis[1]; P.E. Whitten[1]; J.B. Williams[1]. [1]University of Illinois College of Medicine, Peoria, IL, Peoria, IL. *(Tracking ID # 189658)*

LEARNING OBJECTIVES: - Recognize the clinical presentation for a rare cause of massive hemoptysis. - Review the basic pathophysiology, appropriate diagnostic imaging modalities and treatment options for an aortobronchial fistula.
CASE: An eighty-two year old male presented to the emergency department with massive hemoptysis. His only complaints were cough with intermittent hemoptysis for the past twelve months. He previously had a thoracic aortic aneurysm repaired with graft placement. On his initial presentation, he underwent a bronchoscopy that revealed no explanation for the source of bleeding. Approximately six months later, his symptoms returned and he underwent a bronchoscopy and esophagogastroduodenoscopy, which were nondiagnostic. A computed tomography of the chest revealed a false aneurysm at the site of the previously placed graft. After these tests, there was no clear etiology to explain his current clinical presentation. Three months later, he returned to the emergency department with massive hemoptysis. His initial laboratory workup was unremarkable, except for mild anemia. He had a repeated chest computed tomography, which demonstrated the previously described aneurysm that likely contained a thrombus, with no evidence of intravenous contrast extravasation. The adjacent pulmonary parenchyma had ground-glass opacities in the mid to lower left lung, compatible with pulmonary hemorrhage. Due to his advanced

age, multiple medical comorbidities and religious beliefs as a Jehovah's Witness, the patient was a high risk surgical candidate. With a keen suspicion for aortobronchial fistula induced by a false aneurysm, the patient was taken to the catheterization lab, where he underwent a successful aortic catheterization with an endoluminal stent graft placement.

DISCUSSION: An aortobronchial fistula (ABF) involves the communication between the aorta and the tracheobronchial tree. This usually develops when the expansion of a thoracic aneurysm compresses the bronchial tree, activating a chronic inflammatory response, which serves as a facet for this communication. The development of aortobronchial fistulas most commonly occur after previous sites of thoracic vascular surgery, followed by infectious etiologies, atherosclerosis and trauma. Recurrent hemoptysis is the most widespread presenting symptom of an ABF. The hemoptysis usually begins as small intermittent quantities as the fistulous tract communicates between the aorta and bronchial tree, which is then followed by massive hemoptysis. Other frequently reported symptoms include chest pain, back pain, dyspnea and chronic cough. Establishing the diagnosis of an ABF creates a diagnostic dilemma due to the symptoms being nonspecific. The diagnosis of an aortobronchial fistula is often ascertained preoperatively by maintaining a high index of suspicion. There are numerous imaging modalities that can aide in the diagnosis, but none are definitive. Bronchoscopy is utilized to eliminate more common etiologies of hemoptysis. Chest radiography and CT have limited roles as they frequently reveal abnormalities within the lung, however, fistulazation is rarely detected. An ABF is a surgical emergency. If left undiagnosed or untreated, it carries a high mortality rate. Our patient demonstrated how endovascular approaches can be utilized as an effective and well tolerated technique for high risk surgical patients with an aortobronchial fistula.

ARE WE IGNORING A POTENTIAL MARKER FOR GASTEROINTESTINAL MALIGNANCY? F.M. Siddiqui[1]. [1]Southern Illinois University, Springfield, IL. *(Tracking ID # 189275)*

LEARNING OBJECTIVES: To support and reiterate the strong association between Clostridium septicum bacteremia and Gastrointestinal malignancy. To recognize Clostridium septicum bacteremia as a potential indication for screening colonoscopy.

CASE: A 74 year old man, known case of myelodysplastic syndrome, hypertension and coronary artery disease came with sudden onset of severe pain in right foot and lower leg, associated with shortness of breath, fever and chills. On examination there was tenderness on the plantar aspect of the right foot; his temperature was 39.4 C, blood pressure was 88/50 and pulse was 120. The patient was admitted to rule out pulmonary embolism, deep venous thrombosis and sepsis. Two blood cultures were obtained and both yielded gram-positive rods. A Doppler study showed a thrombosis in the right peroneal vein. Spiral CT of the chest showed pulmonary emboli. The patient was placed on anticoagulation and broad spectrum antibiotics. The next day, patient developed a tender dark blood-filled bullous lesion on the plantar surface of the right heel measuring 2×5 cm. A radiograph of right heel showed no fracture or bony abnormality.A surgical incision and drainage was performed and fluid aspiration specimen came out positive for few rare coagulase negative staphylococci. The blood cultures grew clostridium septicum! The patient was started on penicillin G for clostridium septicum coverage. As literature review suggested a possible relationship between clostridium septicum infection and gastrointestinal malignancy, Gastroenterology service was consulted to do a colonoscopy in order to rule out malignancy. Since clostridium septicum bacteraemia is not an indication for colonoscopy, an elective colonoscopy was performed because of strong family history. The colonoscopy showed large hemicircumferential nodular neoplastic-appearing sessile lesion involving proximal ascending colon and small portion of cecum. A right hemicoloctomy was performed and pathology was evident for well differentiated adenocarcinoma. The patient was finally discharged in satisfactory conditions.

DISCUSSION: Clostridium septicum is a anaerobic, gram-positive, rod-shaped bacterium which produces lethal hemolytic and necrotizing toxins that can destroy cell membranes and alter capillary permeability, allowing access to the bloodstream. Because clostridia can reproduce readily in low-oxygen conditions, infections are usually seen in the setting of decreased blood supply like in patients with a history of trauma, recent surgery, diabetes, colon cancer and skin infections or burns.The most common presentation of clostridium septicum infection is myonecrosis although cases are reported with C. septicum causing cerebritis, meningitis, panophthalmitis, arthritis, thyroiditis, osteomyelitis, aortitis, and pericarditis. The association of C.septicum with a hematologic disorder or colonic cancer has been known for decades.There are more than 160 cases reported throughout the world. Despite this strong association, this issue is not seriously addressed in the guidelines for colonoscopy published by the American Society for Gastrointestinal Endoscopy(ASGE). This creates a dilemma for gasteroenterologists working in such type of situations; an alternate indicator for colonoscopy was fortunately present in our case but may not be present in others. We believe that ASGE should modify the guidelines for screening colonoscopy and include Clostridium septicum bacteremia as a potential indication for the same.

ASYMPTOMATIC PATENT DUCTUS ARTERIOSIS (PDA) IN ADULT PATIENTS. IS TREATMENT OR ENDOCARDITIS PROPHYLAXIS NEEDED? H. Cassidy[1]; L.A. Cassidy[1]; J. Blackshear[1]. [1]Mayo Clinic, Jacksonville, FL. *(Tracking ID # 189578)*

LEARNING OBJECTIVES: 1. Recognize clinical situations suggesting a previously undiagnosed PDA. 2. Determine the need for closure or endocarditis prophylaxis.

CASE: A 55-year-old Caucasian male presented to the clinic to establish care with a past medical history significant only for mild hyperlipidemia and benign hematuria. Asymptomatic at his initial evaluation, physical examination revealed a grade 1–2/6 continuous cardiac murmur heard best at the 2nd left intercostal space. Remainder of physical and laboratory examinations were otherwise unremarkable. An echocardiogram was performed to further assess the murmur, and revealed a PDA. CT angiography revealed a PDA that connected the aortic arch to the pulmonary artery. Cardiology consultation was requested and as this appeared to be a small PDA with no left ventricular hypertrophy in an asymptomatic patient, the decision was made to continue careful follow up on a six month basis.

DISCUSSION: Clinical manifestations of PDA are dependent upon size of the ductus, age of the patient, pressure differential across the ductus and presence or absence of pulmonary hypertension. Patients with "silent PDA" but no signs or symptoms may be discovered incidentally on echocardiogram done for other purposes. Others may present with congestive heart failure, pulmonary hypertension, signs of volume overload, atrial fibrillation, recurrent pneumonia or other complications of PDA. Asymptomatic PDAs may become clinically significant when acquired conditions such as recurrent pneumonia, development of COPD or the manifestations of valvular or ischemic heart disease are superimposed. The often cited typical "machinery" murmur located at the upper left sternal border may vary in presentation depending upon pressure dynamics across the ductus. Chest x-ray may be normal or may show increased pulmonary vascular markings, enlargement of the main pulmonary artery and occasionally calcification of the ductus. Echocardiogram is used to confirm the diagnosis of PDA and to determine the size, shape, and location. It also may provide information on the effect of the PDA on cardiovascular dynamics such as atrial size as well as left ventricular size and function. Magnetic resonance imaging and CT angiography may provide further useful information in characterizing the PDA as well as establishing the surgical candidacy of the patient. The need for bacterial endocarditis prophylaxis in an unrepaired PDA remains controversial. However subacute bacterial endocarditis has been reported in both symptomatic and "silent" PDAs, and decisions about prophylaxis should be made in conjunction with a cardiologist that is well versed in congenital heart disease. Meticulous attention to oral hygiene and regular access to appropriate dental care should be emphasized to the patient. Surgical ligation of a PDA is generally reserved for small infants and premature babies or those with large, unfavorably shaped ducts. Small PDAs (those with minimal ductal diameter of 1.5–2.5 mmHg) without hemodynamic overload are generally closed due to the risk of subacute bacterial endocarditis. Medium and large-sized PDAs (>than 2.5 mm) should be closed not only for endocarditis prevention, but also to prevent volume overload of the left ventricle, prevent pulmonary vascular obstructive disease and to

treat congestive heart failure. Closure of "silent PDAs" remains controversial and requires further research.

ATYPICAL BACK PAIN AS A PRECURSOR TO ORMOND'S SYNDROME
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LEARNING OBJECTIVES: Recognize the signs and symptoms suggestive of a potential case of Ormond's syndrome Identify potential causative factors of retroperitoneal fibrosis
CASE: A 64-year-old male presented to his local hospital complaining of a three-day history of nausea, vomitting and abdominal pain. His past medical history was significant for nephrolithiasis, recently diagnosed anemia, and a four month history of back pain with a lumbar MRI showning only mild DJD. The patient reported decreased intake of fluids and expressed concern that he may have recently passed a stone. He denied difficulty or burning with urination and denied recent respiratory infection, NSAID use, or medication changes. A metabolic panel was obtained and it showed a potassium of 7.4 mEq/L and creatinine 10.6 mg/dL. After obtaining these laboratory results the patient was transferred from his local emergency department to a tertiary facility for emergent hemodialysis. Later he had an abdominal CT to rule out nephrolithiasis and it showed a retroperitoneal mass which had entrapped and obstructed his ureters. Biopsy supported the diagnosis of idiopathic retroperitoneal fibrosis.
DISCUSSION: Although known prior to 1948 idiopathic retroperitoneal fibrosis was first recognized as a distinct disease process when John Kelso Ormond published a description of two cases that year. In over two-thirds of cases of retroperitoneal fibrosis no direct cause is identified. It can also occur secondary to certain known factors with the most commonly associated agents being pharmaceuticals including methysergide, ergotamine, methyldopa, beta-blockers, hydralazine, and analgesics. The exact mechanism of action associated with these medications is controversial and unclear. The disease can also occur secondary to retroperitoneal metastases, primary tumors, radiation, trauma, abdominal surgery, and local spread of paraspinal abscesses. Clinical manifestations of idiopathic retroperitoneal fibrosis are both local and systemic. The most common clinical manifestation is back, side, or abdominal pain. Other localized manifestations include lower extremity edema, deep vein thrombosis, scrotal swelling, constipation, and urinary frequency. Systemic manifestations include anemia, low-grade fever, anorexia, weight loss, and myalgias. Imaging showing medial displacement of the ureters or obstructive uropathy and laboratory showing an elevated ESR or CRP would certainly support clinical suspicion of the disease. Presenting signs and symptoms are largely nonspecific and thus there is often considerable delay in diagnosis. This leads to late complications with the most common being ureteral obstruction with secondary renal failure. In fact, ureteral involvement is present in 80–100% of cases. Little data on the disease is available but one study has suggested an incidence of 0.1 per 100,000 and a prevalence of 1.38 per 100,000. Men are affected two to three times more often than women and the mean age at presentation is 50–60 years. Treatment typically includes high dose steroids and surgery to relieve ureteral obstruction. In the future perhaps further study will reveal the mechanism of action of medications having a fibrogenic effect such as that seen recently with gadolinium and medications may eventually be linked to more cases of retroperitoneal fibrosis. Physicians need to be aware of Ormond's disease and should keep it in the back of their minds when evaluating patients presenting with renal failure.

AUSTRIAN SYNDROME AND TRANSIENT STRESS-INDUCED CARDIOMYOPATHY
S. Gandhi[1]; L.K. Snydman[1]; K. Roberts[1]; J. Kuvin[1]. [1]Tufts-New England Medical Center, Boston, MA. *(Tracking ID # 190319)*

LEARNING OBJECTIVES: We describe a case of severe pneumococcal infection (Austrian Syndrome) causing stress-induced cardiomyopathy (CMP) with the following objectives: 1. Exemplify the complex associations between systemic disease and acute cardiac decompensation. 2. Raise awareness about stress-induced CMP
CASE: A 63-year-old alcoholic Caucasian man presented with one-week history of fever with chills, cough, malaise, body aches and an acute loss of vision in his left eye. Vital signs were remarkable for fever 39 C, heart rate 116 beats/minute, BP 193/64 and respiratory rate 22 breaths/minute. Examination revealed left lung basilar rales, bounding pulses, a grade IV/VI blowing diastolic murmur, best heard in the left third intercostal space and blindness in the left eye. There were no peripheral stigmata of endocarditis. Laboratory data was significant for WBC 25000/ml and erythrocyte sedimentation rate74 mm/Hg. Chest x-ray revealed pleural fluid and consolidation in the left lower lung. Systemic broad-spectrum antibiotics were initiated and the patient received an intra-vitreal injection of antibiotics as well after obtaining blood, vitreal, urine and sputum cultures. On day 2, the patient developed mental status changes with meningeal signs and lumbar puncture revealed cloudy cerebrospinal fluid, 1560 nucleated cells with 80% neutrophils, elevated protein 448 mg/dL and glucose 80 mg/dL. Blood and vitreal cultures returned positive for streptococcus pneumoniae. Transesophageal echocardiogram showed an enlarged left ventricular cavity with ejection fraction of 15% and findings suggestive of left ventricular apical ballooning. Also, there was fenestration/avulsion of the non-coronary cusp of aortic valve with severe aortic insufficiency, but no valvular vegetations were visualized. There was a mild increase in cardiac specific biomarker enzymes and the electrocardiogram showed new deep inverted T-waves. Repeat echocardiogram three days later showed partial left ventricular function recovery to an ejection fraction EF of 40%, and within three weeks, his left ventricular ejection fraction improved to normal. He defervesced and responded well to the antibiotic regimen. Aortic valve replacement was performed three weeks after initiation of systemic antibiotic therapy. There were no complications post-operatively, and he was discharged to a rehabilitation facility after a two-month hospitalization.
DISCUSSION: The interest of this case lies in the rarity of the triad described as Austrian's syndrome and in the coexistent stress-induced CMP. Robert Austrian described the clinical triad of pneumococcal pneumonia, meningitis, and endocarditis, a syndrome that now bears his name and was present in our patient. Alcoholism, HIV infection, splenectomy, connective tissue disease, steroid use, diabetes mellitus, and intravenous drug use are the common risk factors for invasive pneumococcal infections. Alcoholism was identified as the most likely risk factor in this case. Stress-induced CMP is a well-described acute cardiac syndrome with typical characteristics of apical ballooning, heart failure, electrocardiographic and biomarker abnormalities in the presence of non-obstructive coronary artery disease, and predictably, improves over the course of a few days to weeks. It should be considered in critically ill patients presenting with systemic illnesses.

BEYOND STEREOTYPES: FEVER, COUGH, AND WEIGHT LOSS IN A RECENT IMMIGRANT
E. Hubenthal[1]; L. Lu[1]. [1]Baylor College of Medicine, Houston, TX. *(Tracking ID # 190082)*

LEARNING OBJECTIVES: 1. Recognize the clinical presentation of disseminated *Mycobacterium avium-intracellulare* infection in HIV-negative patients. 2. Identify possible predisposing factors for this rare but potentially fatal clinical syndrome.
CASE: A 24 year old previously healthy Hispanic man presented with four months of cough, fever, chills, fatigue, ten pound weight loss and a rash on his legs. He emigrated to the U.S. from Mexico three years ago, but had not recently traveled. There were no sick contacts, and he was not sexually active. At presentation, he was febrile (temperature 102.6° F), tachycardic (123 min^{-1}) and hypotensive (95/59 mm Hg), but was not in respiratory distress and had an oxygen saturation of 96% on room air. The physical examination was significant for pallor, decreased breath sounds in the left lung field and bilateral lower extremity edema. A maculopapular rash was present on both lower extremities, and a 2× 2 cm ulcer was noted on the left knee. Laboratory data revealed a white count of 1.2 K/μl with 72% neutrophils, 12% lymphocytes, 14% eosinophils and 1% monocytes, hemoglobin 5.2 g/dl, platelets 44 K/μl and albumin 1.7 g/dl. He was negative for HIV by ELISA and polymerase chain reaction, and had a CD4 count of 65 cells/μl. He refused a bone marrow biopsy. CT chest revealed a dense consolidation of the left lung with mediastinal, retroperitoneal and celiac lymphadenopathy. Biopsies of the skin lesion and mediastinal lymph node stained positive for acid-fast bacilli (AFB), and AFB blood cultures, sputum and bronchoalveolar lavage fluid subsequently grew *Mycobacterium avium-intracellulare* (MAI). He was treated with clarithromycin, ethambutol and rifampin, and after

four weeks of therapy he had improvement in his constitutional symptoms and his CBC and CD4 count (150 cells/μl). Results of special laboratory studies of interferon-gamma (IFN-γ) and interleukin-12 (IL-12) were pending at the time of writing this abstract.
DISCUSSION: MAI is a ubiquitous organism which along with other nontuberculous mycobacteria commonly causes disseminated disease in patients with HIV. In patients without HIV, the infection is usually localized to the lungs, cervical lymph nodes or the skin. Since cell mediated immunity plays an important role in the defense against mycobacterial infections, patients on immunosuppressive therapies or with underlying hematological malignancies are at risk for dissemination, as are patients with defective macrophages. A syndrome of isolated CD4 lymphocytopenia in the absence of HIV has been described, although this diagnosis cannot be made until the patient has received adequate anti-mycobacterial therapy. Recent studies have also implicated defects in IFN-γ and IL-12 pathways, and autoantibodies to IFN-γ have been described in patients with disseminated disease. Optimal treatment involves extended therapy with clarithromycin, ethambutol, and rifampin, along with correcting any identifiable predisposing factors. Therapy with IFN-γ has been used successfully in patients with refractory disseminated nontuberculous mycobacteria with documented low levels of IFN-γ. In conclusion, although traditionally considered an AIDS-defining illness, disseminated infections with nontuberculous mycobacteria are being increasingly recognized in seemingly immunocompetent patients, and the diagnosis should prompt a search for rare but potentially treatable underlying immune defects.

BLINDED BY THE BLADDER C.M. Rhee[1]; A.S. Cedfeldt[2]. [1]Oregon Health & Science University, Portland, OR; [2]Portland VA Medical Center, Portland, OR. *(Tracking ID # 189433)*

LEARNING OBJECTIVES: 1. Recognize acute monocular visual loss as a medical emergency indicating a lesion anterior to the optic chiasm 2. Identify the most common etiologies of a retro-orbital mass 3. List the most common malignancies to metastasize to the orbit
CASE: A 66 year old male with nephrolithiasis and tobacco abuse presented with a headache and piercing right eye pain for three weeks. Symptoms of diplopia and blurry vision for three days prompted his hospital visit. He presumed that he also had a recurrent kidney stone because of two months of urinary frequency and hematuria. His exam was notable for normal bilateral visual acuity, right sided proptosis, impaired right-sided extraocular movements, and delayed afferent pupillary reflex; dilated fundoscopic exam did not show optic disc swelling. Laboratory values demonstrated a creatinine of 3.5 mg/dl and pyuria, hematuria, and proteinuria. An MRI of the brain demonstrated a 1.5×2.4 retro-orbital mass between the right optic nerve and medial rectus. Within 24 hours of admission, the patient reported acute right sided visual loss. Ophthalmologic exam confirmed absence of light perception. He promptly received intravenous solumedrol as infectious etiology was not suspected and underwent urgent ophthalmic biopsy. Preliminary pathology demonstrated a poorly differentiated large cell carcinoma. Emergent palliative radiation to the right eye was initiated. His renal failure, urine sediment, and concern for metastatic malignancy prompted an abdominal CT which revealed bilateral hydronephrosis, lymphadenopathy, bladder wall thickening, and multiple liver lesions. A bladder mass was resected on subsequent cystoscopy; pathology was consistent with transitional cell cancer of the bladder. Final results of the ophthalmic biopsy were confirmed as transitional or squamous cell cancer. Steroids and daily radiation could not restore his vision. His renal function improved after ureteral stenting and nephrostomy tube placement. He was discharged with palliative chemotherapy referral but died within one month of his hospital admission.
DISCUSSION: Acute monocular vision loss is a medical emergency. Monocular blindness indicates a lesion anterior to the optic chiasm and is most commonly due to ischemic insults such as arterial or venous occlusion or hypoperfusion; papilledema, optic neuropathy, or ocular disease should also be considered. Presence of a retro-orbital mass should prompt urgent identification of the etiology; the differential diagnosis for his retro-orbital mass included orbital pseudotumor, Wegener's granulomatosis, sarcoidosis, and primary or metastatic malignancy. Empiric treatment with steroids should be considered. Metastases rarely present as orbital masses due to limited entry of emboli into the ophthalmic artery because of its narrow branch from the internal carotid artery. They account for 10 to 15 percent of orbital lesions in adults and are most often due to breast, lung, and prostate cancer, or melanoma. Bladder cancer rarely metastasizes to the orbit, and orbital involvement portends a poor prognosis with a 6 month median survival.

"BROKEN HEART SYNDROME" AFTER EXOGENOUS ADMINISTRATION OF EPINEPHRINE B.M. Patel[1]; E. Cohen[2]; K.A. Kaid[3]. [1]Newark Beth Israel Medical Center, Jersey City, NJ; [2]Newark Beth Israel Medical Center, Newark, NJ; [3]Newark Beth Israel Medical Center, Brooklyn, NY. *(Tracking ID # 190795)*

LEARNING OBJECTIVES: 1. To recognize the phenomenon of catecholamine-induced cardiomyopathy and its appropriate clininical management 2. To describe a unique presentation of catecholamine-induced cardiomyopathy after exogenous epinephrine administration
CASE: Catecholamine-induced cardiomyopathy (also called transient left ventricular apical ballooning, broken heart syndrome, and Takotsubo cardiomyopathy) is a transient left ventricular (LV) dysfunction that mimics myocardial infarction in the absence of significant coronary artery disease (CAD). We describe a case of catecholamine-induced cardiomyopathy after exogenous epinephrine injection. A 22 year old male, with no significant past medical history, presented to the emergency department with an anaphylactic food allergy. During his treatment the patient received subcutaneous epinephrine. Shortly thereafter, the patient developed retro-sternal chest pain with associated dyspnea. Electrocardiogram revealed ST- segment elevation in leads II, III and AVF as well as ST segment depression in the lateral limb leads (V3 – V5). Cardiac enzymes showed a peak troponin I of 0.80 ng/ml. Urine drug toxicology screen was negative. An echocardiogram performed at the time showed basal and mid septal akinesis with a hypokinetic basal posterior and lateral wall. Overall LV ejection fraction was reduced. Coronary angiography with Multislice Computed Tomography showed no CAD. The patient was treated with beta-blockers and angiotensin converting enzyme (ACE) inhibitors. Repeat echocardiogram showed normalization of LV function.
DISCUSSION: Catecholamine-induced cardiomyopathy is a rare but increasingly reported syndrome characterized by transient apical LV dysfunction that mimics myocardial infarction in the absence of significant CAD. While the exact etiology is unclear, pathogenetic hypotheses include coronary artery spasm, myocarditis, and dynamic mid-cavity obstruction. This phenomenon has been previously described particularly in post-menopausal women and is believed to occur in response to excess catecholamine release secondary to emotional and/or physiological insults. The most common presenting symptom is acute substernal chest pain although some patients present with dyspnea. Associated diagnostic findings include electrocardiographic abnormalities, with ST segment elevations typically seen, as well as mild elevations in the cardiac biomarkers. Clinical manifestations and electrocardiographic changes are usually out of proportion to the degree of cardiac biomarker elevation. Classic echocardiographic findings include a characteristic apical ballooning with akinesis or dyskinesis of the apical one-half to two-thirds of the left ventricle as well as overall reduction in LV systolic function. This condition is typically transient in nature with an overall good prognosis and is treated primarily with supportive measures such as beta- blockers, ACE inhibitors, and fluid hydration. Catecholamine-induced cardiomyopathy is a rare but under-diagnosed finding. While this condition can have an initial presentation similar to myocardial infarction, the recognition of associated features such as stressful triggers can assist in the diagnosis of this phenomenon. To our knowledge, this is the first described case of catecholamine-induced cardiomyopathy related to exogenously administered epinephrine, warrenting recognition of this possible complication of the management of anaphylaxis.

CANCER OR NOT????? N. Bose[1]; M.J. Jelley[2]. [1]University of Oklahoma College of Medicine, Tulsa, OK; [2]University of Oklahoma, Tulsa, OK. *(Tracking ID # 189451)*

LEARNING OBJECTIVES: 1. Recognize that although contemporary imaging modalities have eliminated the need for many "exploratory" operations, these techniques are imperfect at best and often, only direct

visualization can provide a definitive answer to a vexing clinical question 2. Recognize that foreign body ingestion may masquerade as malignancy
CASE: The patient is a sixty-one year old male, with a known history of alcohol-related cirrhosis and portal hypertension, who presented with complaints of right upper quadrant pain, nausea and vomiting. He claimed long-term abstinence from alcohol. He had undergone recent investigation for the abdominal pain, including an esophagogastroduodenoscopy [in which the scope could not be advanced beyond the pylorus] followed by endoscopic retrograde cholangiopancreatography and biliary stenting. During this admission, he underwent computerized tomography [CT] of the abdomen, the findings of which was suspicious for malignancy in the periampullary part of the duodenum, with biliary and duodenal obstruction. He was deemed to not be a candidate for radical pancreaticoduodenectomy due to known cirrhosis and portal hypertension. A palliative gastrojejunostomy was considered, given the obstructive nature of the mass. Gastroenterology recommended endoscopic ultrasound along with pancreas protocol CT. The findings were suspicious for extensive malignancy. The patient was ultimately taken to the operating room where he was found to have a large inflammatory mass occupying the right upper quadrant. Multiple biopsies were taken revealing inflammatory changes. In the course of obtaining more tissue for true-cut biopsies, it became apparent that a toothpick had perforated the duodenum, was outside the liver, and was the source for the large inflammatory phlegmon. The foreign body was removed. Drains were left in the region of the duodenum and gastrojejunostomy and diversion were performed with considerable improvement of his pain. He did not recall ever swallowing a toothpick!
DISCUSSION: Ingestion of foreign bodies is usually an accidental or intentional event, often occurring in young children, people with dentures or cognitive impairment, psychologically disturbed persons, alcoholics or those who eat rapidly. Cooking softens the toothpicks, compounding the problem. Most swallowed foreign objects uneventfully pass through the gastrointestinal tract, while those with sharp, pointed ends have a high risk of perforating, especially in the duodenum and the sigmoid colon. Toothpicks account for 10 percent of intestinal perforations by ingested foreign bodies. The clinical presentation of gastrointestinal injuries associated with ingested toothpicks includes abdominal pain, gastrointestinal bleeding and obstruction. Radiographs and CT usually have a low sensitivity for identifying swallowed toothpicks. Our case is unique because early diagnosis and retrieval of a toothpick causing duodenal perforation was brought about by suspicion of malignancy.

CARDIAC AMYLOIDOSIS PRESENTING AS RESTRICTIVE CARDIOMYOPATHY. A.J. Deshmukh[1]; S.S. Subramanian[1]; V. Peterson[1]. [1]Medical College of Wisconsin, milwaukee, WI. *(Tracking ID # 190861)*

LEARNING OBJECTIVES: 1. Recognize cardiac amyloidosis as a possible etiology of non ischemic heart disease. 2. Medically optimize and manage cardiac amyloidosis.
CASE: A 56 year-old Caucasian male diagnosed with congestive heart failure was admitted with progressive shortness of breath and occasional lightheadedness for 2 months. Past medical history was not positive for coronary artery disease, hypertension or diabetes. Physical examination revealed JVD, S3 gallop, bibaslar crackles and ascites, with significant vital signs of heart rate 52/min, BP 105/65 mmHg. EKG showed poor R wave progression in chest leads, no Q waves and normal sinus rhythm. Cardiomegaly and bilateral pleural effusions were seen on chest X-ray. The patient had a BNP of 1438 with normal lab studies, including cardiac enzymes. A transthoracic echocardiogram found an ejection fraction of 25% and severe left ventricular hypertrophy. Despite appropriate medical treatment with diuretics, the patient's shortness of breath worsened and telemetry monitoring showed a new junctional rhythm. Cardiac catheterization was done which showed normal coronaries.Restrictive cardiomyopathy was then considered, given the non ischemic findings. Diagnostics included a biopsy of the abdominal fat pad that was positive for amyloid type AL. A cardiac MRI also showed changes in the left ventricle wall and septum suggestive of amyloid deposits. The patient's junctional rhythm was treated with an implanted intra cardiac defibrillator. He was given melphalan and dexamethasone and had clinical and symptomatic improvement of his heart failure symptoms.
DISCUSSION: Amyoidosis is an accumulation of proteins type AA or AL. Cardiac amyloidosis is classified according to the type of protein, suspect origin and accompanying organ involvement. Infiltration of the heart from amyloid protein can result in restrictive cardiomyopathy. In late disease, it may manifest as heart failure or dysrhythmia by interrupting contractile function and electrical conduction. Intramural amyloid deposition can decrease coronary flow by mechanical obstruction. The presentation clinically mimics right heart failure shortness of breath, ascites, hepatomagaly and edema. Typical EKG findings include low voltage pattern and conduction abnormalities. An echocardiogram may further elucidate the diagnosis by showing increased left ventricular mass, granular or "sparkling" appearance of the myocardium, diastolic dysfunction, biatrial enlargement and thickened valve leaflets. Cardiac magnetic resonance imaging enables high-resolution 3D imaging and can help differentiate cardiac amyloidosis from other causes of cardiomyopathy. Characteristic findings of myocardial amyloid deposition include decreased signal intensity and late subendocardial tissue enhancement by gadolinium. The gold standard for diagnosis of cardiac amyloid is endomyocardial biopsy. Alleviation of symptoms is achieved with beta blockers, ace inhibitors, diuretics and management of arrhythmia with a permanent pacemaker. Treatment for amyloid includes oral chemotherapy with melphalan and prednisone or high-dose chemotherapy with autologous stem cell transplantation. Heart transplant typically results in recurrence of the disease in the allograft. The median survival of cardiac amyloidosis is less than one year, but depends largely on timeliness of diagnosis and systemic involvement

CARDIAC AMYLOIDOSIS: AN USUSUAL ETIOLOGY OF CARDIOMYOPATHY IN A PATIENT WITH HIV AND HEPATITIS C J. Peloquin[1]; C. Alonso[1]; K. Woods[1]; L.S. Feldman[1]. [1]Johns Hopkins University, Baltimore, MD. *(Tracking ID # 190735)*

LEARNING OBJECTIVES: (1) To explore the differential diagnosis for congestive heart failure in a patient with HIV and Hepatitis C. (2) To review the clinical and diagnostic studies needed to diagnose cardiac amyloidosis.
CASE: A 53-year-old man with a history of one prior hospitalization for chest pain presented with three weeks of progressive dyspnea on exertion, orthopnea, increasing abdominal girth, and lower extremity edema. He took no medications and denied current tobacco, alcohol, or drug use. He last abused intravenous heroin and cocaine seven years ago. Physical exam revealed sinus tachycardia with a laterally displaced PMI, elevated jugular pressure to 15 cm, bibasilar crackles, ascites, and 2 + pitting edema. Laboratory results included an elevated total protein of 7.4 g/dL with hypoalbuminemia of 2.9 g/dL, and a peak troponin elevation of 0.21 ng/mL. Electrocardiogram demonstrated biatrial enlargement, low-voltage QRS complexes across the precordium, and Q waves in V1 and V2. A transthoracic echocardiogram confirmed moderate to severe global hypokinesis of the left ventricle with an ejection fraction of 25–30%, severe biatrial dilatation, and a diastolic filling pattern consistent with a restrictive physiology. The left ventricular myocardium had a "granular sparkling" appearance suggestive of amyloidosis. CT angiography demonstrated no evidence of coronary artery disease. Further evaluation of his gamma gap revealed a reactive Hepatitis C antibody (viral load of 1,390,000) and a positive Human Immunodeficiency Virus (HIV) antibody and viral load with a CD4 count of 367. Serum protein electrophoresis demonstrated a monoclonal gammopathy (1.88 g/dL). Urine protein electrophoresis revealed an IgG ë monoclonal gammopathy with ë Bence Jones proteinuria. Endomyocardial biopsy obtained on right heart catheterization revealed Congo red-staining amorphous pink deposits with an apple-green birefringence under polarized microscopy, confirming the diagnosis of primary (AL) cardiac amyloidosis.
DISCUSSION: Amyloidosis is a disease characterized by infiltration of multiple organs by insoluble fibrillar proteins. Primary amyloidosis may be idiopathic or secondary to multiple myeloma. It is frequently associated with cardiac involvement which may present as heart failure, cardiomegaly, and conduction abnormalities. Secondary amyloidosis is associated with chronic infections such as HIV and Hepatitis C but rarely involves the heart. Our patient demonstrated many of the clinical features of cardiac amyloidosis including new onset congestive heart failure, with the classic low voltage QRS seen in the lateral leads, a pseudoinfarction pattern, and an interventricular conduction delay. While secondary amyloidosis has been described previously in patients with HIV and Hepatitis C, this case represents the first reported description of a coinfected HIV and Hepatitis C

patient presenting with primary amyloidosis involving the heart. First reported by Cozzi et al in 1992, HIV infection has been associated with AA amyloidosis involving the kidneys, gastrointestinal tract, liver, lungs, and brain. For patients with AL amyloidosis, there is a median survival of 13 months (4 months if heart failure is present at diagnosis). Our patient underwent aggressive medical therapy for his heart failure and is being evaluated for treatment of his HIV, Hepatitis C and amyloidosis.

CARDIOMYOPATHY DUE TO INCESSANT ATRIAL TACHYCARDIA: SHOULD THE PATIENT RECEIVE A HEART TRANSPLANT? S. Le[1]; H. Hashemi[2]; E. Buch[2]; M.S. Galindo[1]. [1]University of California, Los Angeles, Los Angeles, CA; [2]UCLA, Los Angeles, CA. *(Tracking ID # 189877)*

LEARNING OBJECTIVES: 1. Recognize an uncommon etiology of cardiomyopathy (CM). 2. Make use of electrophysiology (EP) studies in the diagnosis and treatment of tachycardia-induced CM.
CASE: An extremely active 21-year-old man was transferred from an outside hospital for evaluation of tachycardia and for possible heart transplantation. At the time of transfer, the patient reported occasional dizziness. He denied chest pain, syncope, orthopnea, paroxysmal nocturnal dyspnea, or peripheral edema. He had excellent exercise tolerance and regularly participated in competitive basketball. There was no family history of sudden death, CM, or premature coronary artery disease. Cardiac examination revealed tachycardia with a pulse rate of 160–170. There was a grade 1/6 mid systolic murmur heard best at the left sternal border but no third or fourth heart sounds. Jugular venous pressure was normal. The rest of his examination was unremarkable. Continuous EKG monitoring revealed frequent runs of supraventricular tachycardia with rates between 150 and 170 beats per minute and frequent pauses, the longest of which was 5.4 seconds. Troponin, CK-MB, and BNP were unremarkable. Cardiac MRI revealed global diastolic and systolic dysfunction and a left ventricular ejection fraction of 35%. Endomyocardial biopsy demonstrated mild interstitial fibrosis without evidence of lymphocytic infiltrates or acute myocarditis. There was no histologic evidence of sarcoidosis, hemochromatosis, or amyloidosis. A cardiac EP study showed incessant repetitive atrial tachycardia originating from the os of the right atrial appendage. The patient underwent successful radiofrequency ablation of this ectopic focus. An echocardiogram several months later showed improvement in his ejection fraction to 55%.
DISCUSSION: This patient developed CM as a result of incessant atrial tachycardia originating from the os of right atrial appendage. EP ablation restored him to normal sinus rhythm and improved his systolic function to nearly normal. As a result, he no longer required consideration for heart transplantation. A wide variety of tachyarrhythmias have been associated with tachycardia-induced CM. Chronic tachycardia produces significant cardiac structural changes, with left ventricular dilatation and cellular morphologic changes that ultimately lead to decreased systolic function. However, the exact mechanism by which tachycardia produces these changes is not well understood. Regardless of the source of the arrhythmia, therapy to convert the arrhythmia to sinus rhythm or slow the ventricular rate appears to result in an improvement in left ventricular function. This case demonstrates the importance of considering broad differential diagnoses in a patient presenting with CM. Accurate history and physical examination in combination with EP study and therapy for tachycardia-mediated CM is effective and may prevent unnecessary interventions.

CASE STUDY OF ECTOPIC ACTH SYNDROME C.K. Mamillapalli[1]; S. R. Pathak[2]; S. Nekkanti[2]; R.D. Pathak[2]. [1]Marshfield clinic., Marshfield, WI; [2]Marshfield clinic, Marshfield, WI. *(Tracking ID # 190747)*

LEARNING OBJECTIVES: 1) To recognize symptoms of ectopic ACTH syndrome. 2) To understand pathophysiology and treatment of ectopic ACTH syndrome
CASE: A 56 year old Caucasian male with history of Type 2 diabetes and hypertension was admitted to the hospital for poorly controlled blood glucose, high blood pressure, pedal edema and severe hypokalemia. He was known to have localised prostate cancer which was diagnosed 1 year ago. Significant physical findings included blood pressure of 170/100 mm Hg, pitting pedal edema and proximal muscle weakness. His admission investigations revealed glucose of 425 mg/dl, potassium 2.7 mmol/L and bicarbonate 30 mmol/L. Prostate specific antigen (PSA) was elevated at 11.6 ng/ml (nanogram/milliliter) and recurrence of prostate cancer was suspected. Computed tomography of abdomen and chest showed wide spread metastasis to liver, lung and osteoblastic lesions in lumbar spine. Biopsy of the liver lesions revealed undifferentiated small cell carcinoma. Immunohistochemical stains for prostate cocktail (PSA/Prostate acid phospatase) and chromogranin, a marker for neuroendocrine tumor were negative. Further work up revealed severely elevated morning cortisol of 72 ug/dL (4–24 ug/dl) and 24 hour urinary cortisol of 1872 ug/24 hrs (3.5–40 ug/24 hr). ACTH level was high at 501 pg/ml (0–46 pg/mL).With this constellation of findings, a diagnosis of ectopic ACTH secretion from metastatic small cell cancer was made. He received chemotherapy with Cisplatin and CPT-11[Irinotecan] and was started on Ketoconazole for suppressing the synthesis of glucocorticoids. However this resulted in QT prolongation on follow up electrocardiogram, so Ketoconazole was discontinued. Therapy with Octreotide 100 micrograms three times a day was started. In 5 days, ACTH decreased by 23 percent and 24 urinary cortisol decreased by 73 percent. Patient was switched to long acting Octreotide 20 mg once a month. His muscle strength improved significantly. He had better glycemic and blood pressure control and potassium level normalized. After 2 months on Octreotide therapy ACTH was 11 pg/ml and 24 hour urine Cortisol was within the normal range
DISCUSSION: Cushing's syndrome caused by ectopic production of ACTH should be considered in all patients with a malignancy, associated with peripheral edema, hypertension, raised blood glucose and hypokalemic alkalosis. This patient had all these typical manifestations. In patients with ectopic ACTH syndrome due to aggressive small cell cancers, onset of Cushing's syndrome can be rapid and this can explain absence of classic manifestations such as fat deposition in clavicular fossa and interscapular area. These patients have extreme hypercortisolemia which causes, marked salt retention (contributing to edema and hypertension), increased glucuneogenesis (producing glucose intolerance), and hypokalemic alkalosis (causing profound muscle weakness). Surgical excision or debulking of the tumor is the definitive therapy of ectopic ACTH syndrome. Medical therapy with adrenal enzyme inhibitors, such as Aminoglutethimide, Ketoconazole or Metyrapone can be used to reduce cortisol production. Octreotide, a long-acting analogue of somatostatin can be effective in suppressing ACTH levels. The long acting analog of Octreotide (Sandostatin LAR) given once monthly is effective and preferred once efficacy of Octreotide is documented (This is an off label use of Octreotide).

CAUGHT IN THE OCTOPUS' TRAP L. Jones[1]; E.B. Lankford[1]. [1]Penn State Milton S. Hershey Medical Center, Hershey, PA. *(Tracking ID # 190713)*

LEARNING OBJECTIVES: Recognize the clinical features of takotsubo cardiomyopathy. Distinguish the differences between this and acute coronary syndrome
CASE: G.G. is a 79 year old female with a history of HTN, who 2 months after a total hip arthroplasty developed lightheadedness and unsteadiness during a shower. She attempted to get out of the shower and ease herself to the floor. She awoke slumped on the floor. She was worried about her hip, but did crawl to her bed, where her husband found her. He got her to a local emergency department. Her EKG showed lateral T wave inversions, but no ST elevation. Her CK-MB and troponin (2.7) were elevated. An echocardiogram showed an EF of 30–35% with aneurysmal apical dilatation and moderate to severe mitral regurgitation. A cardiac catheterization confirmed apical dilatation but revealed no significant coronary stenoses. V/Q scan was low probability for PE. An EP study did not induce ventricular arrythmias but triggered atrial flutter. Overdrive pacing caused atrial fibrillation, which subsequently converted to sinus rhythm. A head CT was negative. At a followup 2 weeks later she reported no incidents to her cardiologist, but she had dyspnea on exertion. A Holter monitor was normal. A repeat echocardiogram showed an EF of 60% with no regional wall motion abnormal-

ities, and specifically no apical aneurysm. An EKG had dramatic deep T-wave inversions diffusely.
DISCUSSION: Takotsubo cardiomyopathy, also called stress-induced cardiomyopathy or "broken heart syndrome" was first described in detail in 2001. It is characterized as an episode that mimics an acute coronary event such as chest pain or syncope, with EKG changes consistent with coronary injury but without angiographic evidence of coronary artery disease. Cardiac markers may be mildly elevated. The echocardiogram classically shows dilatation of the apex or apical ballooning during systole, taking on the appearance of a round-bottomed pot (tako-tsubo is Japanese for octopus pot or trap) which is transient and out of proportion to the degree of elevation of the cardiac enzymes. The dilatation typically resolves within days to several weeks. The EKG changes progress from evidence of an acute injury to deeply inverted T-waves which persist for at least 2 months. It is most commonly seen in women above the age of 50 and typically provoked by an episode of emotional stress or an acute medical illness, although sometimes no specific causative episode can be identified. Complications may include left heart failure, ventricular arrythmias, left ventricular mural thrombus formation and left ventricular free wall rupture. Severe cases may present as shock from the decreased LV function and subsequent severe mitral regurgitation. The pathogenesis is still in debate, but various causes have been proposed. These include diffuse coronary vasospasm, abnormal coronary microvasular function and chatecholamine-mediated cardiotoxicity (neurogenic stunned myocardium). It is even more unclear why the left ventricular apex is most vulnerable, but it may be because its lack of a 3-layered myocardial configuration with less elasticity and relatively limited perfusion make it more susceptible to ischemia and more responsive to a catecholamine-induced surge. Treatment is mostly supportive and the patient should be monitored for development of atrial and ventricular arrhythmias, heart failure and mechanical complications.

CENTRAL NERVOUS SYSTEM VASCULITIS IN A PREVIOUSLY HEALTHY PATIENT A.G. Nishio Lucar[1]; A. Chen[1]. [1]Henry Ford Hospital Detroit, Detroit, MI. *(Tracking ID # 190327)*

LEARNING OBJECTIVES: Outline Varicella Zoster Virus (VZV) central nervous system (CNS) infection as an important differential diagnosis in HIV/AIDS patients with neurological symptoms despite the absence of skin lesions. Recognize its clinical presentation and proper laboratory diagnosis when suspected.
CASE: A 35-year-old male with no known previous medical history presented complaining of dizziness and unsteady gait. Upon examination, the patient was found to be obtunded, verbally unresponsive and had focal neurological deficits (NIH stroke scale of 8) with no skin lesions. A head CT showed multiple hypodensities within the thalami, left basal ganglia and left frontal white matter. The lumbar puncture (LP) showed normal opening pressure and normal cerebrospinal fluid (CSF) characteristics. Left vertebral angiography demonstrated segmental irregularities within areas of narrowing and dilatation involving multiple cerebral arteries, which was highly suggestive of a vasculitic process. The brain MRI with gadolinium contrast showed changes suggestive of subacute infarcts and chronic ischemic changes. A complete work up for vasculitis and connective tissue disorders was done and the results were unremarkable (ANA, ds-anti DNA, anti-Sm, antiSSA/RO, antiSSB/LA, p-ANCA/c-ANCA, anti-RNP, anti-cardiolipin, ACE, hepatitis B and C). HIV was diagnosed based on positive ELISA and western blot assays. The CD4 count was undetectable. A second lumbar puncture was performed and showed similar unremarkable characteristics. CSF samples for polymerase chain reaction (PCR) for viral DNA of herpes simplex virus, cytomegalovirus and VZV were sent along with VZV antibodies. The patient was initiated on highly active anti-retroviral therapy and empiric intravenous acyclovir. The CSF DNA PCR for VZV was positive. After 1 week of therapy with acyclovir, the patient demonstrated significant improvement. He completed 15 days of IV acyclovir and continued with oral acyclovir for a total course of 21 days.
DISCUSSION: In the HIV patient, VZV encephalitis is a rare opportunistic infection of the central nervous system (0.1–4%) that typically presents after disseminated cutaneous lesions and carries a high morbidity and mortality if not treated properly. We present a case of VZV encephalitis in a patient without cutaneous lesions found to be HIV positive. The findings on the imaging studies were highly suggestive of this entity and it was confirmed by PCR analysis of the CSF. HIV testing should always be done in any patient that presents with CNS vasculitis. It is important to remember that in the HIV population, 30% to 40% of patients with neurological complications of VZV infection have no recent history of any cutaneous infection.

CHEST PAIN AND A LEFT BUNDLE BRANCH BLOCK: STILL A CHALLENGE G.D. Valdez[1]; R.D. Smalligan[1]. [1]East Tennessee State University, Johnson City, TN. *(Tracking ID # 189635)*

LEARNING OBJECTIVES: 1- Identify the electrocardiographic diagnostic criteria for acute myocardial infarction in the presence of an old left bundle branch block.
CASE: A 73-year-old man presented with a 7-hour history of retrosternal chest pain, 8/10 intensity, radiating to the right shoulder without nausea, vomiting or diaphoresis. Three doses of sublingual nitroglycerin provided partial relief. PMH: positive for GERD, osteoporosis and chronic back pain, negative for diabetes, hyptertension, dyslipidemia, smoking, illicit drug use or family history of premature coronary disease. MEDICATIONS: fentanyl, baclofen, omeprazol, alendronate, acetaminophen. Physical exam: afebrile, BP 151/94,HR 61, RR 18, no JVD, clear lungs, regular heart rhythm, no murmurs, gallops or rubs, no hepatosplenomegaly or abdominal bruits, no peripheral edema and pulses+2. Laboratory: hemoglobin 12.8 gr/dl, WBC 6,900, platelets 358,000, glucose 109 mg/dl, creatinine 1.3, BNP 45.3, troponin <0.05, 0.34, and 0.11 (over 12 hours). ECG showed a left bundle branch block and new 1 mm ST elevation concordant with the QRS in leads III and AVF compared with an ECG from 9 months prior. Hospital course: patient was started on aspirin, LMW heparin, and an integrillin drip. Left heart catheterization showed severe triple vessel disease and the patient underwent emergency CABG without complications.
DISCUSSION: This case illustrates an extremely important clinical scenario which is relatively uncommon but is of great importance in the elderly: chest pain in the setting of a left bundle branch block (LBBB) on the EKG. The National Registry of Myocardial Infarction 2 study allowed the evaluation of 29,000 such patients and found that only 16% received reperfusion therapy or angiography in spite of the fact that it is known that LBBB is associated with higher risk MI. One explanation is the traditional dogma that MI cannot be reliably diagnosed by EKG in the presence of LBBB, hence obscuring or delaying the diagnosis and appropriate therapy of these high risk patients. Sgarbossa et al proposed EKG criteria and scoring for use in this setting: ST segment elevation of 1 mm concordant with the QRS, among other criteria were highly correlated with AMI. These criteria have been found to be highly specific (>90%) though not very sensitive (10% in Shlipak's small validation study). In spite of our patient's lack of significant risk factors aside from age and sex, the presence of concordant ST elevation along with a rising troponin level prompted emergent cardiac catheterization and ultimately CABG which may well have been life-saving. This aggressive approach is appropriate in patients with chest pain and a LBBB, even in the absence of positive troponins when the Sgarbossa criteria are present on the EKG.

CHEST PAIN IN A MIDDLE-AGED WOMAN D. Acharya[1]; A. Kolpakchi[1]. [1]Baylor College of Medicine, Houston, TX. *(Tracking ID # 189455)*

LEARNING OBJECTIVES: Consider transient left ventricular apical ballooning syndrome in the differential diagnosis of post-menopausal women or patients without traditional cardiac risk factors who present with ST elevation myocardial infarct (STEMI) and normal coronary arteries.
CASE: A 57 yo post-menopausal female presented with left-sided, substernal, pressing, 7/10 chest pain radiating to left arm. Pain started four hours prior to presentation during routine exercise, improved after

90 minutes of rest, but then waxed and waned with activity. She had no prior history of chest pain and denied dyspnea, diaphoresis, nausea, vomiting, palpitations, lightheadedness, and syncope. She had no family history of coronary disease. She never smoked and drank 2 glasses of wine daily. Vital signs showed BP 98/50 (BP chronically low) HR 58 RR 18 T 96.70F. Physical exam was unremarkable with a normal cardiac exam. Her LDL was 88 mg/dL and HDL was 58 mg/dL. EKG revealed dynamic ST elevations in V4-V6, II, III, AVF, and her initial troponin was 4.29 ng/mL (nl 0.00–0.15), CK MB 8.7 ng/mL and CK 159 U/L. Catheterization showed normal coronaries; however, there was severe impairment of flow in the left and right coronary systems which normalized after adenosine administration, suggesting impaired microcirculation. Echocardiogram revealed an EF 55–60% and a hypokinetic apex. This clinical picture was suggestive of transient LV apical ballooning; therefore, she underwent a cardiac MRI to confirm the findings. On MRI, the distal portion of the left ventricle was severely dilated with a mildly dyskinetic apex, and the entire left ventricular myocardium was viable. Findings were consistent with LV apical ballooning syndrome. Patient did well and was discharged home.
DISCUSSION: Transient LV apical ballooning syndrome or takotsubo cardiomyopathy was initially described in Japan in 2000. It is characterized by transient apical ballooning/hypokinesia of the left ventricle, with clinical presentation similar to ST elevation myocardial infarct. It is more commonly seen in post-menopausal women and seems to be preceded by physiologic or emotional stress. The prevalence is about 1.5% of patients presenting with ST elevation MI. EKG shows ST elevations most often in the precordial and inferior leads, and cardiac enzymes are usually elevated. Echocardiogram can show apical and mid-ventricular wall motion abnormalities or abnormal ejection fraction that may resolve over days to weeks. Other abnormalities include significant intracavitary LV obstruction with dyskinetic apical segments and hyperdynamic basal segments. Catheterization reports have shown normal coronary arteries, but epicardial spasm and microvascular abnormalities have been described. The etiology is unknown, but potential mechanisms include catecholamine-induced damage, neurogenic myocardial stunning, and altered endothelial function. Optimal management has not been well studied, but most patients are initially managed with standard acute coronary syndrome protocols given the inability to initially differentiate between apical ballooning syndrome and myocardial infarction from plaque rupture. Long term medical therapy is not known. The prognosis is generally good, with 1% mortality in the largest series, but pulmonary edema and heart failure have been reported in 3–46%. In conclusion, transient LV apical ballooning syndrome should be in the differential diagnosis in post-menopausal women presenting with STEMI with normal coronary arteries.

CHOLESTEROL TO STROKE, STROKE TO COUMADIN, COUMADIN TO CHOLESTEROL T. Chang[1]. [1]Tulane University, New Orleans, LA. *(Tracking ID # 190871)*

LEARNING OBJECTIVES: 1. Identify cholesterol crystal embolism as a complication of anticoagulation. 2. Understand the presentation of renal failure due to cholesterol embolism.
CASE: A 76 year-old man presented with altered mental status for two days. His family found him at home with disorientation, and generalized weakness. He had a history of stroke that occurred three months prior to admission, for which he had been taking coumadin. His vital signs were normal. He was awake, oriented to self, and his speech was fluent but nonsensical. There were no carotid bruits, no jugular venous distention, and the cardiac exam was normal. There were diffuse myoclonic jerks of all extremities. Small, round purple skin lesions were found on the toes; they were tender and a few had small areas of central necrosis. His potassium was 6.2, BUN 166, and creatinine 10.8. His urinalysis was normal with the exception of moderate blood and crystals forming right angles. The Urine sodium was 51.8, urine creatinine was 82, and fractional excretion of sodium was 5.1 percent. He was given intravenous fluids and when the BUN and creatinine continued to rise, was started on hemodialysis. The records from his admission three months prior were reviewed. As part of his stroke evaluation, he had a transesophageal echocardiogram that revealed a grade IV atheroma of the ascending aorta and arch. He was started on warfarin for secondary stroke prevention. A biopsy of a skin lesion confirmed the presence of cholesterol emboli crystals.
DISCUSSION: Cholesterol crystal embolism is an increasingly recognized cause of renal failure. It is common in elderly men and is associated with diabetes, hypertension, cardiovascular disease, and preexisting renal insufficiency. Although it may occur due to spontaneous rupture of an atherosclerotic plaque, the majority of cases have an identifiable triggering event. Embolization is a known complication of anticoagulation, angiography, and vascular surgery in patients with large vessel atherosclerotic disease. Cholesterol crystals dislodge from the plaque and may embolize to multiple locations including the kidneys, gastrointestinal tract, retinas, and extremities. The clear, biconvex crystals deposit in small vessels and induce a vasculitis in the endothelium. Inflammation, fibrosis, and vessel occlusion may occur over a time period of weeks to months. The clinical presentation of cholesterol embolization includes fever, fatigue, and myalgias. Skin lesions are present in the majority of patients and may include purple toes, livedo reticularis, and necrosis or gangrene. Signs of uremia may be present and fundoscopy may reveal retinal crystal deposition. The erythrocyte sedimentation rate, C-reactive protein, and eosinophil count may be elevated. The diagnosis can be made definitively by renal biopsy. However, the diagnosis is best established by biopsy of other involved organs such as the skin, muscle, or gastrointestinal tract. Treatment involves discontinuation of anticoagulation, and there may be some benefit from statins or steroids.

CLOSTRIDIUM DIFFICILE: A COMMON PATHOGEN IN AN UNEXPECTED LOCATION E. Garcia-Sayan[1]; C. Hall[1]; S. Kaatz[1]. [1]Henry Ford Hospital, Detroit, MI. *(Tracking ID # 189477)*

LEARNING OBJECTIVES: 1. Recognize the importance of ***Clostridium difficile*** (***C. difficile***) as an extra-intestinal pathogen. 2. Diagnose and treat ***C. difficile*** osteomyelitis based on this case and review of the literature.
CASE: A 65 year-old male presented with fever, erythema, edema and pain in the left forearm. He had a history of bilateral radial fractures 31 months prior to admission requiring external fixation and subsequent surgical debridement of a left forearm abscess. The abscess recurred and he underwent two repeated debridements 23 and 13 months prior to admission, with cultures positive for Methicillin-resistant ***Staphylococcus aureus*** at the time of the second debridement. The patient had received multiple antibiotic treatments. He was not diabetic or immunosuppresed. On physical examination he was febrile and his left forearm was erythematous, edematous and tender with a soft tissue defect at the site of previous external fixation. Debridement was performed, and a deep pocket of pus extending to the cortical bone was noted. MRI revealed an area of abnormal signal in the distal ulna consistent with osteomyelitis. Culture yielded ***C. difficile*** susceptible to Metronidazole and Vancomycin and with intermediate susceptibility to Penicillin and Clindamycin. The patient was treated with intravenous Metronidazole and discharged on this regime, which he is expected to continue for 6 to 8 weeks.
DISCUSSION: ***C. difficile*** is commonly related to intestinal pathology but to our knowledge, ostemyelitis due to this pathogen is extremely rare and has only been reported 6 times. The mechanism of infection seems to be either from hematogenous spread, more common in the sickle cell disease patients, or direct contamination with fecal flora in lower extremity infections. The case we present is the first report in the literature of a patient with ***C. difficile*** osteomyelitis in an upper extremity. The exact mechanism of infection in our case is unclear but we suspect that the metallic parts used for external fixation more than two years prior to admission may have played a role and superinfection over other pathogens like ***Staphylococcus aureus*** was possible. The patient had multiple episodes of cellulites, abscesses and debridements but ***C. difficile*** had not been isolated in the past. Due to the lack of literature, there is little evidence supporting a particular antibiotic or length of treatment in this setting. Previously reported isolates were frequently resistant to Penicillin or Clindamycin and in our case susceptibility to these antibiotics was intermediate. Most of the cases

reported in the literature responded well to Metronidazole or the combination of intravenous Metronidazole and Vancomycin followed by chronic suppressive oral Metronidazole. It is therefore reasonable to use Metronidazole or Vancomycin intravenously, for 6 to 8 weeks as in other types of osteomyelitis. In the future, as resistance to Metronidazole increases, Vancomycin may become the first line antibiotic in ***C. difficile*** osteomyelitis and other extra-intestinal infections. The role for suppressive therapy in this setting remains unclear. ***C. difficile*** is becoming an increasingly common pathogen, and although extra-intestinal infections are still rare, their frequency will probably increase in the near future. Clinicians should be aware of this possibility in patients with soft tissue infections, abscesses and osteomyelitis not responding well to conventional treatments or antibiotics.

CLOSTRIDIUM DIFFICILE-RELATED REACTIVE ARTHRITIS Z.S. Tawadrous[1]; K. Kutty[2]; D. Alexanian[3]; K. Pfeifer[4]. [1]Medical College of Wisconsin, Brookfield, WI; [2]St. Joseph Regional Medical Center, Milwaukee, WI; [3]VA Milwaukee, Milwaukee, WI; [4]Medical college of Wisconsin, Milwaukee, WI. *(Tracking ID # 189450)*

LEARNING OBJECTIVES: 1) Recognize an unusual consequence of Clostridium difficile enterocolitis. 2) Recognize the diagnostic approach to a patient with suspected reactive arthritis.
CASE: During the hospitalization for an unrelated mechanical fall, a 61 year old man related low grade fever (100.8°F), right elbow pain, and 4–5 foul smelling loose stools per day, all for about a week. He had recently received a course of antibiotics in connection with suspected foot infection. He had no chest pain, shortness of breath, loss of consciousness, palpitations, dizziness or tinnitus. Physical exam was significant for temperature of 100.7°F, heart rate 101/min. and pain on movement of the right elbow, but without swelling. Other than chronic renal insufficiency (serum creatinine 2.6 mg/dl), laboratory studies were normal. The right elbow showed a small joint effusion on imaging; arthrocentesis yielded synovial fluid with a white blood cell (WBC) count of 75,000/mm3, with no crystals. Broad spectrum antibiotics were started for possible septic arthritis but subsequent synovial fluid and blood cultures were negative. He then developed right knee pain with effusion that had similar laboratory features, including a WBC of 53,000/ mm3.. His right wrist developed similar symptoms but synovial fluid was not significant enough for aspiration. After these developments, the Clostridium difficile stool toxin assay that was ordered on admission returned as positive. He was started on appropriate antibiotic therapy for C. diff and had steady improvement in all his symptoms over the next few days.
DISCUSSION: Reactive arthritis (ReA), a joint disorder with an incompletely understood pathogenesis, typically follows an episode of infection but without microbial joint invasion. ReA often associated with gastroenteritis and loss of the gut barrier or genitourinary infection allowing translocation of bacteria or inflammatory agents from the GI or GU tracts into the blood stream has been advanced as a mechanism. Commonly implicated organisms include Chlamydia trachomatis, Yersinia, Salmonella, Shigella, Campylobacter, and rarely Clostridium difficile and Chlamydia pneumoniae. Diagnosis is largely clinical and based on compatible historical and physical features that follow an extra-articular infection, with other causes having been excluded. The probability of ReA is 40% when gout, osteoarthritis, and traumatic arthritis have been excluded in a patient with asymmetrical mono- or oligo-arthritis predominantly involving the lower limbs. However, evidence of a compatible prior (or ongoing) enteric infection with an organism associated with reactive arthritis, as in our patient, raises the probability to 70%. Large scale community based studies have not supported the diagnostic usefulness of HLA-B27 testing. Suggested treatment is a 2-week course of nonsteroidal anti-inflammatory mediations and, in non-responders intra-articular injection of glucocorticoids. If these two measures fail, then a trial of sulfasalazine is recommended. With intolerance or contraindication to sulfasalazine, etanercept (50 mg S.C. weekly) may be an option. Antibiotics are not recommended unless the patient is still suffering from C. difficile enterocolitis or has not concluded the required course of treatment. Most cases spontaneously resolve and the risk of recurrence is uncertain.

CLOSTRIDIUM PERFRINGENS-ASSOCIATED ACUTE CHOLECYSTITIS IN A SURGICALLY HIGH-RISK PATIENT – A MANAGEMENT DILEMMA M.Y. Chan[1]; J. Knox[1]; B.Y. Young[1]. [1]University of California, Los Angeles, Los Angeles, CA. *(Tracking ID # 190040)*

LEARNING OBJECTIVES: 1) Review the perioperative management of acute cholecystitis in a patient with multiple comorbidities 2) Illustrate the severity of acute cholecystitis associated with ***Clostridium perfringens***
CASE: A 64-year-old man with CAD, CHF, mechanical mitral valve on warfarin, bradycardia post pacer/AICD, DM, and recent CVA was in his usual state of health until 3 hours prior to presentation when chills, nausea, and upper back pain began after eating dinner. An episode of vomiting relieved his symptoms, and he was asymptomatic on ER evaluation. Physical was pertinent for a fever of 39.0°C and a benign abdomen. WBC count was 12.7, total bilirubin was 1.4, and INR was 2.2. Other baseline labs, EKG, and chest CT were unrevealing. Gastroenteritis was presumed. On day 2, the patient developed fever, RUQ pain, a Murphy's sign, and WBC count of 20.5. RUQ U/S showed a distended gallbladder (GB) and adherent gallstone, but no free fluid or thickened wall. HIDA scan confirmed acute cholecystitis. Blood cultures grew ***C. perfringens***. The patient developed sepsis, severe hypoxia, fluid overload, and renal failure. Antibiotics, diuresis, and anticoagulation reversal were started. Cardiology deemed the patient high risk. Surgical consultants suggested conservative management, especially as fever, pain, and leukocytosis completely resolved by day 3. Despite clinical quiescence on antibiotics, surveillance CT on day 5 showed new GB wall thickening with fat stranding and a focally weak medial outpouching. Emergent cholecystostomy removed brown turbid fluid colonized with ***C. perfringens***. Even with external drainage, repeat CT showed persistent GB distension and inflammation. Open cholecystectomy on day 9 revealed GB gangrene, perforation, and local abscess formation. The patient was eventually discharged at baseline health after extended antibiotics.
DISCUSSION: Deciding the type and timing of therapy in acute cholecystitis requires assessment of symptom severity and surgical risk. High risk cholecystectomy patients, such as our case with multiple co-morbidities, severe active cardiac disease, and sepsis, may have a surgical mortality rate that approaches 30% or more. In such cases, management is focused on ameliorating symptoms via antibiotics and other non-surgical methods. The addition of percutaneous choleycstostomy is considered the treatment of choice during clinical deterioration. Our case required adaptation of this management algorithm. ***C. perfringens*** is an anaerobic large gram-positive rod frequently harbored in the GI tract. Active infection may cause gas gangrene, hemolysis, and emphysematous cholecystitis. ***C. perfringens***-associated acute cholecystitis is more aggressive than traditional cases and has a mortality approaching 15–25%. We interpreted the finding of ***C. perfringens*** bacteremia as equivalent to complicated disease requiring urgent surgical intervention. The patient's initial symptoms were atypical and mild, a phenomenon occasionally seen in diabetics, and led to delay of diagnosis. The disappearance of fever, pain, and leukocytosis by day 3 suggested resolution with antibiotics. However, progressive radiographic disease argued the contrary. Aggressive pursuit of cholecystectomy was correct, as it was only during surgery that GB gangrene and perforation were discovered. ***C. perfringens***-associated acute cholecystitis warrants special surgical consideration, even in cases where medical therapy appears effective.

CO-INGESTION OF METHANOL AND ETHYLENE GLYCOL LEADING TO IRREVERSIBLE KIDNEY INJURY K. Shrestha[1]; B. Manickam[2]; Y. Ahmed[3]. [1]Saint Francis Hospital, Evanston, IL, Evanston, IL; [2]Saint Francis Hospital,Evanston,IL-60202, Evanston, IL; [3]Saint Francis Hospital, Evanston, IL. *(Tracking ID # 190627)*

LEARNING OBJECTIVES: •To recognize the effects of methyl alcohol and ethylene glycol in the kidneys •To consider ethylene glycol and methanol toxins in the differential diagnosis of high anion gap and hyperosmolar metabolic acidosis
CASE: A 43 year old male, known alcoholic was picked up by the emergency medical services sleeping on the street. Initially he appeared drunk but had normal vital signs and oxygen saturation. About one hour later he became confused and obtunded with tachypnea. He was

intubated for airway protection. The laboratory results were significant for bicarbonate 8 mmol/L, sodium 151 mmol/L, potassium 4.1 mmol/L, chloride 112 mmol/L, blood urea nitrogen 16 mg/dL, creatinine 1.18 mg/dL, phosphorus 6.2 mg/dL, glucose 96 mg/dL, lactic acid 4.9 mmol/L, ethanol level less than 10 mg/dL and serum osmolality 502 mOsm/L. The arterial blood gas results were as follows: pH 7.17, HCO3- 8 mmol/L and Pco2 22.9 mm Hg. The anion and osmolar gap were 31 mEq/L and 197 mOsm/L respectively. The creatine kinase level was 1255 (38–174) IU/L. The toxic alcohol ingestion was diagnosed and blood samples for methanol and ethylene glycol were sent. The treatment with hemodialysis, fomepizole, bicarbonate drip, folic acid, thiamine and pyridoxine were started. His mental status improved after hemodialysis and he admitted to drinking "Prestone" windshield wiper solution (which contains methanol and ethylene glycol). The methanol level was found to be 160 mg/dL and ethylene level 5293 mg/L on day of admission. The levels gradually decreased and were undetectable on day 4. However, his renal function deteriorated with oliguria despite hemodialysis, with maximum creatinine level up to 13.2 mg/dL. He was scheduled for maintenance hemodialysis and discharged after 12 days of hospital stay.
DISCUSSION: Methanol and ethylene glycol are toxic alcohols that may be ingested accidentally or consumed as ethanol substitutes. Intoxications with ethylene glycol and methanol are associated with significant morbidity and mortality. Calcium oxalate crystal deposition in the kidney produces acute oliguric and anuric renal failure. Other suggested mechanisms of renal toxicity in ethylene glycol poisoning are interstitial nephritis, focal hemorrhagic cortical necrosis, direct renal cytotoxicity, and obstruction. The removal of ethylene glycol and its toxic metabolites, as well as prevention of calcium oxalate formation, can reverse tissue destruction. Renal recovery is generally complete with proper supportive therapy, although permanent renal damage has been described. Myoglobinuria and renal failure has been associated with methanol ingestion. The mortality of these intoxications is variable but highest in those with severe metabolic acidosis and the longest duration between exposure and initiation of treatment. The co-ingestion of both toxins probably increases the severity of acidosis and the associated morbidity and mortality. The cornerstone of management includes the correction of acidosis, competitive inhibition of ADH, and hemodialysis-assisted elimination. Hemodialysis should be considered to remove the toxic alcohol and its metabolites in the setting of significant acidosis (pH <7.3), renal failure, refractory electrolyte abnormalities, blood levels greater than 50 mg/dL or ocular signs.

COLD HEALING K. Galvan[1]; K. Pfeifer[1]. [1]Medical College of WIsconsin, milwaukee, WI. *(Tracking ID # 190542)*

LEARNING OBJECTIVES: 1. Enhance clinician awareness of the potential of hypothermia to reduce morbidity and mortality in some cases of cardiac arrest. 2. Describe criteria for the use of hypothermia in post-cardiac arrest care.
CASE: A 44-year-old gentleman with a history of alcoholic cardiomyopathy presented to the emergency department after being found unresponsive. He was resuscitated by paramedics with external defibrillation at 200 joules with a return of sinus rhythm and satisfactory blood pressure but continued obtundation. On presentation to the hospital, his temperature was 98.8 degrees F, blood pressure 153/77, heart rate 114, respiratory rate 15, and pulse oximetry 100% on mechanical ventilation. Physical examination revealed sluggish, dilated pupils, positive corneal reflex and withdrawal to painful stimuli as his highest level of responsiveness. The remainder of his physical examination was unremarkable. In the ER, interrogation of the patient's implanted cardiac defibrillator revealed ventricular fibrillation lasting 14 minutes which was unresponsive to 6 shocks. This correlated to the period of time when the pt collapsed to the time external defibrillation was performed. Laboratory studies, including complete metabolic panel, toxicology screens, blood counts and myocardial injury markers, were normal. The patient remained in sinus rhythm, and therapeutic hypothermia protocol was initiated in the ICU and continued for 24 hours. After 24 hours, the patient was re-warmed and sedation weaned. On hospital day 2 he regained the ability to follow simple commands, and on hospital day 3 he was extubated. He continued to be hemodynamically stable, and on hospital day 9 he was discharged to home with minimal neurological deficits compared to baseline.
DISCUSSION: Resuscitation from cardiac arrest is frequently complicated by hypoxic-ischemic brain injury. Therapeutic hypothermia with cooling to 90–93 degrees Fahrenheit for 24 hours using cooling blankets and ice packs can significantly decrease morbidity and mortality in patients who remain unconscious after successful resuscitation from a ventricular fibrillation arrest. This hypothermia protocol is appropriate in pateints with persistent obtundation despite return of spontaneous circulation following a witnessed cardiac arrest and estimated collapse to recusitation time of less than 15 minutes. Further criteria include age 18–75 and initiation of hypothermia within 6 hours of arrest. In this patient with documented ventricular fibrillation lasting 14 minutes, the expected survival at one month is approximately 5–10%. This patient's complete recovery despite these odds is likely due, at least in part, to the neuroprotoective effects of the therapeutic hypothermia protocol. With improved awareness of its benefits and increased use in appropriate patients, therapeutic hypothermia may significantly improve the prognosis of cardiac arrest survivors.

COMPLETE REGRESSION MELANOMA MANIFESTING AS SEVERE ANEMIA. J.A. Apalara[1]; S. Markowitz[1]; P. Suwankosai[1]. [1]St John's Episcopal Hospital, South Shore, Far Rockaway, NY. *(Tracking ID # 190112)*

LEARNING OBJECTIVES: Malignant melanoma of the skin is the most serious form of skin cancer. Though potentially preventable, its incidence is increasing at a very rapid rate(1). In 2007 alone, it is estimated that 60,000 people will develop invasive melanomas in the United States, and of these, 14% will die(2). Because of melanoma's unique external presentation and its well-documented risk factors(1, 3), the expectation would be that it would be easily detectable. The converse, however, seems to be the case in clinical practice. Most cases are not diagnosed until they have reached advanced, tragic stage. We present in this report a case of complete regression melanoma manifesting as gastrointestinal bleeding and severe anemia.
CASE: A 63-year-old white male presented with a 3-month history of abdominal pain, weight loss and weakness. He had no fever, cough or chest pain. Past medical history was unremarkable. He was an ex-smoker and used alcohol occasionally. Physical examination revealed an elderly man in no acute distress. Temperature was 97.8 degree Fahrenheit; pulse rate, 79/minute; respiratory rate, 20/minute and blood pressure, 176/77 mmHg. He was conscious, alert and well oriented. The rest of the physical examination was normal. Laboratory studies showed hemoglobin of 7.4 g/dL; hematocrit, 23.6%; mean corpuscular volume, 75.4 fL; reticulocyte count, 2.9 percent and positive fecal occult blood test. CT of the abdomen and pelvis showed multiple lesions in the liver and adrenal glands. There was abnormal mural thickening in the ascending colon and recto-sigmoid with multiple lymph node enlargement in the mesentery, periaortic and left inguinal areas. Biopsy of the lymph nodes, terminal ileum and recto-sigmoid areas revealed multiple small round cells, which on immunophenotyping, are S-100, MART 1 and Pan Melanoma positive, indicating malignant melanoma. Retrospective search for the primary site revealed a 3-cm, flat, mott-eaten, lightly pigmented lesion at the left lower back, a punch biopsy of which showed total regression melanoma. Though the patient was scheduled for hospice care, he expired 3 weeks after the initial presentation.
DISCUSSION: Despite the external manifestation of melanoma and the fact that its screening by qualified health care provider takes only few minutes, significant percentage of melanoma cases are diagnosed, retrospectively, at advanced stage. In a country where close to 50 million people are without health insurance, and since early detection saves lives, health care providers should be at the forefront of screening whenever patient at risk present to them, as this may be the only time many such patients will be seeing a provider in a long time. References: 1. Howe, HL, Wu, X, Ries, LA, et al. Annual report to the nation on the status of cancer, 1975–2003, featuring cancer among U.S. Hispanic/Latino populations. Cancer 2006; 107:1711. 2. Jemal, A, Siegel, R, Ward, E, et al. Cancer statistics, 2007. CA Cancer J Clin 2007; 57:43. 3. Rhodes, AR, Weinstock, MA, Fitzpatrick, TB, et al. Risk factors for cutaneous melanoma. A practical method of recognizing predisposed individuals. JAMA 1987; 258:3146.

COMPLICATIONS OF BILIARY STENTS. J.S. Ahuja[1]; S. Sekhon[1]; T. Cheema[1]. [1]Allegheny General Hospital, Pittsburgh, PA. *(Tracking ID # 189501)*

LEARNING OBJECTIVES: 1) To describe the typical and atypical presentations of biliary stent migration. 2) To outline the possible complications of biliary stent placement.
CASE: A 91 year-old female with past medical history significant for hypertension presented complaining of left lower quadrant pain for 2 days associated with mild nausea. She denied any vomiting, diarrhea, constipation, hematochezia, or melena. Two weeks prior to presenting, she had underwent ERCP secondary to choledocholithiasis with sphincterotomy and biliary stent placement. On exam patient was febrile at 102 F, and had mild LLQ tenderness without rebound, guarding or rigidity. An ultrasound was done in the ED which showed Common Bile Duct (CBD) distention to 12 mm and a 9-mm ×7-mm ×12-mm echodensity in the CBD. She was empirically started on Unasyn and a CT scan was performed to evaluate her abdominal pain. The CT scan showed generalized pneumobilia and pneumoretroperitoneum from the 3rd portion of the duodenum into left pelvis with the stent coursing through CBD into the duodenum with mild reflux of contrast. CT scan also revealed sigmoid colonic perforation with gas extending within the left retroperitoneum. Surgical consult was obtained and the patient was taken to OR within 24 hours where she underwent low anterior resection of the sigmoid and rectosigmoid colon with a colorectal anastomosis and proximal transverse loop colostomy. Intraoperatively, the biliary stent which was 10Fr ×8.5 cm in size was found perforating through the wall of the sigmoid colon along with a large inflammatory mass involving sigmoid colon, mesentery and retroperitoneum. The patient's post-operative course was uneventful and she was discharged from the hospital subsequently.
DISCUSSION: This case illustrates the rare but possible complication of biliary stent migration leading to a variety of outcomes ranging from obstructions to perforations. These dislocations and migrations have been reported to occur in about 7% of cases and more than 5% of these tend to present with very subtle and non-specific presenting complaints, therefore the threshold for suspecting them should be fairly low. The observed frequency also varies on the type of the endoprosthesis used with averages of 5–10% for plastic stents and probably <1% for self-expanding metal stents. Interventional internal bilioenteric drainage using a stent is a minimally invasive procedure that maintains intact enterohepatic circulation. If stenting is performed for benign lesions, late complications including stent occlusions and migrations should be taken into consideration. Other uncommon but possible complications include duodenoscrotal fistula secondary to retroperitoneal migration, hepatic abscess formation, persistent jaundice, distal perforation and impaction in the pancreas and complex colovesicular fistula.

COOLING DOWN QUICKLY: CARTWHEELS TO COMA IN TWO HOURS. A.M. Vanderwalde[1]; N. Mikhail[2]. [1]University of California, Los Angeles, Los Angeles, CA; [2]Olive View - UCLA Medical Center, Sylmar, CA. *(Tracking ID # 189321)*

LEARNING OBJECTIVES: 1) Consider thyroid disorders in any work up of dementia or delirium 2) Recognize that myxedema coma can, in rare cases, develop extremely rapidly
CASE: A 75-year-old woman with coronary artery disease and Alzheimer's dementia was brought to the hospital by her neighbor after two days of confusion which included running away from home and stating that her daughter was going to kill her. In the emergency department she was alert and oriented but showed signs of hyperactivity and impaired memory. She attempted to get out of bed multiple times during the interview, but she had only non-specific complaints. Her vital signs were within normal limits except for slight bradycardia of 59 beats per minute and blood pressure of 135/70 mmHg. Exam revealed brittle hair and vitiligo on her lower extremities. Upon re-examination on the wards two hours later, she was extremely lethargic and was unable to speak more than three consecutive words without falling asleep. Repeat temperature was 35.1 degrees Celsius, heart rate was 45 beats per minute, respiratory rate was 7 breaths per minute, and blood pressure was 95/60 mmHg. Review of laboratory tests taken in the emergency room revealed a thyroid stimulating hormone of 150 mcIU/mL. She was transferred to the intensive care unit where she received two doses of 200 mcg intravenous levothyroxine over the course of the night as well as stress dose hydrocortisone. She avoided mechanical ventilation and was transitioned to oral levothyroxine the following day. She was discharged three days later with no residual mental status changes.
DISCUSSION: Myxedema coma is an emergent medical condition resulting from severely inadequate production of thyroid hormone. It is an uncommon presentation of hypothyroid disease but is more common in the elderly and in demented patients. To see a patient progress from hyperarousability to lethargy, coma, and vital sign instability within a matter of hours is extremely rare. Patients usually present with days of lethargy and disorientation commonly associated with hypothermia, bradycardia, and hyponatremia, later followed by hypotension and bradypnea. Once these later abnormalities occur, mortality rates dramatically increase and emergent treatment with intravenous thyroid hormone is essential. As severe hypothyroidism may be associated with adrenal insufficiency, treating with steroids is indicated, but should be attempted cautiously as steroids slow the conversion of T4 to T3. The case serves as a reminder to strongly consider thyroid abnormalities in all dementia and delirium workups, and highlights the importance of rigorous observation of newly admitted patients with altered mental status.

CRAVING MORE THAN FOOD. F. Patel[1]; J. Hadam[1]. [1]Allegheny General Hospital, Pittsburgh, PA. *(Tracking ID # 189398)*

LEARNING OBJECTIVES: 1. Identify pica in the differential of iron deficiency anemia. 2. Describe the manifestations of iron deficiency anemia.
CASE: A 28-year-old woman, with no significant past medical history, presented with a 3-day history of dizziness, fatigue and weakness. On admission, vital signs were stable and laboratory studies showed hemoglobin of 4.9 g/dL, hematocrit of 16.9% and MCV of 54.4 fL. Her examination revealed guaic negative stools and no evidence of active bleeding. She mentioned a brief history of menorrhagia controlled with oral contraceptives. Upon further questioning, she confessed to ingesting non-edible materials for several years. During her last pregnancy six years ago, she began to enjoy the smells of odiferous candles and house cleaners and began to sniff dryer sheets for the clean smell over two years. Eventually she began to put the sheets in her mouth to "taste" the fresh smell. She chewed on the sheets and spit out the fabric portion. For over 4 years, she continued to chew various brands of dryer sheets, up to 10 sheets daily. Further laboratory evaluation with iron studies, including a ferritin level of 2 ng/mL, corresponded to severe iron deficiency anemia. A hypothesis was made that the initial anemia resulted in pica, thereby magnifying her anemia. The aluminum content in the dryer sheets worsened anemia by preventing adequate intestinal absorption of iron. High serum aluminum and low serum lead levels supported the theory. She started intravenous iron therapy and received four units of packed RBCs. Two days later, her symptoms abated as her hemoglobin increased to 8.8 g/dL. One month later, her hemoglobin had risen to 10.4 g/dL and her craving for dryer sheets had disappeared.
DISCUSSION: Iron deficiency anemia affects more than 500 million people worldwide, most prevalent in children and premenopausal women. Causes of iron deficiency anemia include dietary insufficiency, decreased absorption and blood loss. Pallor, fatigue and poor exercise tolerance present frequently as early signs and symptoms. Pica, the craving for unusual foods or nonfood substances, occurs in about 5% of patients with iron deficiency anemia. Nutritional deficiencies of iron, sensory fulfillment and cultural practices are postulated to be possible etiologies of pica. One-fifth of pregnant women at high risk of pica (African-American descent, family history of pica, rural area inhabitation) actually develop pica. Although it may lead to serious complications, it often goes unreported due to patients' embarrassment. Pagophagia, or the craving for ice, is the most common type of pica, but ingestion of cornstarch, clay, dirt, or other inert substances may also occur as in our patient. Aluminum, found in trace amounts in dryer sheets, hinders iron transport into the serum in the gastrointestinal tract, displacing iron-transferrin binding therefore causing a microcytic anemia. Thus in this case, an underlying iron deficiency resulted in pica for dryer sheets exacerbating the iron deficiency anemia over time. Pica generally disappears rapidly with iron treatment.

Patients who cannot tolerate or absorb oral iron or those with profound iron deficits may benefit from parenteral iron therapy. It is important to recognize pica in high risk patients, especially pregnant women, to prevent worse outcomes.

CROUCHING MYELOMA, HIDDEN PROTEINS. J.Y. Nguyen[1]; A. Brzenski[2]; J. Miller[2]. [1]Society of General Internal Medicine, West Los Angeles, CA; [2]UCLA - Olive View Medical Center, Sylmar, CA. *(Tracking ID # 190706)*

LEARNING OBJECTIVES: 1. Formulate complete differential diagnosis for renal failure and pursue appropriate work-up. 2. Acknowledge multiple myeloma as a possible cause of renal failure in a young patient population

CASE: A 39 year-old previously healthy female presented to a clinic complaining of lower back pain. The patient was diagnosed with lumbago, and discharged home on NSAIDS. A few days later, she presented to the ER with intractable vomiting. Aside from the above complaints, other review of system was negative. She denied fevers, chills, weight changes, respiratory, GI or urinary symptoms. Physical exam showed an overweight, euvolemic female with stable vital signs and unremarkable findings. A metabolic panel was significant for a BUN of 75 and creatinine of 15.3. The patient also had a normocytic anemia with a hematocrit of 30. The rest of her laboratory results were normal. The patient was started on hemodialysis for uremia and a complete work up for her acute renal failure was initiated. Her blood and urine tests did not reveal the cause of her acute renal failure until a kidney biopsy showed Bence-Jones cast nephropathy otherwise known as myeloma kidney. Bone marrow biopsy found plasmacytosis greater than 50% consistent with multiple myeloma, but a serum protein electropheresis did not reveal a monoclonal spike. A skeletal survey revealed multiple diffuse lytic lesions. The patient was immediately started on chemotherapy.

DISCUSSION: Multiple myeloma (MM) is commonly thought of as a malignancy in the elderly, with a median age of 70 at time of diagnosis. Consequently, it is rarely considered as a cause of acute renal failure in patients younger than 40 years old. However, according to the National Cancer Fact Sheets, about 2% of MM does occur in patients younger than 40 years old. It is important for internists to be aware and pursue appropriate work-up in patients presenting with constellation of symptoms suggestive of MM. A study reviewing 72 patients with MM at age <40 showed younger patients usually present with the classic signs and symptoms - bone pain, renal failure, hypercalcemia and anemia. In contrast to the older population, younger patients frequently present with light chain multiple myeloma. In this variant, light chains can be filtered in the kidneys, thus do not cause a rise in the serum protein. Once filtered across the glomerulus, they cause kidney injury by either cast nephropathy or direct tubular injury. Light chains are not detected by urinary dipstick unless expose to sulfosalicylic acid hence urinalysis typically shows only trace protein. Moreover, as renal failure worsens, light chain urinary excretion also decreases making all urinary tests uninterpretable. Consequently, the only definitive diagnostic test is kidney biopsy. Treatment for MM in this age group is the same- either chemotherapy or hematopoietic cell transplantation depending on the patient. Local radiation is occasionally used for pain. There is little literature discussing the survival rates in young versus old patients with MM but one study found that young patients typically have longer survival, especially those with good prognostic factors (normal GFR or low beta2-microglobulin level). Another study found that the chromosomal abnormalities in the patients <40 is not different compared to the 45–70 or >70 age groups. Gene profiling may better prognosticate and potentially allow adapted treatment, however more studies are in progress to elucidate the disease process.

CRYSTALLIZING YOUR THINKING IN DIAGNOSING SPINAL CORD COMPRESSION. K. Widmer[1]; L. Richey[1]; K. Aubin[1]. [1]Tulane University, New Orleans, LA. *(Tracking ID # 190860)*

LEARNING OBJECTIVES: 1. Construct a differential diagnosis for compressive spinal cord lesions. 2. Recognize gout as a cause of spinal cord compression. 3. Identify the appropriate therapeutic management of gouty spondyloarthritis.

CASE: 57 year-old man presented with five months of progressive bilateral lower-extremity weakness and numbness. His weakness had progressed, he could not walk or bear weight without falling. Over the previous month, bowel and bladder incontinence had occurred. He was seen by a physician three weeks prior to admission and started on prednisone, methotrexate, and folate. There had been no improvement. He had a history of depression and chronic lower back pain, and a family history of colon cancer. His medications included sertraline, aspirin, methotrexate, prednisone, a multivitamin, and acetaminophen/hydrocodone. His vital signs were normal, as was his heart, lung and abdominal examination. The neurological exam revealed intact cranial nerves, mild reduction in bilateral upper extremity strength, and severe reduction in bilateral lower extremity strength distally. Decreased rectal tone and hyperreflexia with clonus throughout were noted, but no saddle anesthesia. The extremity examination was normal. Diagnostic testing revealed an ESR of 100 mm/hr, CRP of 20, and mild anemia. Folate, B12, electrolytes, liver enzyme tests, and a TSH were normal. A CT of the spine showed multiple subcortical lytic lesions adjacent to joint spaces in the thoracic and lumbar spine with a mass-effect causing compression of the spinal cord. A CT-guided biopsy revealed gout with granulomatous reaction to uric acid crystals. His uric acid level was 8.2. He was started on allopurinol, a low purine diet, and underwent surgical resection of the gouty lesions. His symptoms improved dramatically as he regained bowel & bladder control and could ambulate with a walker.

DISCUSSION: Lower extremity weakness is a common presenting complaint in the general internist's practice. Identifying symptoms suggestive of spinal cored compression is an important step in the diagnostic algorithm. The internist must also be able to construct the broad differential diagnosis of etiologies causing spinal cord compression. Metastatic lesions, spinal abscesses and trauma are the most common though other causes should be considered. Our patient had gouty lesions compressing the spinal cord. Upon further questioning, he divulged a history of gout in smaller joints. Classically, fever, acutely tender monoarticular swelling, usually the 1st MTP joint, of which overlying skin is warm, dusky red, with desquamation and pruritis are symptoms. Hyperuricemia is often present. Urate crystals in joint fluid or tophi showing negatively-birefringent, needle-like crystals are diagnostic. Gout of the axial spine often involves the lumbar region and creates a spectrum of neurological disorders. The rarity of presentation coupled with infectious and neoplastic mimicry often muddles the clinical picture of spinal gout; therefore, biopsy plays an important diagnostic role. Once confirmed, medical management (indomethacin, colchicine + /- allopurinol, low-purine diet) is an option for radicular or localized pain. Surgical decompression is warranted in patients who fail conservative therapy or with significant neurological deficits. While spinal cord compression from gout is rare, gout itself is not, making this an important diagnostic consideration for the internist faced with a patient with spinal cord compression.

DEATH OF A PATIENT WITH AIDS AFTER PROPHYLACTIC DAPSONE IS WITHHELD BY IMMIGRATION AND CUSTOMS ENFOCEMENT. H.D. Venters[1]; A. Rasmussen[2]; A.S. Keller[2]. [1]New York University, Manhattan, NY; [2]New York University, New York, NY. *(Tracking ID # 189422)*

LEARNING OBJECTIVES: 1. Recognize the dangers of stopping prophylactic dapsone in patients with AIDS and 2. Call on physicians to advocate for the healthcare of detained immigrants.

CASE: A 23 year old transgender woman with AIDS was detained by Immigration and Customs Enforcement (I.C.E.) and remanded to an I. C.E. detention center in San Pedro CA. The patient had been prescribed dapsone (after having difficulty with Bactrim) by her treating physician as prophylaxis against opportunistic pneumocystis carinii pneumonia. Upon arrival at the I.C.E. facility, the patient informed health officers of her medications but did not receive any dapsone or Bactrim. The patient and her attorney reportedly requested her medication multiple times over the first weeks of her detention. By the sixth week of her detention, the patient had reported cough, fever and nausea to I.C.E. medical staff, her family and attorneys. The patient was eventually seen by I.C.E. facility medical personnel and given amoxicillin by a nurse practitioner and returned to her cell. The patient's condition worsened over the following several days and her cellmates, noting profuse vomiting, diarrhea and hallucination staged a mass protest which resulted in the patient being transferred to a local hospital for less than

24 hours. Upon her return to the I.C.E. detention center, the patient's symptoms persisted and she was transferred to a second local hospital where she died in the intensive care unit, shackled to her bed. The final cause of death was reported as pneumonia and meningitis.
DISCUSSION: This case highlights both an individual medical error as well as the systemic deficiencies in healthcare provided for an extremely vulnerable population, detained immigrants. The danger of stopping prophylactic medicines such as dapsone in a patient with AIDS may result in fatal opportunistic infection within weeks. Additionally, oral Amoxicillin does not constitute sufficient treatment for an acutely ill patient when an AIDS-related pneumonia is suspected. From the standpoint of health systems, any medical facility that cares for patients with HIV should either employ adequately trained practitioners or make adequate care available to all patients with HIV. This case also highlights the lack of legal protection that detained immigrant have. Unlike persons detained by the criminal justice system in jails or prisons, the healthcare of detained immigrants is directed by administrative rules established by the Department of Homeland Security (DHS), not any enforceable regulation or law. DHS has refused efforts to convert these administrative standards into enforceable regulations. Although DHS acknowledges over 60 detainee deaths since 2004, they are not required to disclose information about detainee deaths and medical problems. Immigration detention is the fastest growing form of incarceration in the United States, involving the detention of over 200,000 people annually and approximately 30,000 at any one time. The true extent and nature of problems with immigrant detainee medical care remain unknown.

DIFFUSE ALVEOLAR HEMORRHAGE:A DARK SIDE OF LUPUS. H. Moukhachen[1]. [1]Tufts University, Boston, MA. *(Tracking ID # 190218)*

LEARNING OBJECTIVES: 1.Recognize that Diffuse Alveolar Hemorrhage (DAH) is an entity of Systemic Lupus Erythematosus (SLE). 2. Recognize the importance of early diagnosis of DAH. 3.Emphasize the importance of early empiric therapy.
CASE: A 28-year-old female nurse with a past medical history of SLE presented with hemoptysis for one day. She was in her usual state of health and suddenly developed productive cough with blood clot x1 in sputum and then had recurrent episodes of cough over the day with a 10 cc of bloody secretions each time ×3 with mild dyspnea at rest.Review of systems was negative for fever, chills, wheezing, epistaxis, vomiting, abdominal pain, hematuria, and melena. The patient did not have a recent history of an upper respiratory tract infection, her yearly PPDs had been negative, she denied any recent travel and she was a nonsmoker. Family history was negative for bleeding disorders, vasculitis or pulmonary disease. She was diagnosed with SLE 3 years ago and had been stable on medication. The patient initially was on cytoxan then received prednisone for 2 and half years and is currently on imuran and plaquenil. Vital signs revealed temperature 36.9 C, pulse 113, blood pressure 142/79, respiratory rate 20, and oxygen saturation 97% on room air. Examination was significant for lungs that were clear to auscultation and the patient did not have a rash. Laboratory data on admission revealed HCT 37. The rest of her labs were normal CT angiogram was negative for pulmonary embolism, but did show a right upper lobe ground-glass opacity suggestive of early pneumonitis versus alveolar hemorrhage. Bronchoscopy with bronchoalveolar lavage (BAL) revealed acute inflammation with lipid-laden macrophages, red blood cells and erythrophagocytosis, consistent with pulmonary hemorrhage. The patient was treated with high dose solumedrol for 3 days and then placed on Prednisone 20 mg PO daily.A Repeat CT scan chest in a month from discharge was negative for residual pulmonary hemorrhage.
DISCUSSION: Diffuse alveolar hemorrhage (DAH) is a rare and often lethal manifestation of SLE. DAH results from immune-complex deposition in the alveolar basement membrane, which damages the capillary endothelium. The absence of frank hemoptysis should not exclude this diagnosis, particularly in patients who have dyspnea, increased oxygen requirements with new radiographic infiltrates and the presence of a hemorrhagic BAL. Recognition of DAH is aided by careful clinical and laboratory assessment. In clinically stable patients, measurement of carbon monoxide uptake by the lungs is usually elevated. Most cases have a histological pattern of pulmonary capillaritis and hemosideren-laden macrophages. A urine study, urine protein, C-ANCA, p-ANCA and anti GBM antibodies are also part of the diagnostic work up in order to evaluate for Wegner or Goodpasture. Early recognition of DAH may decrease the likelihood of patients developing Acute Respiratory Distress Syndrome or respiratory failure requiring intubation. High-dose pulse methylprednisolone appears to effectively control DAH.The mortality is adversely affected by the need for mechanical ventilation, the presence of infection at the time of admission or the development of infection in the hospital.This case illustrates that Diffuse Alveolar Hemorrhage can be a manifestation of Systemic Lupu Erythematosus(SLE),and that early recognition and treatment when highly suspicious can be life saving.

DIFFUSE GASTRIC SIGNET RING CELL CANCER IN A PATIENT WITH A PRIOR HISTORY OF HODGKIN'S DISEASE. S.J. Sirop[1]; R. Kakarala[1]; S. Saha[1]; M. Kojaian[1]; S. Bhutani[1]; D. Iddings[1]. [1]McLaren Regional Medical Center, Flint, MI. *(Tracking ID # 190142)*

LEARNING OBJECTIVES: Gastric signet ring cell cancer (GSRCC) is a form of gastric cancer (GC) that carries a poor prognosis and affects younger patients. GC should be considered as a secondary malignancy after radiation therapy (RT) for Hodgkin's disease (HD), in a patient with persistent or recurrent epigastric symptoms. High index of suspicion is needed to diagnose diffuse GC (linitis plastica) since repeated endoscopies and biopsies can be negative.
CASE: A 45-year-old Caucasian female presented to her primary care physician with a two-month complaint of epigastic discomfort. Her past medical history was significant for HD diagnosed when she was 18 years old. After a spleenectomy, she received RT to the mantle and the para-aortic lymph nodes (LNs). Antacids caused minimal relief. Upper endoscopy (UE) was performed and Biopsies showed gastritis. Tissue was negative for Helicobacter pylori. Her symptoms persisted despite treatment with proton pump inhibitors. Two months later, a computed-tomography (CT) scan of the abdomen was normal and repeat UE and biopsies showed persistent gastritis. Over the next three months the patient experienced weight loss, altered bowel habits, dysphagia and progressive epigastric pain. A repeated UE and biopsies were unchanged. Results of colonoscopy, CT angiography, ultrasound of the liver, HIDA scan and capsule endoscopy were normal. A second CT scan was significant for thickening of the gastric wall. A positron emission tomography (PET) scan was positive for an increase uptake in the stomach and transverse colon. Explorative Laporotomy reveled adhesions of the transverse colon and a thickened gastric wall without a palpable lesion. Transverse colectomy, total gastrectomy and partial esophagectomy were performed after an intra-operative frozen section revealed gastric cancer (GC). Pathology showed gastric signet ring cell cancer (GSRCC), diffusely involving the gastric wall, distal esophagus and transverse colon with negative LN.
DISCUSSION: The risk for gastrointestinal cancer is increased in patients treated for Hodgkin's disease (HD). Treatment with radiation therapy for HD increases the risk for solid tumors. Radiation to the para-aortic LN and younger age of treatment for HD are associated with an increased risk for gastrointestinal tumors. It is estimated that patients younger than age 21 at the time of diagnosis of HD have a relative risk of 10.0 for subsequent gastro-intestinal tumors. Two forms of GC are identified: diffuse and intestinal. Diffuse GC has a worse prognosis. Diffuse GC tends to involve the submucosa and the gastric wall with no obvious mucosal lesions identified during endoscopic examination.

DISSECT THIS CASE: A YOUNG MAN WITH STROKE S. Chandrashekaran[1]; S.K. Subbarayn[2]. [1]University of North Dakota, Meritcare Hospital, Fargo, ND; [2]University of North Dakota, Fargo, ND. *(Tracking ID # 190006)*

LEARNING OBJECTIVES: 1. Identify carotid artery dissection in a young adult presenting with unexplained stroke. 2. Recognize that carotid doppler ultrasound may not detect this condition.
CASE: A 35-year-old Caucasian man presented with complaints of blurring of vision, tingling and numbness involving part of the left hand and left foot that resolved after a day. A week prior to this presentation, the patient had experienced a throbbing sensation in his right ear associated with tinnitus lasting for several hours followed by spontaneous resolution. He did not have any other medical problems. Examination revealed intact cranial nerves, normal tone, strength, sensation and deep tendon reflexes. Urine drug screen was negative.

EKG showed normal sinus rhythm at 85/min. MRI of the brain revealed multiple acute ischemic lesions in the right frontal, occipital and temporoparietal areas. Doppler ultrasound study of the carotid arteries was unrevealing. MRA of the neck vessels showed findings suggestive of right carotid dissection. A CT angiogram of the neck vessels demonstrated a dissection involving the extracranial portion of right internal carotid artery that extended for 2 cm and caused stenosis of 50% of the vessel. At a level just below the skull base, a small intimal flap was visualized. There was no intracranial extension of the dissection. The lumen of the vessel did not appear to contain a thrombus. Patient was discharged home on aspirin. CT angiogram of the neck vessels obtained 7 weeks later demonstrated a pseudoaneurysm at the site of focal dissection. There was an increase in the diameter of the true lumen as compared to the previous study.
DISCUSSION: Spontaneous dissection of carotid arteries accounts for nearly 2% of ischemic strokes. It is an important cause of stroke especially in people younger than 50 years of age. The extracranial portion of the internal carotid artery is more mobile and has a higher tendency to dissect than the intracranial segment. An intimal tear is the inciting event that leads to the formation of a hematoma. If the hematoma forms in the tunica media, it can cause occlusion of the true lumen. If it develops in the tunica adventitia, a pseudoaneurysm may form. Cerebral infarcts caused by dissection are thromboembolic in nature rather than a result of decreased blood flow secondary to the occluded lumen. Connective tissue disorders like Marfan's, Ehlers-Danlos account for about 5% of the spontaneous carotid artery dissections. Precipitating causes include hyperextension or rotation of the neck, coughing, sneezing, vomiting and chiropractic manipulation. The classic triad of symptoms consisting of head or neck pain, Horner's syndrome and cerebral or retinal ischemia is present in less than a third of patients. The presence of any two elements of the triad should prompt a suspicion for dissection. Pulsatile tinnitus has been reported in 25% of patients. Conventional angiography is the gold standard for the diagnosis of this condition, with MRA yielding comparable results. Abnormal flow pattern may be appreciated on ultrasonography but intramural hematoma and intimal flap are usually not seen. Majority of stenoses due to carotid dissection improve spontaneously within the first two to three months. Anticoagulation with heparin followed by warfarin for 3 to 6 months is recommended although proof from randomized controlled trials is lacking. Patients who have minimal or no ischemic symptoms may be treated with antiplatelet agents alone.

DIZZINESS AND NASAL STUFFINESS IN A 61 YEAR OLD GOLFER – WHEN IS IT MORE THAN JUST A COLD?. J.G. Wong[1]. [1]Medical University of South Carolina, Charleston, SC. *(Tracking ID # 190432)*

LEARNING OBJECTIVES: 1. Distinguish between benign and malignant causes of sinus congestion. 2. Recognize, diagnose and manage patients with ethesioneuroblastoma
CASE: RE, a 61 year old white man with a history of allergic rhinitis presented to his primary care physician with relatively sudden onset of "dizziness/lightheadedness" noted initially when bending over to place his golf ball on the tee. He denied trauma, hearing-loss, nausea/vomiting and while noting "nasal stuffiness", he denied cough, post-nasal drip, discharge, changes in taste or smell, fevers, chills, sweats or nose bleeds. His vital signs were normal as were his ears and oropharynx. There was mild nasal congestion, right greater than left, without visualized purulence or discharge, and no lymphadenopathy. He was given a diagnosis of labyrinthitis with eustachian tube dysfunction due to sinus congestion and was treated symptomatically with meclizine and a nasal decongestant. One week later, the symptoms were not improved and so an empirical course of amoxicillin/clavulanate was prescribed. Ten days later, with persistent symptoms, a head/sinus CT scan was performed revealing a mass in the right maxillary sinus. The otolaryngology specialist evaluated the patient, performed a biopsy of the mass and the pathology revealed esthesioneuroblastoma.
DISCUSSION: Esthesioneublastoma (ENB) is an uncommon neoplasm, perhaps comprising up to 5% of malignant nasal tumors. The exact cell involved in the tumor is uncertain although the current evidence points to the basal progenitor cells of the olfactory epithelium. Olfactory neuroepithelium is unique as these neurons are continuously replaced throughout adult life. Histologically, well-differentiated ENB on light microscopy reveals homogeneous small cells with uniform round-oval nuclei with rosette or pseudorosette formation and eosinophilic fibrillary intercellular background material. It is important to distinguish ENB from other potential malignant tumors in the nasal vault. This can usually be accomplished by identifying specific staining pattern differences: melanoma [distinguished by lack of S-100 protein staining], rhabdomyosarcoma [distinguished by lack of cross-striated cells (rhabdomyblasts) and absence of desmin, vementin, and actin expression], lymphoma, [lack of common leukocyte antigen immunostaining] and neuroendocrine sinonasal carcinoma [lack of cytokeratin immunopositivity]. The nasal symptoms of patients with ENB are commonly non-specific, however, unilateral nasal obstruction followed by epistaxis should arouse some suspicion. CT scan of the sinuses is the initial radiographic study of choice but as there are no specific radiological characteristics of this tumor, biopsy is essential for diagnosis. Most patients with this disease have been treated with a combination of surgery followed by radiation therapy. Experiences with chemotherapy are limited and are usually focused on patients with recurrent disease. One recent meta-analysis found a 5-year survival rate of 45%, however most large studies have reported survival rates about 70%. Presence of neck lymphadenopathy at the time of diagnosis is a poor prognostic indicator. Recurrence has been discovered as far as 10 years out from initial "curative" treatment. This case presents an important and unusual cause of sinus congestion. Primary care physicians caring for patients with non-specific upper respiratory tract symptoms should be aware of this clinical entity.

DKA IN TYPE II DIABETES - WHEN WEIGHT LOSS IS TOO SWEET. M.V. Lin[1]. [1]Pennsylvania Hospital, Philadelphia, PA. *(Tracking ID # 189629)*

LEARNING OBJECTIVES: 1. Describe the pathophysiology of DKA in Type II diabetes. 2. Recognize an unusual precipitant of DKA in type II diabetes.
CASE: A 75-year-old woman with a fifteen-year history of type II diabetes mellitus, hypertension, hypercholesterolemia, and GERD was admitted to the hospital because of acute onset of confusion and vomiting. Three days prior to admission, her family noted she was intermittently confused, vomiting, and refusing food. She reported mild suprapubic discomfort and fifty pound weight loss over the past few months. Her diabetes had been well controlled on oral agents until one year prior to admission when insulin levemir was added to maintain good control. On admission, she was lethargic and disorientated. Her blood pressure was 167/98, her abdomen was non-distended and soft with mild suprapubic tenderness and normal bowel sounds. Laboratory showed blood glucose of 450 mg/dL with ketones in urine and blood. Arterial blood PH was 7.28 with an anion gap of 25. Alkaline phosphatase, GGT and total bilirubin were raised with normal ALT, AST, amylase and lipase. She was treated for diabetic ketoacidosis with normalization of glucose, ketones, and anion gap within six hours. Abdominal ultrasound showed a 7×7×5 cm indeterminate heterogeneous avascular solid lesion in the pancreas. CT of the abdomen/pelvis confirmed a pancreatic tail mass of 9×7 cm, with atrophy of the body and head of the pancreas, and multiple mesenteric nodular masses. Biopsy of the pancreatic mass revealed adenocarcinoma.
DISCUSSION: The traditional association of diabetic ketoacidosis (DKA) with Type I diabetes has been challenged with increasing reports of type II diabetes with DKA. These are primarily described in new onset diabetes, medication discontinuation, or infection. This patient had longstanding diabetes and good medication adherence. Profound weight loss and pancreatic cancer are not described in the major published case series. There are three proposed mechanisms in which DKA occurs in type II diabetes: insulin insufficiency, elevation of the counter-regulatory hormones secondary to stress, and increased free fatty acid as substrates for ketoacid formation. All three mechanisms are likely in the clinical presentation of this patient with a near starvation state and the stress of a large tumor burden. Pancreatic cancer exerts several effects on diabetic control. It destroys insulin-secreting beta cells, and impairs the normal morphologic beta cell response to glucose, resulting in overall insulin reduction. Pancreatic cancer causes peripheral insulin resistance by interfering with cellular glucose transport. This effect is confirmed by the improvement of insulin sensitivity and diabetes after tumor resection. A diabetogenic peptide (islet amyloid polypeptide) that reduces insulin, glucagons and somatostatin release is elevated in patients with pancreatic cancer. Despite these findings, the link between pancreatic cancer and diabetes is still unclear. The risk of

pancreatic cancer is highest among recently diagnosed diabetics (within 3–5 years) but the increased risk becomes insignificant after 10 years. This argues against a hypothesis that prolonged exposure to hyperinsulinemia by the pancreas may stimulate or promote the growth of cancer cells.

DO NO HARM: THE ETHICS OF ICD PLACEMENT IN PERSONS WITH PSYCHIATRIC AND COGNITIVE IMPAIRMENT. R. Telerant[1]; N. Boyer[1]; D.L. Kansagara[2]. [1]Oregon Health and Science University, Portland, OR; [2]Portland Veterans Affairs Medical Center, Portland, OR. *(Tracking ID # 190330)*

LEARNING OBJECTIVES: Assess the risks and benefits of implantable cardioverter defibrillator (ICD)implantation in patients with severe psychiatric comorbidities. Recognize the ethical ramifications of ICD implantation in patients with cognitive impairment.
CASE: We present the case of a 59 year old man with a history of severe post-traumatic stress disorder who had an out-of-hospital ventricular fibrillation cardiac arrest. Despite attempts at induced hypothermia, he suffered anoxic brain injury characterized mainly by anterograde amnesia. Cardiac catheterization showed only nonobstructive coronary disease of the right coronary artery; the clinical suspicion was of a prior ST elevation myocardial infarction with spontaneous thrombolysis and ICD placement was thought to be indicated for secondary prevention. Initially, the patient was neither able to consistently recall the events leading up to his hospitalization nor the risks and benefits of ICD placement. With this memory void, he was left with pervasive memories of past war traumas. Though his memory improved over the next two months, his decision making capacity remained in question because of residual anterograde amnesia. Moreover, this dramatic event, along with significant collateral changes in his social life, uncovered severe post-traumatic stress disorder symptoms, anxiety, and anger management issues. Given the potential for significant psychosocial trauma from ICD discharges, and his questionable decision-making capacity, the best course of action was felt to be continued antiarrhythmic therapy and to forego ICD implantation for the time being.
DISCUSSION: Recent data have shown benefits of ICD implantation for both primary and secondary prevention of sudden cardiac death, leading to an increasing number of patients for whom the device is indicated. Despite the known benefits, the potential for deleterious psychiatric effects are also being increasingly recognized, and research has suggested that ICDs may lead to increased levels of anxiety and depression. This case offers an opportunity to discuss the medical, psychiatric and ethical issues that inform decision making about ICD placement in patients with psychiatric comorbidity or cognitive impairment.

DOCTOR, WHY DON'T YOU ASK ABOUT HER TRIP TO GERMANY? UNDULANT FEVER FROM CAMEL'S MILK INGESTION. S.N. Syeda[1]; A. Shakir[1]; W. Hershman[2]. [1]Boston University Medical Center, Boston, MA; [2]Boston University, Boston, MA. *(Tracking ID # 190341)*

LEARNING OBJECTIVES: 1. To identify brucellosis as a potential etiology for recurring fever in travelers from endemic regions. 2. To recognize detailed history-taking (including travel history) and cultural competency as essential tools in caring for immigrant patients.
CASE: A 68 old Somalian immigrant woman with no medical history presented to the hospital after a 3 week trip to Germany with a complaint of recurrent, subjective fevers alternating with chills. Fevers were accompanied by headache, anorexia and diffuse abdominal pain. Symptoms started upon arrival to Germany and were persistent. The patient had visited Nairobi, Kenya for one month before flying to Germany. No malaria prophylaxis was taken and she denied travel to rural areas or freshwater/animal exposure. A grandson, however, had malaria. She arrived febrile to 103F but was comfortable without localizing signs on physical exam. A small superficial ulcer was found on the right buttock which was caused by a hot water bottle burn. Admission labs notable for normal cbc and differential. Serum chemistry was normal except Na 130 and elevated liver panel: ALT 138, AST 160, AP 194. Initial workup included normal EKG, CXR, UA, RUQ ultrasound and negative hepatitis panel. Blood smears were negative for malaria and further tests (HIV, ANA, RF, CRP, ESR and CT brain) were negative. IgG antibodies against dengue and typhus were weakly positive but IgM antibodies against both were negative. Blood cultures were initially sterile but grew GNRs on day#4. TTE and CT abdomen/pelvis did not reveal source of bacteremia. PCR identified GNRs as Brucella melitensis on day#6. The patient eventually agreed to TEE, LP, MRI Spine and Bone Scan to rule out cardiac, neuro and bony sequelae; these tests were negative. Further inquiry revealed that she drank unpasteurized camel's milk while in Nairobi. Fevers resolved after 1 week of doxycycline and gentamycin; she was discharged with a six week course of therapy.
DISCUSSION: Brucellosis is the most common zoonosis worldwide with 90% of human pathogenesis caused by B. melitensis via consumption of unpasteurized goat, sheep and camel milk/dairy products. Although endemic in many countries, travel and migration require its consideration in a fever workup in non-endemic countries. Presentation ranges from flu-like symptoms to full-blown involvement of every organ system. It is often confused with malaria, TB and typhoid. Recurrent fever is present in 90% of cases. Bone/joint complications are most common. CNS, cardiac, and hepatic complications are rare although mild transaminasemia is common. Blood cultures are limited by its fastidious nature; serum agglutination and PCR is reliable. Six weeks treatment with doxycycline and rifampin or gentamycin is recommended. Multiple factors led to a delay in diagnosis by our team. The patient presented with non-specific symptoms and more thorough history-taking of local foods/customs could have made the diagnosis earlier. However, our focus on Kenya was initially met with suspicion by the family. Due to religious beliefs, she declined examination by male doctors and refused further testing. Care was provided by being culturally sensitive to both patient and family. Only female doctors examined the patient and all family members endorsed major decisions. In sum, brucellosis must be considered as a cause for recurrent fever in travelers and thorough history-taking and cultural competency facilitates diagnosis.

EPIGASTRIC PAIN IN A HEALTHY 33 YEAR-OLD MAN: GASTRITIS OR SOMETHING MORE SERIOUS?. M. Larochelle[1]; K.L. Kraemer[1]. [1]University of Pittsburgh, Pittsburgh, PA. *(Tracking ID # 190734)*

LEARNING OBJECTIVES: 1. List the differential diagnosis of epigastric pain in a young adult. 2. Identify alarm symptoms or signs of epigastric pain that warrant further work-up rather than empiric treatment.
CASE: A 33 year-old man with no significant past medical history presented to the emergency department with a 2 month history of epigastric and left flank pain. The patient's epigastric pain was sharp and constant, rated 5–6/10 at best and 8–9/10 at worst, and radiated to his suprapubic area. His left flank pain was dull, episodic, and rated 8/10. The patient denied nausea or vomiting, but he did endorse early satiety, and decreased oral intake, with a 10 pound weight loss in the past month. The patient endorsed drinking ten or more drinks on 3–4 consecutive days every two weeks prior to the acute onset of pain. Following the onset of pain, the patient visited a physician who diagnosed gastritis and prescribed Nexium 40 mg daily that provided mild relief of his epigastric pain. The patient traveled to Panama for a reforestation project, and the pain worsened. An upper endoscopy performed in Panama showed chronic gastritis, and the dose of Nexium was doubled to 80 mg daily. The patient's pain did not improve, and he returned to the US to seek further care. Physical exam was significant for rebound tenderness over the epigastrium, pea-sized, mobile, nontender lymphadenopathy (2 inguinal nodes, 1 periumbilical node), and no testicular masses. Significant labs included a white blood cell count of 11.6 with a left shift, lipase of 1117, and amylase of 134. Abdominal CT revealed no normal pancreatic tissue except for the head, extensive lymphadenopathy with enhancement, and areas of low attenuation within the retroperitoneum, mesentery, omentum, peritoneal surfaces, and pelvis. Endoscopic ultrasound with fine needle aspiration of a periaortic lymph node revealed malignant cells. Subsequent supraclavicular node biopsy revealed poorly differentiated carcinoma consistent with metastatic pancreatic cancer.
DISCUSSION: Epigastric pain is a common reason adult patients seek care in outpatient and emergency room settings. The differential diagnosis of epigastric pain includes gastritis, peptic ulcer disease, GERD, gastroenteritis, pancreatitis, cholecystitis, hepatitis, bowel obstruction, abdominal aneurysm, and malignancy. In a young, otherwise healthy adult, the most common etiologies are related to hypersecretory states, which has led to a strategy of empiric acid-suppressant therapy. This strategy is only recommended for patients

under age 55 without alarm symptoms, including weight loss, anorexia, early satiety, vomiting, bleeding, and anemia. Presence of these criteria warrants investigation with endoscopy. Our patient presented with symptoms most consistent with pancreatitis, along with alarm symptoms including weight loss and lymphadenopathy; however, it is unclear if these findings were evident upon his original presentation. Malignancy presenting as abdominal pain is uncommon in this age group. For men aged 30–34 years, testicular cancer and lymphoma are the most common malignancies with incidence of 12.4 and 11.6 per 100,000 respectively. Pancreatic cancer has an incidence of 4 cases per million for men in this age group.

ERYTHROID LEUKEMIA PRESENTING AS PANCYTOPENIA. A. Kulczycki[1]; J. Manohar[2]. [1]UMDNJ-RWJMS-Internal Medicine, East Brunswick, NJ; [2]UMDNJ-RWJMS-Internal Medicine, New Brunswick, NJ. *(Tracking ID # 189250)*

LEARNING OBJECTIVES: 1) Recognize erythroid leukemia as part of the differential diagnosis for pancytopenia with macrocytosis. 2) Recognize the importance of bone marrow biopsy in the diagnosis of hematological disorders.
CASE: A 68 year-old man presented to the hospital for evaluation of pancytopenia discovered on routine blood work. He reported fatigue, facial pallor, a 25 lb weight loss over three months, and decreased appetite. The patient's past medical history was significant for 40 pack-year tobacco use and stage 1A non-small cell lung cancer treated with surgical resection without chemotherapy or radiation. On examination, the patient was icteric. A systolic ejection murmur was noted. There was no hepatosplenomegaly, petechiae, ecchymoses, or lymphadenopathy. Laboratory values revealed a leukocyte count of 2100cells/hpf (differential: 63% segmented neutrophils, 35% lymphocytes, 1% monocytes, 1% band forms). His hemoglobin was 6.6 g/dL with 1.72% reticulocytes and an MCV of 122 fL. The platelet count was 72000cells/hpf. His peripheral blood smear demonstrated nucleated red cells, hypersegmented neutrophils, giant platlets, marked hypochromasia, and moderate macrocytosis without blasts or schistocytes. His total bilirubin was 2.1 mg/dL, direct bilirubin 0.3 mg/dL, haptoglobin 21.4 mg/dL, and LDH 144-IU/L. The chest x-ray and CT-scan of the chest, abdomen, and pelvis were normal. Vitamin B-12 (423 pg/mL), folic acid (20 ng/mL), and homocysteine (10.7 umol/L) levels were normal. Anti-intrinsic factor antibody screen was negative. A bone marrow biopsy and aspiration revealed Auer rods on histology. Flow cytometry of the aspirate demonstrated reversal of the myeloid to erythroid ratio with 74% erythroid precusors and 26% myeloid precusors, of which 7% were myeloblasts. This is consistent with the World Health Organization's classification of Acute Erythroid Leukemia (FAB-2 AML M6). At the time of this case report, induction chemotherapy with cytarabine, idarubicin, and etoposide was initiated.
DISCUSSION: Erythroid leukemia (EL), first described by Giovanni Di Guglielmo in 1917, is one of the rarer forms of acute myeloid leukemia with an incidence of 5–6% in both de novo cases and secondary myeloid leukemias. EL tends to have a higher male preponderance and has a bimodal distribution at age 20 and 70. Patients typically present with symptoms secondary to anemia or thrombocytopenia. The patient presented with pancytopenia and macrocytosis for which the differential diagnosis includes myelodysplasia, leukemia, and nutritional deficiencies (pernicious anemia). EL can be mistaken for severe pernicious anemia with pancytopenia in the presence of elevated MCV. Bone marrow biopsy with flow cytometry and cytogenetic analysis are essential in confirming the diagnosis of EL and differentiating it from nutritional deficiency syndromes. Treatment outcome and prognosis are poor, with maximum survival time from diagnosis ranging from 10–30 months depending on the subtype.

FACE THE FACT(OR)S: ACQUIRED COAGULOPATHY IN AN ELDERLY MALE. A. Im[1]; R. Granieri[1]. [1]University of Pittsburgh, Pittsburgh, PA. *(Tracking ID # 189959)*

LEARNING OBJECTIVES: 1) To recognize factor VIII deficiency as an acquired coagulopathy in adults 2) To outline the management of bleeding and the goals of treatment in acquired factor VIII deficiency
CASE: An 80 year old male with history of Type II Diabetes, hypothyroidism, MGUS, lung cancer, and prostate cancer presented with a 1 week history of an enlarging spontaneous hematoma in his left thigh. He denied any trauma, hematochezia, melena, hematuria, epistaxis, mucosal bleeding, or skin changes. The patient had a history of multiple surgeries without any bleeding complications. He was not on anticoagulation therapy, and had no recent NSAID or ASA use. There was no family history of bleeding disorders. Physical exam was remarkable for a left lower extremity hematoma extending from thigh to calf. The patient did not have any oral mucosal lesions, hepatosplenomegaly, petechiae or other ecchymoses, and stool guaiac was negative. His laboratory tests were significant for an elevated PTT (45.7), normal PT/INR and a normal platelet count. Further workup included a PTT 1:1 mixing study, a lupus anticoagulant profile, serum coagulation factor levels, anti-factor antibody titers, and a von Willebrand assay. The patient's PTT did not correct with the 1:1 mixing study. He was found to have a low factor VIII level and a positive anti-factor VIII antibody titer. All other tests were normal. He was treated with cyclophosphamide and prednisone, after which his serum factor VIII level improved and antibody levels decreased. He did not develop any further bleeding or complications during his treatment.
DISCUSSION: Acquired factor VIII deficiency, or "acquired hemophilia", is a coagulopathy that can present with spontaneous bleeding and abnormal coagulation tests later in life. The incidence is 1 in 1 million per year, and the median age at presentation is 60–67. There is no genetic inheritance pattern and it is seen equally in men and women. It is most commonly associated with autoimmune diseases or malignancies. SLE, rheumatoid arthritis, Sjogren's syndrome, and both solid tumors and lymphoproliferative disorders are most commonly identified as underlying etiologies. It also can be associated with pregnancy, and is idiopathic in up to 50% of cases. Patients often present with spontaneous soft tissue bleeding or purpura. In contrast to inherited hemophilia, hemarthoses are rare. Coagulation tests reveal an isolated elevated PTT which does not correct with a 1:1 mixing study. Diagnosis can be further elucidated by measuring factor levels and factor antibody titers. The treatment goals are 1) initial treatment of bleeding and its complications, and 2) removal or eradication of the inhibitor with immunosuppression. Mortality has been reported as 8–22%, often secondary to misdiagnosis and inadequate treatment of bleeding. Treatment of active bleeding includes use of factor VIII concentrates, recombinant factor VIIA, or activated prothrombin concentrates (APC). Immunosuppression can be accomplished with high dose steroids and cyclophosphamide. Relapse is common when immunosuppression is stopped, and this may be more likely when the etiology is secondary to an underlying malignancy. Patients may require lifelong monitoring and intermittent treatment to prevent bleeding complications. It is important to be aware of acquired factor VIII inhibitor/deficiency as a cause of spontaneous bleeding in adults, as morbidity and mortality can be reduced with prompt diagnosis and appropriate treatment.

FATAL FUNGEMIA: LESSONS FROM A LIFE CURTAILED!. I.T. Aldoss[1]; V.M. Alla[1]; D. Fox[2]; P. Hruby[2]. [1]Creighton University, Omaha, NE; [2]creighton university medical center, Omaha, NE. *(Tracking ID # 189314)*

LEARNING OBJECTIVES: 1. Recognizing Histoplasma capsulatum as a potential cause for septic shock in Immuno compromised patients. 2. Identifying the appropriate diagnostic tests, prognostic factors and effective therapies.
CASE: A 35 year old African American female with past history significant for IV drug use, and AIDS presented with fever and dysphagia. She was non compliant with HAART. She was hypotensive, tachycardic and in mild respiratory distress. Physical exam was remarkable for oral thrush and hepatospleenomegaly. CBC revealed pancytopenia and intra cellular fungal elements. She had a creatinine of 4.8 and mixed (hepatocellular/cholestatic) hepatitis. Coags were deranged and DIC panel was positive. EGD revealed esophageal ulcerations with extensive necrosis. She was initially treated with caspofungin and later switched to liposomal amphotercin after blood and urine cultures grew Histoplasma capsulatum. Patient was started on broad spectrum antibiotics, replacement doses of steroids and vasopressors after aggressive fluid resuscitation. Despite these measures blood pressure deteriorated, DIC worsened and she developed respiratory failure due to diffuse alveolar hemorrhage. Patient was made DNR/DNI and renal replacement therapy was deferred as per family's wishes and she subsequently succumbed to multiorgan dysfunction.

DISCUSSION: Histoplasmosis is an infrequent opportunistic infection in HIV patients caused by the dimorphic fungus Histoplasma Capsulatum. Disseminated infection constitutes an AIDS defining illness. The prevalence reaches 2–5% in endemic areas like Ohio and Mississipi river valleys. HIV infection, extremes of age, long term immunosuppressive or steroid therapy and lymphoreticular malignancies are risk factors for disseminated infection. Fever, fatigue and weight loss are the most common symptoms followed by respiratory symptoms. Skin, mucosal and gastrointestinal involvement is common. Endocarditis, meningitis and adrenal hemorrhage are uncommon but well known. Biopsy and culture of affected tissue is the gold standard for diagnosis. Serum and urine assay for Histoplasma antigen have 70% and 90% sensitivity respectively. Serology is positive in 2/3 of cases, but is not helpful in the diagnosis of acute infection. The mortality is 80% in untreated patients. Dyspnea, platelet count <100,000 and elevated LDH predict poor outcomes. Therapy consists of an initial 12-week intensive phase followed by a chronic maintenance phase. Amphotercin B is the mainstay of intensive phase therapy. Therapy is not curative in patients with AIDS. Lifelong maintenance therapy is recommended to prevent relapse in these patients. Itracaonazole is the preferred drug for maintenance and prophylactic therapy (CD 4<150).

FEVER AND DIARRHEA IN THE RETURNED TRAVELER - NOT ALWAYS TRAVELER'S DIARRHEA. A. Bonow[1]; R. Kolarik[1]. [1]University of Pittsburgh, Pittsburgh, PA. *(Tracking ID # 189980)*

LEARNING OBJECTIVES: Distinguish the clinical features of Dengue fever from concomitant diarrheal illness in a returned traveler.
CASE: A 23 year-old caucasian female presented to clinic with fever, chills, rigors, fatigue, and pruritus 5 days after returning from an 8-day trip to the Dominican Republic. There was no past medical history or medication use. Immunizations were current for Hepatitis A and B; the patient was not immunized for typhoid or yellow fever, nor did she take anti-malarials. While abroad the patient noted the onset of diarrhea and nausea; these persisted upon her return to the US. Three days prior to her arrival in clinic the patient noted accompanying malaise, chills, rigors, and subjective fever, prompting her to seek care in the Emergency Department. Work-up revealed WBC 3.6 with neutrophil predominance and Hep A negativity. She was discharged from the ED and prescribed ciprofloxacin. Her diarrhea resolved. Upon her arrival in clinic the patient had persistent constitutional symptoms along with the onset of pruritus. Physical exam revealed a blanching, maculo-papular rash over the abdomen, back, and forearms. The remainder of her exam including vital signs was unremarkable. Laboratory analysis revealed WBC 1.6 with lymphocyte predominance and platelet count of 100,000. No trophozoites were observed. Blood and stool cultures were negative. Ciprofloxacin was continued along with an antihistamine and permethrin cream for possible scabies. The patient returned to clinic 5 days later with persistent fatigue, pruritus, and the onset of epistaxis. Physical examination revealed a petechial rash most prominent over her lower extremities with island sparing. Pale ecchymosis was present on the sole of her right foot. No other abnormalities were observed. Laboratory analysis revealed positive serologies for Dengue virus IgG and IgM. Albumin level was 3.9, ALT and AST were 225 and 231, respectively. LDH was 1475. WBC was 3.5 with lymphocyte predominance, platelets were 84,000, hematocrit was 39.5. A clinical diagnosis of Dengue Fever was made.
DISCUSSION: Dengue Fever is caused by any one of 4 viral serotypes. Development of a vaccine is underway as incidence has reached epidemic proportions in Asia, Sub-Saharan Africa and the Americas. Humans are primary reservoirs; mosquitoes are primary vectors. The clinical syndrome appears 4 days after transmission and manifests as fever, headache, musculoskeletal pain, and severe fatigue. The duration of constitutional symptoms reflects the period of viremia and generally lasts 5–7 days, Generalized rash with areas of sparing is often noted upon defervescence. Gastrointestinal symptoms are an uncommon manifestation. Our patient demonstrated a diagnostic dilemma with juxtaposed diarrhea and systemic febrile illness. While these are two of the most common diagnoses in the returned traveler, recent data suggest that they are more commonly observed in isolation than in synchrony. Chronologically, our patient's diarrhea was likely not coincident with Dengue viremia, suggesting an etiology more commonly associated with infectious diarrhea. Her extra-intestinal symptoms are classic for Dengue fever, as is her laboratory analysis. Clinical diagnosis of Dengue fever is often more practical than laboratory confirmation with PCR analysis. While treatment consists only of supportive care, diagnosis is important in that viral re-infection with a different serotype is associated with the potentially fatal Dengue shock syndrome.

FEVER AND RASH IN A RECENT TRAVELER – THINKING OUTSIDE THE BOX. N. Dubowitz[1]; C.J. Lai[1]. [1]University of California, San Francisco, San Francisco, CA. *(Tracking ID # 190080)*

LEARNING OBJECTIVES: 1) Emphasize the importance of taking a detailed history including current and previous medications 2) Diagnose DRESS (Drug Rash with Eosinophilia and Systemic Symptoms) syndrome
CASE: A 53 yo woman with HTN presented to our medical center directly from San Francisco International Airport with a three-day history of fevers and rash. She was returning home from a one-week vacation in Finland and Armenia. Her symptoms began several days into her trip with subjective fevers. She then developed a rash on her arm that spread to her trunk, chest and lower extremities. Her outpatient medications included aspirin, hydrochlorothiazide, and atorvastatin and she denied any new or OTC medications. She denied exposures to animals or fresh water and was not sexually active. On presentation, her exam was notable for fever (39.1), hypotension (90/60) and a diffuse maculopapular rash that spared only her face and soles of her feet. Labs on admission were notable for WBC of 13 and mildly elevated LFTs (AST 66, ALT 135, TB 1.5). She underwent an extensive infectious and rheumatologic workup (including ANA, ASO, RPR, HIV, measles IgM, hepatitis A/B/C), all of which were negative. Without a clear diagnosis, she remained febrile and mildly hypotensive. Over 10 days, she experienced a rise in WBC count to 25 with marked eosinophilia (22%) and developed a significant hepatitis (AST 1137, ALT 512, TB 2.6). We also discovered further history by calling the patient's pharmacy and learning that she had filled sulindac, an NSAID, for shoulder pain just prior to her trip. Given the constellation of symptoms (rash, eosinophilia, hepatitis) and the newly revealed medication history, the diagnosis of Drug Rash with Eosinophilia and Systemic Symptoms (DRESS) syndrome was made. The patient was started on high-dose steroids and was discharged on day #23 with improvement in her condition.
DISCUSSION: Our patient's presentation with fever and rash in the setting of international travel led us astray. However, given the lack of a clear diagnosis and improvement, we continued to investigate beyond an infectious etiology. We discovered critical information by calling her local pharmacy and learning she had recently started a new medication, sulindac. In the midst of her stressful illness and travels, the patient discontinued sulindac, but forgot to relay that she had ever taken this medication. DRESS syndrome is a rare but life-threatening illness (10% mortality rate) that is difficult to diagnose because of its nonspecific symptoms and its overlap with infectious, rheumatologic and neoplastic disease. Diagnostic criteria include a drug-induced skin eruption, eosinophilia or atypical lymphocytes, and at least one of several systemic symptoms including hepatitis. Although the exact mechanism is unclear, DRESS is thought to be a drug hypersensitivity reaction. Clinical manifestations usually occur 2–6 weeks after a new medication is started. The most commonly implicated medications are anticonvulsants, antiepileptics, NSAIDs, nevirapine, allopurinol, and sulfasalazine. Treatment is focused on stopping the offending agent, high-dose corticosteroids, and supportive care. Patients often take months to fully recover, as was the case in our patient. This case emphasizes the importance of pursuing a thorough history including medication reconciliation, and recognizing the diagnostic criteria for DRESS syndrome, which can be life-threatening in the absence of prompt recognition.

FEVER OF UNKNOWN ORIGIN? CONSIDER MACROPHAGE ACTIVATION SYNDROME. K. Tucker[1]; M. Ziebert[1]. [1]Medical College of Wisconsin, Milwaukee, WI. *(Tracking ID # 190767)*

LEARNING OBJECTIVES: 1) To recognize the importance of finding a unifying theme in the diagnosis of Fever of Unknown Origin (FUO). 2) To become familiar with the characteristics of a rare, potentially fatal disease called Macrophage Activation syndrome (MAS).
CASE: 32-year-old male with recently diagnosed lupus nephritis presented to the Emergency Department (ED) for fever, fatigue, chills, and diaphoresis of one week's duration, worsening one day prior to admit. Thoughts included lupus exacerbation as the patient was evaluated for

similar complaints on three prior occasions and treated with methylprednisolone with nephrology follow-up. Vitals were normal except for a temperature of 105.4F and heart rates in the 120's. Physical exam was unremarkable except for diaphoresis. Medications on admit included mycophenolate 2 gm, prednisone 80 mg, and hydroxycholorquine 200 mg. Laboratory showed an ANC of 508, and blood cultures were drawn with empirical antimicrobials started. Urinalysis showed 3+blood, 3+protein, 5–10 RBCs, and negative nitrite and leukocyte esterase. BUN and creatinine were 26 and 1.1, respectively. High-dose methylprednisolone was started. During hospitalization, the patient remained febrile, tachycardic, and slightly hypertensive with chills and diaphoresis. The serum BUN and creatinine levels remained stable. The patient also developed hyponatremia. Nephrology, Rheumatology, and Infectious Disease consults concluded this was neither a lupus exacerbation nor infectious presentation. On day 13, the patient experienced a 45-minute episode of unresponsiveness, rigidity, and hyperreflexia. MRI of the brain was normal. A literature search revealed few similar cases, but of these, Macrophage Activation Syndrome (MAS) showed promise.
DISCUSSION: MAS is a rare, potentially fatal condition presenting with high fevers in individuals (primarily children) with systemic inflammatory diseases (SIDs) and is thought to be caused by over-activation and proliferation of T-cells and macrophages. Diagnosis is difficult as the symptoms may resemble those of the underlying SID. The patient's findings matching those of MAS included hyponatremia, hypertriglyceridemia, pancytopenia, high fevers, hepatomegaly with elevated liver enzymes, and neurological changes. Three hallmarks of MAS also found in this patient included ferritin levels >10,000 (13,756 in this patient), an abnormal perforin level (testing for T-cell activity), and hemophagocytosis on bone marrow biopsy (BMB). The initial BMB report did not indicate hemophagocytosis, but was confirmed on subsequent review by a pediatric pathologist. However, BMB results are without hemophagocytosis in over 20% of MAS patients. The recommended treatment for MAS is cyclosporine. Given the worsening presentation, the patient was treated for suspected MAS. Upon starting cyclosporine, the patient became afebrile with normal heart rate, white blood cells normalized, the hyponatremia resolved, and ferritin levels rapidly returned to normal. The patient was discharged home with follow-up on day three of cyclosporine. This case illustrates the challenge and importance of finding a unifying theme in the diagnosis of Fever of Unknown Origin, especially in recognizing MAS as a potential cause in patients with SIDs such as lupus. In these patients, a high fever with symptoms non-responsive to therapy should at least have ferritin levels drawn to evaluate for MAS so therapy can be initiated to minimize significant morbidity and potential mortality.

FISHING FOR THE CAUSE OF CELLULITIS. B.R. Laurence[1]; R. Samuel[1]. [1]Temple University, Philadelphia, PA. *(Tracking ID # 189634)*

LEARNING OBJECTIVES: 1. Recognize uncommon causes of soft tissue infection after failure of early antibiotic treatment. 2. Assess for alternate epidemiologic exposure mechanisms for soft tissue infections.
CASE: A 71 year old man with chronic lymphedema presented with a painful, purulent, malodorous, 5×5 cm ulcer on the dorsum of his right foot following trauma against a radiator a few days prior. Within the last 24 hours, he developed subjective fevers and chills. He denied recent travel and saltwater or freshwater exposures. The patient admitted to drinking alcohol socially. On admission he was found to have a leukocytosis with bandemia. The patient was started on vancomycin IV and on the following day piperacillin-tazobactam IV was added. A contrast computed tomography (CT) of the right leg showed cellulitis without evidence of abscess or osteomyelitis. Admission blood cultures initially grew a gram negative rod. Despite therapy, the patient continued to have low grade fevers and persistent right foot swelling. Lower extremity venous dopplers were positive for bilateral below-the-knee deep venous thromboses. Due to continued lack of therapeutic response, surgical debridement was performed. Deep tissue wound specimens grew Aeromonas hydrophilia sensitive to piperacillin-tazobactam. Vancomycin was discontinued, the patient defervesced following debridement, and he remained afebrile. On further history, the patient stated that he recently was cleaning and preparing fresh fish that an acquaintance had brought from Virginia. The patient's antibiotics were changed to oral ciprofloxacin and he was discharged.
DISCUSSION: Cellulitis is a common infection with the majority of cases caused by staphylococcus and streptococcus. It is important to take a thorough history and consider uncommon etiologies, especially when the patient fails their initial antibiotic therapy or has risk factors for infection. Our patient had several risk factors for cellulitis, including prior lymphatic insufficiency and venous insufficiency. Another risk factor implicated for more severe infection with aeromonas is hepatic disease. Our patient had multiple hypodense hepatic lesions on CT scan and by history is a presumed "social" drinker of alcohol. Though these may have been incidental findings, liver disease may have increased his risk of developing further complications from aeromonas. Aeromonas is an aerobic gram-negative rod usually found in freshwater and marine environments and is most prominent in the Northern Hemisphere during the warmer months. The skin of the lower extremities is the most common site of infection, usually after traumatic exposure to contaminated water or soil. Aeromonas infection and cellulitis often develop within 8–48 hours of exposure and systemic signs are common. Manifestations may include hemorrhagic bullae, subcutaneous bleeding, and purpura. Aeromonas is typically very susceptible to penicillins combined with beta-lactamase inhibitors, second and third generation cephalosporins, aminoglycosides, and fluoroquinolones. In clinical settings where patients do not respond to appropriate antibiotics for presumed common cellulitis, it may be prudent to obtain further imaging such as CT or magnetic resonance imaging (MRI) of the affected limb to rule out soft tissue collections, soft tissue emphysema, and necrotizing fasciitis. Surgical debridement may be indicated with deep soft tissue infection, necrosis, and purulent collections that are inadequately draining.

FROM FETAL HEART TO FAILING HEART. J.A. Griffin[1]; C.A. Feddock[1]. [1]University of Kentucky, Lexington, KY. *(Tracking ID # 190665)*

LEARNING OBJECTIVES: 1. Outline the etiologies of congestive heart failure in young adults 2. Describe the diagnostic strategy for determining the etiology of CHF in young adults 3. Recognize the clinical findings of noncompaction
CASE: An 18-year-old female presented with vomiting for four days. She also reported a 25 pound weight loss over the last eight months and the development of lower extremity edema over the last two weeks. Initial exam disclosed a thin female, JVD to the angle of the jaw when seated at 90°, an S3 gallop and ventricular heave, tachypnea and diffuse rales, and 3 + pitting edema to the midcalf bilaterally. BNP was 1385 pg/mL. Electrocardiogram further revealed sinus tachycardia, left atrial enlargement and diffuse T-wave abnormalities. Echocardiogram demonstrated prominent trabeculation with severe global hypokinesis and a 20% EF. These findings were diagnostic of left ventricular noncompaction. She responded to standard treatment and was referred for possible cardiac transplantation.
DISCUSSION: The most common reasons for heart failure in young adults are related to congenital heart disease, its surgical correction, or adverse effects from myocardial toxins (predominantly doxorubicin). In the patient without such a history, most causes fall under the general term cardiomyopathy. Primary cardiomyopathies can either be genetic, such as hypertrophic cardiomyopathy, arrhythmogenic right ventricular cardiomyopathy/dysplasia (ARVC/D) and left ventricular noncompaction; acquired, such as viral myocarditis, peripartum or tachycardia-induced; or mixed, such as idiopathic dilated and restrictive cardiomyopathies. Secondary cardiomyopathies occur from systemic diseases, such as inborn errors of metabolism, autoimmune disorders and endocrine diseases. A few studies can yield enormous results in determining the etiology of heart failure in young adults. Although often considered nonspecific, several cardiomyopathies have characteristic findings on electrocardiography. For example, left ventricular hypertrophy on ECG is seen in hypertrophic cardiomyopathy and noncompaction, and T-wave inversions in leads V1-V3 are common in ARVC/D. Echocardiography is the single most useful tool in determining the etiology of heart failure, predominantly by differentiating between systolic and diastolic dysfunction, and detecting structural abnormalities. Echocardiographic findings are often diagnostic in hypertrophic cardiomyopathy and left ventricular noncompaction. If the diagnosis remains elusive after the initial evaluation, endomyocardial biopsy is indicated. It is often diagnostic in ARVC/D and restrictive cardiomyopathy, and can exclude alternative etiologies in idiopathic dilated cardiomyopathy. In our case, the cause of the patient's CHF was noncompaction, a disease in which the normal progression of myocardial morphogenesis is arrested at an early stage such that embryonic

trabeculated myocardium in ventricular regions is never compacted to mature myocardial tissue. The varying extent of noncompaction leads to significant age range at diagnosis. Some patients, like this one, present as children or young adults, but significant symptoms may be delayed until the sixth decade. Patients most commonly present with heart failure, but may also develop ventricular arrhythmias or thromboembolic events. Patients should be managed according to current heart failure guidelines with early consideration for cardiac transplantation in patients with significant systolic dysfunction.

FROM SORE TONGUE TO PANCYTOPENIA. P. Bodenmann[1]; T. Chapuis[1]; B. Favrat[1]. [1]University Outpatient Clinic of Lausanne, Lausanne,. *(Tracking ID # 189573)*

LEARNING OBJECTIVES: 1. Recognize non-neurological signs of cobalamin deficiency and identify haematological findings. 2.Establish diagnosis and treatment for pernicious anaemia.
CASE: A 52-year-old man native to the Democratic Republic of Congo presented to the emergency department after 14 days of shortness of breath, general weakness, weight loss and a sore tongue. He had no cough, chest pain or fever, and no relevant information in his medical history. On examination, he appeared uncomfortable, anicteric and afebrile with a respiratory rate of 28 per minute, a regular pulse of 70 bpm and blood pressure of 111/76 mmHg. The cardiovascular examination showed normal heart sounds and the lungs were clear on auscultation. The tongue was unremarkable. A chest X-ray and a full blood count were ordered. The chest X-ray was normal. The full blood count showed pancytopenia: the hematocrit was 21% with a MCV of 107 fl, and the absolute reticulocyte count was 31000/mm3. The WBC was 3600/mm3, with 27% neutrophils, 63% lymphocytes and 96000/mm3 platelets. The peripheral blood smear revealed anisocytosis and hypersegmented neutrophils. The findings were low cobalamin (52 pmol/L; 133–675) and folate (4.2 nmol/L; >6.8) levels, and high homocysteine (101 mmol/L; 5–15) and methylmalonate (1.12 mmol/L; <0.28) levels. Iron, ferritin, creatinine and potassium levels were normal, as were the other findings. A gastroscopy showed oedematous gastric mucosa, and a biopsy showed atrophic gastritis. Anti-parietal cell and anti-intrinsic factor antibodies were positive. The patient received 2 units of packed red cells. Cobalamin (1 mg i.m.) was given daily for 7 days, then every week for 4 weeks and then maintained at 1 mg every month. Daily folate p.o. was also given. Correction of the deficiencies led to marked reticulocytosis (200,000/mm3) 10 days later. Six months later, the patient was asymptomatic and the peripheral blood smear was normal. Cobalamin, folate, methylmalonate and homocysteine levels were normal.
DISCUSSION: The differential diagnosis of pancytopenia included cobalamin and folate deficiency, hyperslenism, myeloproliferative disorders, hypothyroidism, HIV, HBV, HCV, EBV, CMV and tuberculosis infection. Pernicious anaemia was our leading diagnosis. Most patients with cobalamin deficiency exhibit signs of peripheral nervous system or spinal cord involvement. Our patient developed non-neurological symptoms and a sore tongue without glossitis that was reversible after treatment. Rare haematological abnormalities included pancytopenia with haemolysis (high LDH, low haptoglobin, schistocytes). This was reversed with cobalamin replacement. Cobalamin deficiency can arise due to nutrition (e.g. vegans), malabsorption syndrome (e.g. pernicious anaemia, food-cobalamin malabsorption) or from other gastrointestinal causes (e.g. bacterial overgrowth syndrome). The diagnosis is based on a low cobalamin level, but elevated methylmalonate and homocysteine levels are more sensitive diagnostics than is low serum cobalamin. Patients with pernicious anaemia have anti-intrinsic factor and anti-parietal cell antibodies. Treatment is intramuscular; however, oral vitamin supplementation has efficacy equal to that of injection for pernicious anaemia and other cobalamin deficiencies. Treatment for pernicious anaemia lasts a lifetime.

FUN GUS GOES TO PITTSBURGH: A CASE OF COCCIDIOIDOMYCOSIS MENINGITIS. K. Robinson[1]; S. Jan[1]; A.A. Butt[1]. [1]University of Pittsburgh, Pittsburgh, PA. *(Tracking ID # 190584)*

LEARNING OBJECTIVES: 1. Identify risk factors for the development of disseminated coccidioidomycosis. 2. Compare the laboratory screening tests for coccidioidomycosis. 3. Review the complications of coccidioidomycosis meningitis.

CASE: A 60 year old male with rheumatoid arthritis treated with methotrexate, leflunomide, and prednisone, presented with fever and headache. He had previously traveled to Arizona. On ROS, he endorsed night sweats, malaise, weight loss, and neck pain. Physical exam was remarkable for a temp 100.8F, BP 120/85, photophobia, normal lung and neurological exams. Three months prior, he was found to have a left lower lobe infiltrate with diffuse micronodular lesions and treated with ceftriaxone and azithromycin. He was subsequently readmitted for a persistent LLL infiltrate. Bronchoscopy was unrevealing, with normal BAL and lab studies including negative serum and urine tests for histoplasma and coccidioides. His symptoms persisted despite antibiotic treatment. Extensive studies in the next 3 months, including multiple lumbar punctures, revealed chronic aseptic meningitis. Over the next year, the patient was hospitalized multiple times for aseptic meningitis and eventually developed hydrocephalus. Brain CT and MRI were unrevealing. Lumbar spine MRI showed diffuse meningeal enhancement. Meningeal biopsy finally revealed chronic granulomatous leptomeningitis secondary to coccidioidomycosis.
DISCUSSION: Coccidioides immitis is a soil fungus endemic to southwestern U.S., Mexico, Central and South America. Infection is acquired through inhalation of C. immitis spores. While most infected individuals are asymptomatic, some develop night sweats, fever, weight loss, and pneumonia. Dissemination occurs through hematogenous spread, and can involve skin and soft tissues, skeleton and joints, brain and meninges. Meningitic complications include hydrocephalus, cerebral infarction, venous thrombosis, and spinal arachnoiditis. Major risk factors for disseminated disease are immunosuppression and travel/residence in endemic areas. Patients with HIV/AIDS, taking chronic immunosuppressive or chemotherapeutic medications, and who are pregnant are at higher risk. Within endemic areas, incidence rises with dust storms, earthquakes, and excavations. Other risk factors include Asian, Hispanic, African American, and Native American groups and occupations that handle infected specimens. Laboratory diagnosis of C. immitis infections include serology (tube precipitin, complement fixation, immunodiffusion), direct smear, histopathology, and culture with DNA probe analysis. Serum, CSF, peritoneal, pleural, and joint fluid can be tested. Serology, which can track response to therapy, includes IgM antibody that appears with acute infection and IgG antibody that develops months after primary infection. Titers can help identify disseminated disease; titers of 1:16 and higher are associated with dissemination. Sensitivity of serologic testing is decreased in immunosuppressed patients. Direct smear and histopathology can be diagnostic if mature spherules containing endospores are visualized. Culture remains the gold standard and is highly sensitive, although growth may take days or weeks. DNA probe analysis adds specificity. This case demonstrates the development of C. immitis meningitis in a patient with significant risk factors. Although numerous CSF studies did not reveal a diagnosis, it is important to recognize the limitations of serologic testing in immunocompromised patients.

GASTROINTESTINAL STROMAL TUMORS. N. Naik[1]; K. Pfeifer[1]. [1]Medical College of Wisconsin, Milwaukee, WI. *(Tracking ID # 190771)*

LEARNING OBJECTIVES: 1. Consider uncommon diagnoses in patients presenting with upper gastrointestinal bleeding. 2. Describe the clinical characteristics and treatment of gastrointestinal stromal tumors.
CASE: A 54-year-old woman presented to the emergency department with progressive shortness of breath and fatigue over several days with associated dizziness and palpitations. She had normal vital signs, and her physical examination was unremarkable except for conjunctival, mucosal and skin pallor. Laboratory studies revealed a hemoglobin of 6.6 g/dl and hematocrit of 20. On further history, the patient reported she had been using naproxen for musculoskeletal pain on a regular basis for the last 5–6 months. She also noted her last few bowel movements had dark stool but had no other GI symptoms at the time of presentation. She was diagnosed with an upper gastrointestinal (GI) bleed likely secondary to non-steroidal anti-inflammatory drug (NSAID)-induced ulcer disease, transfused and started on a proton pump inhibitor. The following day the patient had an esophagastroduodenoscopy (EGD) performed which revealed a large submucousal mass approximately 5×4 cm along the greater curvature of the stomach with a central, erythematous, indurated crater without active bleeding. On gross examination, this was consistent with a gastrointestinal stromal

tumor (GIST). Biopsy was not performed as there was concern for bleeding risk. Chest and abdominal CT subsequently showed no evidence of metastatic disease. A partial gastrectomy and excision of the mass was performed. Microscopic pathology was consistent with a GIST that was well-circumscribed within a fibrotic capsule.
DISCUSSION: Gastrointestinal stromal tumors (GISTs) account for less than 3% of GI malignancies but 80% of GI mesenchymal tumors, and may present with misleading GI symptoms. The annual U.S. incidence of GISTs is suggested to be at least 4500–6000 new cases. The stomach is the most common site (50%), followed by small intestine (25%), colon (10%), omentum/mesentery (7%), and esophagus (5%). No clear risk factors or causative agents have been characterized, but a genetic link has been suggested by the majority of GISTs having somatic mutations in the KIT tyrosine kinase receptor. Furthermore, families have been described with germ-line mutations in KIT with an autosomal dominant pattern of GISTs, including multifocal tumors. All GISTs are regarded as potentially malignant and can metastasize to the liver. Factors that predict likelihood of metastasis include tumors that are larger than 5 cm, lobulated, radiographically heterogenous, or have mesenteric fat infiltration, ulceration, regional lymphadenopathy or an exophytic growth pattern on CT. Diagnostic evaluation involves CT, upper endoscopy, and endoscopic ultrasonography. Surgical resection is the treatment of choice, and complete resection is possible in a majority of localized GISTs. Prognosis is influenced by tumor size, location, and completeness of resection, and approximately one-half are recurrence-free after five years. Tyrosine kinase inhibitors, such as imatinib, have shown benefit in treatment of GISTs; however, there are no long-term clinical trials with sufficient data.

GENITAL ULCERS: IT'S NOT ALWAYS ABOUT SEX. A.J. Thanjan[1]; J. Weiss[1]; A.P. Burger[1]. [1]Department of Medicine, Albert Einstein College of Medicine/Montefiore Medical Center, Bronx, NY. *(Tracking ID # 189979)*

LEARNING OBJECTIVES: 1) Recognize the clinical presentation of Behçet's disease 2) Diagnosis and treatment of Behçet's disease
CASE: A 48-year-old Hispanic man with history of hypertension presented with painful oral and genital ulcers for 2 weeks. He had several similar episodes in the past that remained undiagnosed and resolved spontaneously. Three days ago he noted painful "bumps" on his anterior lower legs. There was no ocular pain or change in vision. He had a negative tuberculin skin test 1 year ago. The patient had no history of inflammatory bowel disease, systemic lupus erythematosus, sexually transmitted diseases, or rheumatoid arthritis. On exam, there were two 0.5 cm red, painful ulcers on the right and left lateral sides of the tongue. Similar ulcers were located on the left anterior scrotum and foreskin near the glans penis. No penile discharge was noted. Discrete, painful, papulonodular, purple-red lesions were located on bilateral anterior tibial areas. On his back there were scattered acneiform nodules. There was no uveitis or retinal vasculitis on ophthalmologic exam. Labs: WBC 14.9 (68% polys, 25% lymphs, 7% mono, 2% eos), ESR 2, CRP 2.4, ANA neg, normal SMA-7 and LFTs. Viral cultures of both oral and genital lesions were negative for HSV. Pathergy test was negative. Skin biopsy of the tibial lesions was consistent with erythema nodosum. The patient was diagnosed with Behçet's disease and initially treated with colchicine. It was discontinued because the patient developed a facial rash. A short course of systemic corticosteroids was started with resulting improvement.
DISCUSSION: Behçet's disease is a chronic, relapsing inflammatory disease of unknown origin defined by recurrent ulcers, uveitis, and skin lesions. The disease was first diagnosed by Hippocrates 2500 years ago, but was made famous by Hulusi Behçet in 1936. Behçet's disease is most common amongst those living in eastern Asia to the Mediterranean area. In the United States, the prevalence ranges from 0.12 to 0.33 per 100,000 people. The most accepted criteria for diagnosis, created by the International Study Group for Behçet's Disease, is recurrent oral ulceration, three times in one year, and two of the following four signs: recurrent genital ulceration, eye lesions, skin lesions, or a positive pathergy test. A positive pathergy test is a papule of 2 mm or more developing 24–48 hours after insertion of a 20–25 gauge needle into the skin. Painful oral ulcerations are usually the initial symptom. Genital ulcers are present in 75 percent of the cases. Erythema nodosum is more common among women, and acneiform nodules are more common among men. Ocular lesions present as the initial manifestation in 10 percent of the patients, and may affect as many as one-third. Despite treatment, 25 percent of those with ocular lesions will become blind. Initial therapy can be started with colchicine for minor disease manifestations. If there is no improvement with colchicine, then systemic glucocorticoids may be required. Glucocorticoids and other immunosuppressive therapies may be considered earlier in patients with severe disease presentations such as erythema nodosum, pyoderma gangrenosum, posterior uveitis, and/or neurological manifestations.

GETTING TO GOAL: LIPID MANAGEMENT IN THE HUMAN IMMUNODEFICENCY VIRUS-INFECTED PATIENT. C.J. Berlin[1]; J.R. Kostman[1]. [1]University of Pennsylvania, Philadelphia, PA. *(Tracking ID # 189710)*

LEARNING OBJECTIVES: 1) Assess global cardiovascular risk in the human immunodeficiency virus-infected patient 2) Recognize hyperlipidemia as a common side-effect of antiretroviral therapy 3) Recognize important drug interactions between HMG CoA reductase inhibitors and antiretroviral agents
CASE: A 44 year-old male with a history of human immunodeficiency virus (HIV) for the past 12 years and well-controlled schizophrenia presents to the office for follow-up care. He was recently started on once daily efavirenz (non-nucleoside reverse transcriptase inhibitor or NNRTI), emtricitabine (nucleoside reverse transcriptase inhibitor or NRTI), and tenofovir (NRTI). His other medications include fluphenazine, benztropine, amitriptyline, and aspirin. He smokes one pack of cigarettes per week for the past 15 years and he has no family history of premature cardiovascular disease. On exam, his blood pressure is 115/60 mmHg and body mass index is 23.2 kg/m^2. On laboratory examination his CD4 count is 254/μL, HIV viral load undetectable, and his creatinine, thyroid stimulating hormone, and fasting glucose are all normal. His pre-antiretroviral lipid panel consisted of a total cholesterol of 212 mg/dL, low density lipoprotein (LDL) of 142 mg/dL, high density lipoprotein (HDL) of 34 mg/dL, and triglycerides of 181 mg/dL. Three months after starting this regimen his fasting lipid panel consists of a total cholesterol of 290 mg/dL, LDL of 238 mg/dL, HDL of 35 mg/dL, and triglycerides of 87 mg/dL.
DISCUSSION: The scenario outlined above is not uncommon as an increasing number of HIV-infected patients are presenting to their general internist with hyperlipidemia. Managing this is paramount as the life-expectancy of patients with HIV increases and thus cardiovascular risk assessment and reduction is critical. Although part of the hyperlipidemia in these patients is attributable to the HIV infection itself, the vast majority is from the antiretroviral agents. The protease inhibitor class typically has the largest impact on elevation of triglycerides and total cholesterol. The NRTI class tends to cause milder elevation in triglycerides and total cholesterol, while the NNRTI class tends to be the most lipid neutral. Some patients have profound elevations of triglycerides (greater than 500 /dL) that must be managed primarily with fibrates and fish oil, while others have primarily elevations in LDL and total cholesterol. A critical element in managing hyperlipidemia in HIV is knowledge of specific drug interactions. All of the protease inhibitors are metabolized to some extent by the cytochrome P450 3A4 enzyme and thus HMG Co-A reductase inhibitors (statins) that are metabolized by this enzyme, such as simvastatin and lovastatin, are contraindicated due to an increased risk of rhabdomyolysis. In addition, other antiretroviral agents may increase the metabolism of statin drugs so that higher doses may be needed to achieve cholesterol goals. The statins that are generally safe to use include pravastatin, fluvastatin, atorvastatin at low doses, and possibly rosuvastatin. Ezetimibe may also be useful as an adjunctive agent. Although achieving the cholesterol goals as outlined by the National Cholesterol Education Program is often difficult in the HIV-infected patient, even small reductions in LDL can significantly decrease cardiovascular risk and these goals should still be targeted.

GIANT CELL ARTERITIS: DOES NORMAL ERYTHROCYTE SEDIMENTATION RATE EXCLUDES IT?. R. Mishra[1]; V. Singh[1]; B. Degapudi[2]; D. Chesner[2]. [1]No, Horsham, PA; [2]No, Abington, PA. *(Tracking ID # 190379)*

LEARNING OBJECTIVES: – Recognize that giant cell arteritis may present with normal ESR and CRP – Recognize that the history and clinical picture are paramount in decision making process in giant cell

arteritis and a high index of suspicion is mandatory – Recognize that patients with symptoms suggesting giant cell arteritis should undergo bilateral temporal artery biopsy and should be treated empirically with steroids even if ESR and CRP are normal
CASE: A 74 old woman presented to hospital with one week history of slowly progressive severe, throbbing headache around her right ear and temporal area. It gradually worsened to involve her entire head, including left temporal region. She also had occasional symptoms of jaw claudication, fatigue and loss of appetite. A day prior to admission, she noticed double vision associated with nausea. Past medical history significant for osteoarthritis. Family history significant for a sister with rheumatoid arthritis. Vital signs on admission were stable except for blood pressure which was 172/86 mmHg. Bilateral temporal areas were noted to be tender, but temporal artery was not palpable. The left eye was noted to have decreased adduction, decreased upward and downward gaze movements and slight left ptosis. Vision remained intact. The patient had mild nuchal rigidity but Kernig's sign was negative. The remainder of the physical examination was normal. Laboratory data showed normal CBC and chemistry profile. ESR on day 1 was 21 and repeat on day 2 was 19. C-Reactive Protein (CRP) was 0.3 (normal). The patient underwent contrast and non-contrast Cat Scan of head which were normal. MRI and MRA brain were normal as well. On the second day of admission, she underwent lumbar puncture and CSF analysis was normal. The ESR was repeatedly normal twice as was the CRP. Since the examination was suggestive of Gaint cell arteritis, the patient was started on Prednisone 60 mg/day empirically. On the third day, she had bilateral temporal artery biopsy performed. MR Venogram to rule out venous sinus thrombosis was normal. Although diplopia persisted, on day 7th of her admission the temporal artery biopsy result came back positive for Giant cell arteritis. The patient was later discharged home on oral prednisone and improved to resolution over the next six months.
DISCUSSION: Giant Cell arteritis is a common disease in the elderly and may cause loss of vision if not diagnosed and treated early. A high erythrocyte sedimentation rate (ESR) is the hallmark of the diagnosis and is one of the American College of Rheumatology classification criteria. This case illustrates that normal ESR/ CRP do not rule out a diagnosis of Giant cell arteritis. The history and clinical picture are paramount in decision making process and high index of suspicion is mandatory. Therefore, patients with symptoms suggesting Giant cell arteritis should undergo bilateral temporal artery biopsies and treated empirically with steroids even if ESR and CRP are normal.

HARD TO SWALLOW. J.D. Gonzalo[1]; P. Blanco[1]. [1]Beth Israel Deaconess Medical Center, Boston, MA. *(Tracking ID # 190070)*

LEARNING OBJECTIVES: 1. Identify nasogastric tube placement in the hospital setting as a common procedure but not without associated complications, specifically aspiration events 2. Recognize risk factors for nasogastric tube placement.
CASE: A 77-year old male with ethanol abuse presented with a quadriceps tendon rupture after a mechanical fall. Patient underwent an uncomplicated quadriceps tendon repair. On post-operative day #2, patient complained of a distended, painful abdomen with no bowel movements or flatus. Abdominal films showed an ileus with no masses. Large bore nasogastric tube (NGT) placement was attempted three times but all were unsuccessful secondary to tube coiling and wheeziness, prompting nebulizer treatments. A fourth attempt caused an aspiration event with resultant unresponsiveness and cardiac arrest. Advanced cardiac life support was administered with intubation and the patient reacquired a perfusing pressure. Patient was transferred to the intensive care unit on pressors. In intensive care, a hypothermia protocol was initiated empirically and patient was started on broad spectrum antibiotics with vancomycin and piperacillin/tazobactam. Chest roentogram showed bilateral opacities involving the entire right lung and left lower lobe with accompanying bilateral pleural effusions, both new from a previous roentogram done that morning. Pulmonary suctioning revealed large quantities of gastric material. Two additional attempts at large bore NGT placement were performed without success. Due to dismal prognosis, the family decided to withdraw care. Patient passed away within two hours, less than ten hours after his aspiration event. The family declined an autopsy.
DISCUSSION: Small and large bore nasogastric tube (NGT) placement in the hospital setting is commonplace but not without associated complications. Even a small percentage of complications results in a significant number of clinical events. NGTs are clinically indicated in the hospital setting to decompress the stomach, administer fluids or feedings, and to assist in the diagnosis through gastric content analysis. Mortality, although rare, can occur with large volume aspiration, as in this case. Most pulmonary aspirations associated with small bore nasoenteral tubes occur with malpositioning and resultant tube displacement. An estimated 4.4% of NGTs are misplaced (i.e. pulmonary, brain, esophagus) and over 50% become displaced. Risk factors for misplacement include a cuffed endotracheal tube, altered mental status, and impaired gag reflex, with risk factors for displacement being vomiting, distended abdomen, and narcotic use. Nearly 75% of patients receiving tube feeds with small-bore NGTs will have at least one aspiration event and these aspirations are recognized as a risk factor for ventilator-associated pneumonia. The degree of pulmonary injury secondary to aspiration depends upon the volume of gastric contents, concentration of small bowel enzymes, and microbial load within the refluxed material. Less data exists for complications associated with placement of large bore nasogastric tubes. Deaths resulting at the time of NGT placement are rare but can occur. Nasogastric tube placement, although an expected skill of housestaff and most often a necessary clinical intervention, is not without risk and can contribute to death in certain patients. Further studies are needed to elucidate the risk factors and complications for large bore nasogastric tube placement.

HEADACHE, ALTERED MENTAL STATUS, FOCAL NEUROLOGIC DEFICIT, LOW-GRADE FEVER: IS THE DIAGNOSIS ALL IN YOUR HEAD?. D.U. Ambrocio[1]; A. Tubb[1]; S. Sarebahi[1]; W.N. Jarjour[1]. [1]University of Virginia Division of Clinical Rheumatology, Charlottesville, VA. *(Tracking ID # 189349)*

LEARNING OBJECTIVES: 1. Recognize the clinical features of primary CNS vasculitis. 2. Understand the critical nature of a prompt and efficient workup
CASE: A 44 year-old male presented with a new-onset severe frontal headache. Five weeks prior, he presented to the ER separately for altered mental status, low-grade fevers, and neurologic symptoms of right facial droop, ptosis, diplopia, and blurry vision. The latter prompted a brain MRI which demonstrated multiple infarcts. He was hospitalized, treated with ASA and supportive care, and his symptoms improved. Extensive workup for his headache: normal CBC, comprehensive metabolic profile, CK, ESR, CRP, PT/PTT/INR, RVVT, protein C, protein S, and UA; negative ANCA, factor V leiden and factor II mutations, RPR, HSV PCR, Lyme titers, ANA, anti-cardiolipin antibodies, anti-beta 2 glycoprotein, blood cultures, and HIV. CSF analysis: lymphocytic pleocytosis. Head CTA: diffuse vessel irregularities. MRI: multifocal contrast enhancement. Occipital lobe biopsy (results confirmed three days later): vessel effacement with inflammation and fibrinoid necrosis. He was started on prednisone 80 mg daily. Five days later, he complained of right lower extremity weakness and partial foot drop. Soon after, he developed right-sided hemiplegia, cortical blindness, and expressive aphasia. IV corticosteroids and cyclophosphamide were started. To date, his neurological recovery is minimal.
DISCUSSION: CNS vasculitis is an inflammatory disease of small cerebral arteries and arterioles over a diffuse area. Making a timely diagnosis is clinically challenging. 20% of cases with primary CNS vasculitis have granulomatous angiitis of the CNS (GACNS). A cluster of cases have benign angiopathy of the CNS (BACNS) while the majority does not fit this classification. In primary disease, intracranial atherosclerosis, infection, noninflammatory vascular disease, lymphoma, or cerebral emboli are absent. GACNS is associated with a prodrome of neurologic deficit, headache, or alteration in higher cortical function. Lymphocytic pleocytosis and multifocal stenoses on conventional angiography are classic. A necrotizing granulomatous reaction with fibrosis adjacent to disrupted blood vessels is seen on biopsy. BACNS is defined primarily by angiography. Typically, the patient is a young female presenting acutely with a severe headache or focal neurologic dysfunction. The clinical course is benign. CSF findings are usually normal but the angiogram is abnormal. BACNS is indistinguishable from GACNS at onset and given the potential neurologic damage, should be treated equally. In a study of twenty patients with primary disease diagnosed with angiography alone, combo CT/MRI and CSF analysis increased its sensitivity to nearly 100%. Thus, conventional angiography is not recommended if these studies are normal. If the clinical suspicion is

strong and the workup for secondary causes is unremarkable, angiography and/or biopsy are necessary to justify the use of cyclophosphamide. High dose corticosteroids should be started once a diagnosis is made; although, it is unnecessary to identify the vasculitic subtype at onset. For the internist or resident, primary CNS vasculitis should always be considered in progressive and profound disease as it requires specialized treatment to minimize neurologic damage.

HEADACHE: ARE WE MISSSING SOMETHING?. A.R. Sama[1]; C.L. Sweeney[1]; T.A. Townley[1]. [1]Creighton University, Omaha, NE. *(Tracking ID # 190611)*

LEARNING OBJECTIVES: Recognize that 1. Patients with migraine can have super imposed headaches from other causes. 2. Chronic headache with no other serious constitutional symptoms is a very unusual presentation of Herpes simplex encephalitis.
CASE: A 49 year-old African American female with a history of migraines presented to her PCP with a complaint of progressive worsening headaches for the past one month. The headaches were insidious in onset, squeezing in character and located over the bilateral fronto-parietal regions with radiation all over her head. Headaches were constant, woke her from sleep and interfered with her daily activities. These headaches differed from her migraines which were usually accompanied by nausea, vomiting and photophobia. The headaches were not relieved with her usual migraine medications, Excedrin and acetaminophen. She denied any fever, chills, neck stiffness or recent stress. The patient also developed numbness over her lower right face and blurring of the right eye vision over 24 hours prior to presentation. Evaluation for a TIA was negative. She was given aspirin and oxydocone for possible atypical migraine and sent home. The patient returned to clinic two days later as her headache had not improved. She now complained of confusion with poor memory and attention. On examination, she was in distress, holding her head intermittently with both hands during the interview. Vital signs were stable. She scored 26 out of 30 on mini-mental status examination. She had slow speech with difficulty finding words. Cranial nerve examination showed right-sided sixth nerve palsy with facial numbness along the distribution of V3. Motor, sensory, reflex and cerebellar examination was normal. She had a wide-based gait with positive Romberg sign. Routine laboratory examinations were within normal limits. MRI showed mild diffuse inflammation of the dura. Lumbar puncture results showed a mild elevation of protein. Tests for tuberculosis, crytoptoccus and HIV were negative. Follow-up of viral studies returned positive for HSV1 by PCR. The patient was started on acyclovir for 21 days with only marginal improvement in symptoms. Her headaches responded only to hydromorphone and it was expected that she would have these symptoms of post-viral encephalitis for weeks before complete recovery. She did not have any serious permanent neuorologic damage in follow-up except for mild numbness of the face and double vision.
DISCUSSION: Herpes simplex encephalitis is the most common cause of fatal encephalitis in the United States. It usually presents acutely with fever, headache, focal neurologic deficits or seizures. Indolent presentation is rare and can be easily missed clinically. MRI shows characteristic involvement of the temporal lobe in about 95% of the patients. Spinal fluid analysis usually shows erythrocytes, lymphocytosis, elevated protein, and normal glucose. HSV is detected by PCR with a very high sensitivity and specificity. PCR is considered the gold standard for diagnosis of this infection. Brain biopsy is no longer indicated for diagnosis. Treatment is with intravenous acyclovir for 14–21 days. Untreated HSV encephalitis is associated with very high mortality and morbidity with long-term neurologic damage in those patients who recover from the disease.

HEART-KIDNEY INTERACTION. N. Tanaka[1]; H. Matsubara[2]. [1]none, Sapporo,; [2]University of Pittsburgh, Pittsburgh, PA. *(Tracking ID # 189687)*

LEARNING OBJECTIVES: 1. To recognize the mechanism of bilateral renal artery stenosis causing congestive heart failure 2. To identify the effect of ACE inhibitors on renovascular hypertension
CASE: A 77 year-old man with a history of peripheral vascular disease and hypertension on calcium channel blocker presented to the emergency department with a complaint of sudden onset of shortness of breath with orthopnea that developed earlier that the morning. He denied neither chest pain nor dyspnea on exertion. Further history revealed poor medical compliance. Vital signs were blood pressure of 174/116, pulse 56/min, saturation 91% on room air. Cardiac exam revealed a pan-systolic murmur Levine 4/6 radiating to the axilla, and the lung exam revealed bilateral coarse crackles at the bases. There was no lower extremity edema. Laboratory studies were significant for serum BUN of 37.5, and creatinine of 2.84 and the cardiac enzymes remained negative. The chest x-ray showed pulmonary congestion. The patient was diagnosed with congestive heart failure (CHF) exacerbation. The patient was hospitalized and started on a loop diuretic, ACE inhibitor, and a calcium channel blocker. Transthoracic echo cardiography showed mild left ventricular hypertrophy. The hospital course was complicated with worsening of renal functions with serum BUN and creatinine rose to 80.2 and 6.54 respectively. ACE inhibitor was discontinued. The renal doppler ultrasound and abdominal CT scan showed bilateral renal artery calcification with stenosis. The patient was maintained of the ACE inhibitor and his blood pressures were controlled in 130's systolic. His CHF resolved responding to the treatments. His BUN and creatinine also returned to his baseline levels.
DISCUSSION: Renovascular hypertension occurs when the renin-angiotensin system (RAS) is activated by narrowing of the renal artery due to atherosclerosis, fibromuscular dyplasia,etc. Patients with renovascular hypertension often have nephrosclerosis and renal atrophy. When the renal artery is constricted or stenosed, or when the cardiac output is suddenly decreased, or in cases of sudden volume overload, the RAS is rapidly activated, resulting in an increase in the afterload, causing flash pulmonary edema leading to CHF exacerbation. This phenomenon is called "afterload mismatch". ACE inhibitors are widely used in the treatment of heart failure because of their protective properties by inhibiting the remodeling process in heart failure. However since they work by vasodilating the efferent glomerular arteriole, the use of ACE inhibitors can result in low glomerular filteration pressure, causing a further decrease in renal functions particulary in patients with bilateral renal artery stenosis such as this patient. This case illustrates CHF exacerbation secondary to flash pulomonary edema most likely caused by subsequent acute on chronic renal failure secondary to the use of ACE inhibitors. It is important to recognize the role of renal artery stenosis in the development of CHF exacerbations and the adverse effect of ACE inhibitors on patients with bilateral renal artery stenosis.

HEMATURIA IN A PATIENT WITH PROSTATE CANCER M. Vakulenko[1]; A. Vanderwalde[1]; G.M. Navarro[1]. [1]University of California, Los Angeles, Los Angeles, CA. *(Tracking ID # 190639)*

LEARNING OBJECTIVES: 1. Recognize unusual etiologies of bleeding in patients with prostate cancer. 2. Treat disseminated intravascular coagulation by addressing the underlying disorder.
CASE: A 56-year-old man with metastatic prostate cancer, recently treated with leuprolide, presented to the emergency department with inability to urinate and suprapubic discomfort for two days. He had recently undergone a palliative thoracic laminectomy and had intraoperative urinary catheterization. Upon presentation, a Foley catheter was placed and a large volume of bloody urine was drained. This was attributed to catheter trauma. Overnight, the hematuria worsened. The following morning his heart rate was 130, but physical examination was otherwise unremarkable. Abnormal laboratory tests included a hemoglobin of 8.4 g/dL, which was significantly lower than his previous levels, platelets of 60 ~ 103/ÈL, an INR of 3.3 and an activated partial thromboplastin time of 60 seconds. D-dimer was greater than 9000 ng/ml and fibrin split products were present. The patient was given aggressive volume resuscitation, started on an intravenous heparin infusion, and treated with bicalutamide and ketoconazole. He did not require blood products. Within twelve hours, his hematuria resolved and coagulation studies began to improve. He was discharged home three days later.
DISCUSSION: Disseminated intravascular coagulation (DIC) is the most common bleeding disorder in prostate cancer. Prostate cancer cells are believed to store a procoagulant that activates thrombin. Mass disruption of tumor cells, such as manipulation during surgery, can spark DIC. In DIC, increased thrombin generation and inadequate fibrinolysis leads to systemic fibrin production, which in turn causes thrombotic occlusion of midsize and small vessels. Simultaneous consumption of platelets and coagulation factors results in impaired hemostasis, causing severe

bleeding. Our patient underwent several treatments which disrupted large volumes of tumor: surgery, hormonal therapy, and urinary catherization. These interventions presumably released prostatic procoagulant into the circulation and initiated his bleeding diathesis. While supportive care with fluids, blood products, and heparin is essential, treatment of DIC requires correction of the underlying pathology. DIC in prostate cancer has been treated with LHRH agonists and antiandrogens, which deprive cancer cells of the means to reproduce by lowering testosterone. In this case, bicalutamide and ketoconazole were used successfully. This case illustrates the importance of considering DIC in the differential diagnosis of bleeding in a patient with prostate cancer, and demonstrates that prompt use of hormonal therapy to treat prostate cancer-associated DIC may be life saving.

HEMOPHAGOCYTIC LYMPHOHISTIOCYTOSIS: A RARE APPEARANCE IN AN ADULT. V. Krishna[1]. [1]University of California, Los Angeles, Los Angeles, CA. *(Tracking ID # 189742)*

LEARNING OBJECTIVES: (1) Recognize the clinical features of Hemophagocytic Lymphohistiocytosis (HLH) (2) Assess for etiology of multiple strokes in HLH
CASE: A 34 year old US NAVY chief officer presents to his doctors with fevers, chills, night sweats, abdominal pain, right axillary lymphadenopathy, and weight loss over weeks. Despite several admissions with various consultants, the diagnosis remained elusive. On a latter admission, he was found to have leukopenia, anemia, low NK activity, and elevated ferritin levels. A right axillary lymph node and bone marrow were biopsied, revealing hemophagocytes. Based on clinical and histiopathological findings, a diagnosis of Hemophagocytic lymphohistiocytosis (HLH) was made. The patient was transferred to UCLA for further management. Repeat CSF flow cytometry samplings, Bone Marrow biopsies, infectious workup and PET CT imaging were negative in discovering an etiology of his HLH. The patient was started on cyclosporine and discharged with moderate improvement in his symptoms. One year later, the patient presented to UCLA ER with an acute stroke in the right cerebellar penduncle. A full stroke workup was negative; patient was then discharged on clopidogrel. Two months later, the patient presented again to the ER for acute stroke, located in the same location as his prior CVA. Repeat MR/CT Angiography were normal. A cerebral angiogram was performed to rule out intravascular lymphoma as a cause of recurrent strokes in the same location, but was also normal. Lastly, Neurosurgery was consulted to biopsy the infarcted areas but could not due to procedure-related risks. Consequently, a diagnosis of cryptogenic strokes likely secondary to HLH was made.
DISCUSSION: This case illustrates the difficulty in making the diagnosis of Hemophagocytic Lymphohistiocytosis. According to the American Histiocyte Society, the diagnosis of HLH requires that five out of eight criteria be fulfilled. First, there are the five initial criteria: 1) fever, 2) cytopenia (two of three lineages), 3) splenomegaly, 4) hypertriglyceridemia and/or hypofibrinogemia, and 5) hemophagocytosis. Then there are three recent criteria, being 6) low or absent NK-cell activity, 7) hyperferritinemia, and 8) high plasma levels of soluble CD25 (soluble 12–2 receptor). The infrequency with which it is encountered, especially in adults, makes Hemophagocytic Lymphohistiocytosis a formidable diagnostic challenge. The patient fulfilled six of the eight clinical criteria and pathology slides yielded a histological diagnosis. Most cases of HLH are familial, typically seen during infancy and early childhood, is almost invariably fatal with a median survival without therapy of two months after onset. This case likely represents the secondary form, sometimes termed "virus-associated hemophagocytic syndrome" (VAHS) because it can affect all ages. Both conditions are vastly underdiagnosed and have a high mortality rate. To complicate matters further, the patient unfortunately had repeated strokes in the right cerebellar peduncle. This was worrisome for a small vessel vasculitis or intravascular lymphoma. Despite repeated imaging and invasive procedures, a clear cut etiology of the patient's strokes could not be made. This case illustrates the potential for a link between strokes and HLH in adults.

HENOCH SCHONLEIN PURPURA IN ADULTS IS MORE THAN SKIN DEEP: EXTENDING THE DIFFERENTIAL DIAGNOSIS BEYOND INFECTION. M. Larsen[1]; A. Bhagra[1]; T.J. Beckman[1]. [1]Mayo Foundation for Medical Education and Research, Rochester, MN. *(Tracking ID # 190770)*

LEARNING OBJECTIVES: 1) Recognize that Henoch Schönlein Purpura (HSP) in adults is associated with solid organ malignancies including renal cell carcinoma. 2) Identify potential physiological mechanisms that link HSP and malignancy.
CASE: A 47 year-old-man presented to the clinic complaining of a raised and tender rash over his distal lower extremities of one week duration. The only remarkable finding on physical examination was a palpable, tender, purpuric rash over the pre-tibial surfaces. A skin biopsy revealed findings consistent with leukocytoclastic vasculitis and direct immunofluorescence demonstrated IgA deposition in the superficial blood vessels. The findings on physical examination and skin biopsy supported the diagnosis of HSP, so the patient was treated with Dapsone. Despite medical therapy the patient's rash ascended up both lower extremities to involve his groin, abdomen and upper extremities. Additionally, he developed new right wrist swelling, pharyngitis, fatigue, nausea and loose stools. All this prompted hospitalization. Repeat physical examination revealed palpable, purpuric lesions and petechia over the trunk and all extremities, pharyngeal ulceration, and right wrist synovitis. Laboratory evaluation was only remarkable for a leukocytosis of 13,100 with absolute neutrophilia, and the absence of anemia, elevated creatinine, elevated transaminases or active urinary sediment. C-reactive protein, sedimentation rate and rheumatological markers including ANA, ANCA, cryoglobulins, complement and MPO were all negative. Considering the patient's gastrointestinal symptoms and the known association between adult HSP and malignancy, computed tomography of the abdomen and pelvis was performed. This revealed a right renal mass highly suspicious for renal cell carcinoma. The solid-appearing mass was also confirmed by ultrasound. The patient was treated with prednisone with remarkable improvement in his rash and other symptoms. He was scheduled for partial nephrectomy, to be performed after completing a prednisone taper.
DISCUSSION: Henoch Schönlein Purpura is mainly a childhood disease that is often associated with infection. However, in adults Henoch Schönlein Purpura should raise suspicion for malignancy, especially when other causes are not found. Overall, the incidence of vasculitis in patients with malignancy is approximately 5%. A search of MEDLINE revealed only 31 reports of patients with HSP and coexisting malignancy. In most patients, HSP appeared within one month of cancer diagnosis, but the diagnosis of HSP sometimes occurred within years of the malignancy. The most commonly associated malignancies are lung (25%), prostate (16%), and renal cancer (6%). Although the mechanism of neoplastic vasculitis is uncertain, hypotheses include malignant cells acting as neoantigens, thereby eliciting an immunologic reaction against blood vessel antigens. Alternatively, malignancy may cause HSP by creating a hyper-viscous state with resulting endothelial damage. Our case highlights the importance of evaluating adults with HSP for underlying malignancy.

HEPARIN INDUCED HYPERKALEMIA CONFIRMED BY DRUG RECHALLENGE. S. Dikkala[1]; A. Radhakrishnan[1]; A.L. Spencer[1]; S. Vargo[1]. [1]Allegheny General Hospital, Pittsburgh, PA. *(Tracking ID # 189535)*

LEARNING OBJECTIVES: 1. Recognize hyperkalemia as one of the uncommon side effect of heparin. 2. List common medications known to cause hyperkalemia.
CASE: A 75 year-old male with a history of coronary artery disease S/P coronary artery bypass graft presented with hypoxic respiratory failure secondary to worsening of Cryptogenic Organizing Pneumonia. The patient received oxygen, solumedrol and Bactrim for pneumocystis carinii pneumonia prophylaxis; lisinopril for coronary artery disease; and subcutaneous heparin for deep vein thrombosis (DVT) prophylaxis. Initial labs showed BUN 17, Creatinine 1, Sodium 132 and Potassium 4.5. The potassium on day five was 5.1 and lisinopril was stopped. The potassium on day seven was 6.2 (with EKG changes) and Bactrim was stopped. The potassium on day nine was 5.9 and subcutaneous heparin was stopped. Potassium returned to 4.4 by day eleven. On day fourteen, acute lower extremity DVTs were diagnosed and a heparin drip was started. On day fifteen, the potassium was 7.3 (with EKG changes). Patient subsequently developed upper gastrointestinal bleeding and heparin was stopped on day sixteen which returned the potassium level to 4.8 by day eighteen. The patient's creatinine and electrolytes were otherwise normal throughout the hospital stay.
DISCUSSION: Heparin is commonly used as a treatment or prophylactic agent for DVT. Heparin induced Hyperkalemia (HIH) is an unusual

side effect and here we present a well documented case of this reaction that was confirmed by drug rechallenge. Heparin works by binding to antithrombin III as an anticoagulant factor, however it also decreases the number and the affinity of Angiotensin II receptors in the adrenal zona glomerulosa and it reduces the main stimulus for aldosterone synthesis. Heparin also directly inhibits the final enzymatic steps of aldosterone formation (18 hydroxylation) causing atrophy of the zona glomerulosa. HIH is more common in diabetics and/or renal failure patients. Treatment is discontinuation of the heparin. Potassium levels should return to normal ranges within 3–5 after discontinuing heparin. Medications that more commonly cause hyperkalemia include ACE inhibitors, nonsteroidal anti-inflammatory drugs, potassium sparing diuretics, Beta blockers, Digoxin, Bactrim and Cyclosporine. While examining potential etiologies of hyperkalemia in hospitalized patients, heparin must be considered as a causative agent.

HEPATOCELLULAR CARCINOMA: TO SCREEN OR NOT ?. S.A. Ali[1]. [1]Geisinger Medical Center, Danville, PA. *(Tracking ID # 190375)*

LEARNING OBJECTIVES: Long term complications of chronic viral hepatitis includes development of hepatocellular carcinoma (HCC). In the early stage of neoplastic transformation the condition may be clinically occult. Knowledge of surveillance protocols may help in early diagnosis of HCC.
CASE: A 38 YO immigrant from Peru was seen for a routine physical in 2000. He was diagnosed with hepatitis B (HBV) carrier state in 1985. Patient at the time of his clinic visit was clinically asymptomatic. There was no prior h/o clinical jaundice or symptomatic liver disease. Patient denied any substance abuse. There was no family history of hepatocellular carcinoma. Clinical exam was without hepatosplenomegaly or stigmata of chronic liver disease. Liver function tests (LFTs) was normal. Hepatic serology demonstrated positive hepatitis B surface antigen and IgG antibody for: HBcAb and HBeAb. Alpha fetoprotein (AFP) was normal at 2.7 ng/ml. Hepatitis B virus DNA was negative. Clinical status was unchanged during yearly follow up as was yearly LFTs and AFP. In 2005, after nearly 20 years from the initial diagnosis of hepatitis B carrier state a marked increase in AFP to 29,900 ng/ml was noted. Even at this time the patient was asymptomatic with essentially normal physical exam and normal LFTs. Follow up CT scan demonstrated a 7× 8 cm heterogeneous mass in the left lobe of liver consistent with the diagnosis of hepatocellular carcinoma.
DISCUSSION: The incidence of HCC is low in contiguous United States. A high incidence of chronic viral hepatitis and its complication is, however, observed in Alaska. Symptomatic hepatocellular carcinoma and patients with large and unresectable tumor have a poor prognosis. Screening for HCC leads to an early diagnosis and improved survival. HBV carriers at high risk for HCC include men aged >45 years, patients with cirrhosis or with a family history of HCC. These individuals should be screened annually with both AFP and liver ultrasound. Low risk HBV carriers from endemic areas should be screened periodically with AFP.

HERPES SIMPLEX VIRUS HEPATITIS. K. Torres[1]; C. Watts[1]; R. Varma[1]; M. Graham[1]; K. Pfeifer[1]. [1]Medical College of Wisconsin, Milwaukee, WI. *(Tracking ID # 190516)*

LEARNING OBJECTIVES: 1. Enhance clinician awareness of herpes simplex hepatitis. 2. Identify patients at risk for herpes simplex hepatitis who may benefit from empiric acyclovir therapy.
CASE: A 43-year-old male with a history of orthotopic liver transplant 10 years previously for primary sclerosing cholangitis presented with fevers, chills, malaise, and body aches for 24 hours. He denied nausea, vomiting, shortness of breath, cough, chest or abdominal pain. On admission his temperature was 102 F with a pulse of 110 but otherwise normal vital signs. His exam was unremarkable except for a fatigued appearance and tachycardia. Laboratory values including CBC, basic metabolic panel, liver function tests, and tacrolimus levels were all within normal limits. Urinalysis, chest x-ray, and blood cultures were also normal. A viral syndrome was suspected, and he was initially treated supportively. However, he continued to have fevers as high as 103.8 F, and CT of the chest, abdomen, and pelvis to identify a source of infection was negative. On the third day of admission, repeat liver function tests were elevated with an AST of 1532 U/L (10–45 U/L) and ALT 699 U/L (8–40 U/L). In addition, he had become leukopenic with an absolute neutrophil count of 1296/μL and thrombocytopenic with a platelet count of 75,000/μL. He was started on empiric intravenous antibacterials as well as gancyclovir for possible cytomegalovirus infection. His fever resolved, but his hepatic function continued to worsen. Liver biopsy was obtained and pathology revealed areas of focal necrosis and ground glass nuclear inclusions which were immunostained positive for herpes simplex virus. The patient was started on high dose acyclovir, after which he clinically improved to baseline and had normalization of his liver function tests.
DISCUSSION: Hepatitis is a rare complication of herpes simplex virus infections. Mortality rates are high (58% in a recent case review), and it is rarely suspected. This infection is mainly seen in immunocompromised and pregnant patients and directly causes hepatocyte destruction. Clinical features often include fever, abdominal pain, elevated transaminases, leukopenia, thrombocytopenia, and coagulopathy. Less than half of patients have herpetic lesions on exam. Definitive diagnosis is made by liver biopsy. As the diagnosis is often delayed and the mortality rate is high, clinicians should be aware of this diagnostic possibility. In immunocompromised patients with acute liver failure of unknown etiology, empiric acyclovir should be considered until herpes simplex hepatitis is ruled out.

HERPES ZOSTER MOTOR NEUROPATHY. S.K. Subbarayn[1]; S. Chandrashekaran[1]. [1]University of North Dakota, Fargo, ND. *(Tracking ID # 189370)*

LEARNING OBJECTIVES: Recognize that motor neuropathy can be a rare complication of herpes zoster. Consider this entity in a patient presenting with painful motor neuropathy once spinal nerve root compression is excluded.
CASE: A 79-year-old woman presented with progressively worsening severe, sharp pain in the left gluteal region for 3 weeks. Pain radiated from the left buttock to the foot and worsened with walking and weight bearing. Two weeks after the onset of pain, she developed a vesicular eruption on her left buttock in the L5 dermatomal distribution. Herpes zoster was diagnosed. She was started on valacyclovir. A few days later, she developed left foot drop and was unable to bear weight. The patient did not have any constitutional symptoms, bowel or bladder complaints. Past history included COPD, GERD, osteopenia, hiatal hernia, depression and a remote history of lumbar laminectomy. The patient was not sure if she had chickenpox in the past. On examination, no muscle wasting or fasciculations were noted. Dorsiflexion of the left foot and toe was absent. Foot inversion was partially lost. Deep tendon reflexes were symmetric and hypoactive.Gait was antalgic. Light touch and vibration sensation were absent in the area of the great toe in the left foot. MRI of the lumbar spine showed moderate spinal stenosis at L4-L5 level. L4–5 neural foramina were preserved bilaterally. EMG demonstrated attenuated amplitude in the left peroneal and tibial motor responses. Needle electromyography showed profuse fibrillations and no activation of motor unit potentials in the left L5 innervated muscles. These findings indicated involvement of the anterior horn cells in these myotomes. Gabapentin was initiated for neuropathic pain, with some improvement in pain noted after 6 weeks. Foot orthotics were prescribed and physical therapy was instituted. The patient continues to have a left foot drop a year after her initial presentation.
DISCUSSION: Herpes zoster is a commonly encountered clinical condition presenting as a painful dermatomal rash. It is caused by the reactivation of the latent varicella zoster virus in the sensory ganglion. Motor involvement is a lesser known complication of herpes zoster. The incidence of motor involvement in herpes zoster is around 0.5–5%. It is characterized by a focal, asymmetric motor weakness in the myotome that corresponds to the dermatome of the rash.Weakness can evolve concomitantly with the rash, precede or follow the skin lesions by several weeks. There are case reports of motor paresis without skin lesions. Facial paralysis is the most common manifestation. The second most common region to be involved is the upper extremity. The pathophysiologic mechanism is uncertain. It is thought to be from viral spread to anterior horn cells and anterior spinal nerve roots from the dorsal root ganglion. Antiviral therapy probably decreases the incidence and severity of this complication. Herpes zoster motor neuropathy is diagnosed in the context of a compatible history, when other diagnoses are excluded by imaging studies. EMG and nerve conduction velocities corroborate the diagnosis. Main goals of treatment include pain relief, prevention of muscle atrophy and contractures and strengthening of

weak muscles. Recognition of this complication of zoster could prevent unnecessary investigations and interventions.The prognosis for herpes motor paresis is usually good. More than half the patients demonstrate complete recovery and a third improve significantly.

HOW THE OTHER HALF PRESENTS. A.T. Chen[1]. [1]University of California, Los Angeles, Los Angeles, CA. *(Tracking ID # 190415)*

LEARNING OBJECTIVES: 1. Diagnose kwashiorkor and manifestations of severe malnutrition. 2. Recognize complications in treating severe malnutrition.
CASE: A 49-year-old man with longstanding Crohn's disease presented to the emergency department requesting a blood transfusion for progressive fatigue. His Crohn's had been treated with two bowel resections and had been well-controlled for the ten years since his last resection. In the past year, he was admitted several times for severe iron-deficiency anemia of unclear etiology and also had intermittent hypoalbuminemia. Prior hematologic and endoscopic workups were nondiagnostic. On admission, he had severe, generalized weakness; mild cognitive dysfunction; apathy; dyspnea on exertion; tachycardia; marked, lower extremity edema; a magenta, glossy tongue; and a widespread, erythematous, thickened, exfoliating rash. Laboratory tests showed iron-deficiency anemia, leukocytosis, prolonged PT and PTT, severe hypoalbuminemia, and acute renal failure. He was continued on his outpatient vitamins, was encouraged to drink nutritional supplements, received a blood transfusion and intravenous iron, and underwent evaluation for various differential diagnoses. However, he became increasingly somnolent. On hospital day 5, he was started on high-protein total parenteral nutrition, but within 24 hours developed anuria, respiratory failure, acidemia and rapidly progressive shock, and expired.
DISCUSSION: Malnutrition is unusual in the developed world, and even more rare in the form of severe protein malnutrition seen in our patient: edematous malnutrition, or kwashiorkor. Unlike patients in famine-stricken regions, our patient was taking various vitamins and nutritional supplements and still developed profound malnutrition. Our patient's collection of signs and symptoms were all attributable to malnutrition due to malabsorption. Kwashiorkor explained the characteristic dermatitis, ascites, edema, muscle weakness, apathy, and renal failure. Vitamin deficiencies explained other findings, such as glossitis and dementia (pellagra), persistent tachycardia and dyspnea (wet beriberi), and coagulopathy (vitamin K deficiency). After diagnosis, management requires recognizing complicating factors beyond providing nutrition. Nearly all patients have bacterial infections on admission but are unable to mount an inflammatory response and localizing signs, so empiric broad-spectrum antibiotics should be started in all patients and may have prevented his acute deterioration. In treating anemia, both transfusions and iron supplementation should be delayed due to abnormal physiology including diminished cardiac and renal function and decreased transferrin due to hepatic dysfunction. Rehydration can easily result in fluid overload and pulmonary edema. In addition, high-protein nutrition can overwhelm limited hepatic metabolism capacity and renal acid-secretion capacity. These factors all likely contributed to our patient's course, and his death may have been avoided had his malabsorpation and malnutrition been recognized sooner and if treatment had been delivered appropriately. Despite greater attention to the results of overnutrition (obesity), clinicians should also be alert to the manifestations and treatment of malnutrition and nutritional deficiencies, especially in high-risk patients.

HOW TO DEAL WITH AN INDEX CASE OF CHICKENPOX WITHIN A VULNERABLE POPULATION LIVING IN CROWDED CONDITIONS?. P. Bodenmann[1]; P. Vaucher[1]; G. Zanetti[1]; E. Masserey[2]; A. Cometta[3]; O. Daher[4]; S. De VallièRe[1]. [1]University of Lausanne, Lausanne,; [2]Department of Public Health, Lausanne,; [3]Hospital of Yverdon, Yverdon,; [4]Hospital of Sainte-Croix, Ste-Croix,. *(Tracking ID # 189571)*

LEARNING OBJECTIVES: 1. Describe how to manage an index case of chickenpox in a Centre for Asylum Seekers (CAS). 2. Use an adapted framework to recognise risk factors in specific settings and determine appropriate control measures for vaccine-preventable communicable disease.
CASE: The index patient, a 33-year old male Eritrean asylum seeker living in a CAS in Switzerland, was hospitalised with fever, rash, and tachypnea. He was diagnosed with disseminated varicella zoster virus (VZV) infection and AIDS. The case was reported to the public health department. Because we were managing an isolated index case in a population potentially at risk, we opted to isolate suspected secondary cases and perform serology on all asymptomatic Eritrean adults. Two of 44 individuals were negative for prior VZV infection. Six secondary cases, one adult (Eritrean) and five children (three Eritrean and two Iraqi), manifested between days 14 and 23. Transfers to and from the centre were suspended in an effort to manage the outbreak. All residents (n=124) and staff received information on VZV; all persons at risk (asylum seekers not previously tested, staff without history of vaccination or VZV) were screened for VZV antibodies. Thereafter, VZV sero-negative adults were tested for HIV test and pregnancy, as appropriate. VZV serologies of adult asylum residents from sub-Saharan Africa (61.8% of residents), the Middle East (18.2%), Eastern Europe (18.2%), and Asia (1.8%) were positive in 107 of 111 (96.4%) persons. Ten of the 13 children had no previous VZV infection. One woman was diagnosed pregnant and abortion was induced. All adults were HIV negative. Post-exposure prophylaxis was not administrated within 48 h because laboratory results were only available after three days. Of the 14 sero-negative residents, only one of the three vaccinated adults did not develop chickenpox within the month (attack rate=92.9%). However, the low prevalence of sero-negative residents potentially at risk made it reasonable for patients to move freely and follow the guidelines for to the general population in Switzerland. Surveillance was organised, having nurse practitioners from centres report all new cases. Three independent cases were reported from two other centres during the next six months.
DISCUSSION: Asylum seekers are at higher risk for epidemics and for severe varicella (lower prevalence of immunity in adults, pregnancy, HIV infection; the last two conditions entail risks for complication in cases of vaccination). Once a case is identified, these risks should be evaluated. Reviewing the country of origin's immunization policies, reported regional outbreaks, and sero-negative prevalence can be difficult, as there are no international surveillance systems for VZV. This is not true for most other vaccine-preventable diseases [1]. Screening all asylum seekers exposed to VZV is time consuming and inefficient for prophylactic therapy. Our experience suggests a framework for controlling transmission of VZV or other vaccine-preventable disease in CAS: 1) help the staff recognise an index case quickly; 2) isolate the index case during the contagious period and until risk analysis has been done; 3) investigate whether other residents are at high risk within the next 48 h (pregnancy, HIV, immunisation coverage charts); and 4) "wait and see" or eventually focus screening on high risk populations. 1. WHO. Vaccine-preventable diseases. United Nations. 20 Dec. 2007. www.who.int/immunization_monitoring/diseases/en/

HYPERGLYCEMIA: A MASK FOR UNDERLYING PANCREATIC CANCER? S. Megalla[1]; M.P. Shah[1]; M. Shaines[1]. [1]Department of Medicine, Albert Einstein College of Medicine/Montefiore Medical Center, Bronx, NY. *(Tracking ID # 190348)*

LEARNING OBJECTIVES: 1. Recognize the differential diagnosis of pancreatic cancer in a patient with acutely worsened control of diabetes mellitus. 2. Interpret liver tests suggestive of an infiltrative parenchymal process.
CASE: A 54-year-old African-American woman was sent by her physician to the emergency room for blood glucose of 930 mg/dL. She has a history of hypertension, hyperlipidemia, and diabetes mellitus since 2004, treated with oral metformin and glyburide. One month prior to admission she started feeling light-headed, lethargic and had episodes of non-bilious vomiting. She also noted loss of appetite and weight loss of 13 kg (from 80 kg to 67 kg). Her vital signs at presentation were BP 111/97, P 115, R 16, T 98.8F. Her exam was notable for dry mucous membranes, dry skin, and tachycardia without a gallop or murmur. Her lungs and abdomen were benign. Labs were notable for sodium 121 mEq/L, bicarbonate 24 mmol/L, anion gap 21, glucose 816 mg/dL, creatinine 2 mg/dL. Her hemoglobin A1c returned as 24.6%. Her hyperglycemia, renal insufficiency and clinical status improved with intravenous fluids and insulin. The hospital course was complicated by an asymptomatic rise in the alkaline phosphatase from 198 to 551 IU/L, aspartate aminotransferase from 15 to 116 IU/L and alanine aminotransferase from 9 to 54 IU/L, with normal bilirubin. The gamma-glutamyl transpeptidase was elevated at 337 IU/L. This was

initially attributed to medications, but these levels continued to rise after all medications were stopped. Abdominal ultrasonography revealed a normal biliary tree, multiple hypoechoic foci within the liver (up to 4×3 cm), and a hyperechoic pancreas with a prominent body. Computed tomography of the abdomen showed a 6 cm necrotic mass in the pancreatic tail, multiple hepatic masses, and metastatic adenopathy throughout the abdomen and retroperitoneum. CT-guided biopsy of a right hepatic mass revealed metastatic poorly-differentiated carcinoma of unclear origin. Given the patient's clinical presentation, metastatic pancreatic carcinoma was highly suspected.
DISCUSSION: In a cohort of 720 patients with pancreatic cancer, diabetes was established at the time of or soon before the diagnosis in over 50% of cases. However, the association with pancreatic cancer was not significant in patients with diabetes for 3 or more years' duration, as in this case. We extrapolate from this data that the sudden, dramatic worsening of diabetes may be due to a new tumor. Molecular studies have shown evidence to suggest that pancreatic cancer causes diabetes, through changes in enzymatic pathways and islet cell dysfunction. The change in liver tests, featuring a very high alkaline phosphatase with moderately elevated transaminases and normal bilirubin, fits a pattern suggestive of an infiltrative parenchymal process or chronic inflammation of the bile ducts. It is unclear why these values increased during the hospital course from normal levels on admission; an adverse effect of medication was ruled out when the levels continued to rise after all medications were stopped. This prompted further investigations that ultimately led to the final diagnosis.

HYPERVITAMINOSIS D: TOO MUCH OF A GOOD THING. D. Vander Weele[1]; A. Gangopadhyaya[1]; V. Yang[1]; S.B. Glick[1]. [1]University of Chicago, Chicago, IL. *(Tracking ID # 189439)*

LEARNING OBJECTIVES: 1. To recognize the potential adverse effects of vitamin D supplementation; 2. To review the differential diagnosis for non-parathyroid mediated hypercalcemia; 3. To dose and monitor vitamin D effectively.
CASE: An 81 year-old woman with history of thyroidectomy complicated by symptomatic hypoparathyroidism presented to the hospital with decreased mental acuity. For over 10 years she had been treated with high-dose vitamin D (50,000 units twice daily Monday-Saturday and three times daily on Sunday). During that time, calcium levels were normal; urinary calcium was not obtained. One year prior to admission bone mineral density revealed osteopenia. Five months prior to admission the calcium level was 8.1 mg/dL (normal 8.4–10.2) with normal albumin. Past medical history revealed Alzheimer's dementia and chronic renal insufficiency. Examination revealed memory impairment with orientation to person only. Laboratory data was remarkable for calcium of 12.4 mg/dL (8.4–10.2) and ionized calcium 6.36 mg/dL (4.60–5.40); phosphorus was normal. Parathyroid hormone (PTH) 2 pg/mL (15–75); PTH-related peptide (PTH-rp) <0.2 pg/mL; 25-hydroxy vitamin D (25-OH D) level >100 ng/mL (10–52); and 1,25-dihydroxy vitamin D (1,25-OH D) level 49 pg/mL (22–67). A diagnosis of hypervitaminosis D related to overingestion was made. Vitamin D was discontinued and the patient was treated with IV hydration, furosemide, and prednisone. Bisphosphonate therapy was considered but the patient's renal insufficiency precluded it. The serum calcium improved to 10.0 mg/dL, though her mental status did not. The patient was discharged home on furosemide and prednisone. One month after discharge her calcium was 11.1 mg/dL and her 25-OH D remained >100 ng/mL.
DISCUSSION: In the setting of hypercalcemia, low levels of parathyroid hormone reflect non-parathyroid mediated disease. Non-parathyroid mediated hypercalcemia may be related to neoplasm, vitamin D, or high bone turnover (e.g., hyperthyroidism and immobilization). Evaluation includes measurement of PTH-rp, 25-OH D and 1,25-OH D. Elevations in vitamin D metabolites may be caused by excess vitamin D ingestion, sarcoidosis and other granulomatous diseases, and some malignancies, such as lymphoma. To distinguish between these diagnoses, both 25-OH D and 1,25-OH D are measured. Granulomatous diseases and lymphoma cause increased production of 1,25-OH D. Excess vitamin D ingestion causes elevation of 25-OH D with normal or low levels of 1,25-OH D because of tight regulation of the latter. This patient's elevated 25-OH D and normal 1,25-OH D led to the diagnosis of vitamin D intoxication. Though hypoparathyroidism is relatively uncommon, osteopenia is common and first-line treatment frequently includes supplementation with calcium and vitamin D. Vitamin D is a fat-soluble vitamin, with a half-life numbered in weeks. Once in excess it can be difficult to clear and impacts calcium regulation for months. The recommended dosage of vitamin D supplementation varies depending on the indication, but can be as high as 50,000 units weekly for several months. Vitamin D toxicity is not thought to occur in patients taking 2000 units daily or less. Regardless of the indication or dosage, serum calcium levels should be monitored closely as the first sign of vitamin D intoxication is hypercalcemia. Other signs include hypercalciuria and confusion. Had serum and urine calcium levels been measured more often, this patient's vitamin D intoxication might have been avoided.

I CAN'T SWALLOW: A COMMON PRESENTATION OF AN UNCOMMON DISEASE. A. Sethi[1]; J. Singh[1]; C. Bishop[1]. [1]Wayne State University, Detroit, MI. *(Tracking ID # 189677)*

LEARNING OBJECTIVES: 1. To recognize eosinophilic esophagitis as an uncommon cause of dysphagia. 2. Early diagnosis and treatment can prevent significant morbidity in patients with this condition.
CASE: A 46-year-old African American male presented with a 6-month history of 'feeling full' in his upper belly and difficulty swallowing. His symptoms gradually progressed from difficulty swallowing solids to an inability to swallow liquids as well. He also complained of retrosternal burning pain and odynophagia. Physical examination was unremarkable. Complete blood count was significant for a white cell count of 57,000/mm3 with an eosinophil count of 48,000/mm3 (84%). Further work-up including an esophageogastroduodenoscopy showed ulcerations in esophageal mucosa with numerous small whitish plaques. Biopsies showed eosinophilic infiltration of esophagus suggestive of eosinophilic esophagitis. Bone-marrow biopsy performed revealed a hypercellular marrow with markedly increased marrow eosinophils. Cytogenetic studies were normal. A diagnosis of eosinophilic esophagitis was made. The patient was treated with high dose oral prednisone (1 mg/kg/d) with improvement in his symptoms and normalization of eosinophil count.
DISCUSSION: Eosinophilic esophagitis (EE) is a newly described clinico-pathological entity that is being diagnosed with increasing frequency both in children and adults. Its pathogenesis is poorly understood but involves complex molecular, genetic and environmental factors. Studies have shown a strong association between EE and presence of allergic diseases such as asthma or atopic dermatitis. Because of a symptomatology similar to gastroesophageal reflux disease (GERD), patients may often be misdiagnosed. Delayed treatment can lead to serious complications including food impactions and esophageal strictures. Therefore, an early recognition and differentiation from GERD is crucial to prevent significant morbidity associated with EE. Several treatment options including corticosteroids (topical or systemic), leukotriene receptor antagonists (montelukast) and most recently, biological molecules (such as anti IL-5 inhibitors) have been utilized.

I LOST MY HEARING ON MY WAY HOME!. A. Kakko[1]; M. Panda[1]; R.C. Jones[2]. [1]Society of General Internal Medicine, Chattanooga, TN; [2]University of Tennessee, Chattanooga, TN. *(Tracking ID # 190107)*

LEARNING OBJECTIVES: 1) Recognize that hearing loss is a common complication of pneumococcal meningitis. 2) Re-emphasize the role of dexamethasone in reducing complications from pneumococcal meningitis.
CASE: A 26 year old male presented to the ER complaining of myalgias and malaise. One week before admission he had noted the onset of nausea, vomiting, anorexia and sweating. He reported no fever, diarrhea, sick contacts, or recent travel. He had no significant past medical, surgical, or family history. He report cigarette as well as occasional alcohol and cannabis use. Physical exam revealed a somnolent but arousable, thin, ill-looking male. He was initially afebrile but 4 hours later had a temperature of 102.1F. Other vital signs included a BP of 133/76 mmHg, HR 64/min, RR 16/min, O2 Sat 100% on room air. A subconjunctival hemorrhage was noted in his right eye. Neck tenderness and nuchal rigidity were present. The remainder of his physical exam was normal. No rash, murmur, splenomegaly or focal neurological deficits were noted. Laboratory data revealed a WBC of 34.2 th/dl, and platelet count of 97 th/mm3,. The remainder of his initial laboratory studies were unremarkable. Empiric treatment for bacterial meningitis was begun with dexamethasone followed immediately by ceftriaxone and vancomycin. CT scan of the head did not show any acute abnormalities or signs of increased intracranial pressure.

CSF gram smear showed gram positive cocci later identified as penicillin sensitive Strep. pneumoniae. Antibiotic therapy was changed to penicillin G alone. Dexamethasone was discontinued after four days. The patient clinically improved and was discharged home to continue intravenous penicillin G.. The day after discharge he returned to the ER complaining of hearing loss which was initially noted as he returned home from the hospital. His exam was consistent with bilateral sensorineural hearing loss. CT head and MRI brain scans showed no new findings. Audiogram confirmed bilateral sensorineural hearing loss. He continued to receive intravenous penicillin G and was started on oral prednisone for one week. The patient showed only slight hearing improvement within one month and required hearing amplification.
DISCUSSION: Hearing loss is one of the most common complications in survivors of pneumococcal meningitis. The routine use of adjunctive dexamethasone therapy is indicated in most adults with suspected meningitis. The efficacy of dexamethasone in adults was demonstrated in a prospective, randomized, double-blind trial of 301 patients from Europe with bacterial meningitis. Significant reductions in mortality (14 versus 34 percent) and all unfavorable outcomes including hearing loss (26 versus 52 percent) were seen with the addition of dexamethasone in patients with S. pneumoniae meningitis. Dexamethasone is beneficial only when begun prior to or simultaneously with the first dose of antimicrobials and should be continued for four days. Although our patient received the recommended 4 days of dexamethasone intravenously, he nonetheless suffered significant hearing loss.

IN THICKNESS AND IN HEALTH. A. Shiloh[1]; A.P. Burger[1]. [1]Montefiore Medical Center, Bronx, NY. *(Tracking ID # 189917)*

LEARNING OBJECTIVES: 1. Recognize hyperviscosity as a cause of acute myocardial infarction. 2. Diagnosis of polycythemia vera.
CASE: An 84 year old male with history of coronary disease and myocardial infarction 14 years earlier was admitted for acute onset of shortness of breath and chest pressure. History elicited increasing lower extremity pain over the preceding days. Vitals were significant for tachycardia, tachypnea, and an oxygen saturation of 86 percent on ambient air. 4Physical exam revealed facial plethora, conjunctival injection, normal heart sounds, bilateral rales, a palpable spleen tip, and lower extremity edema with erythema of the shins and bluish discoloration of the toes. Distal pulses were intact. Neurological exam was unremarkable. EKG displayed a left bundle branch block of unknown duration. Diffuse bilateral air space opacities compatible with pulmonary edema were present on chest radiography. Serum chemistries were significant for a CPK of 179, Troponin-T of 0.33 (normal <0.01), and a Pro-BNP of 19,587 pg/mL (normal <1,800 pg/mL). The CBC was remarkable for a hemoglobin of 20.8 g/dL, hematocrit of 61%, WBC of 17.9 K/uL, and a platelet count of 440,000 K/uL. Leukocyte alkaline phosphatase (LAP) was 248 (normal 23–182). Erythropoietin (EPO) level was 1.8 mU/mL (normal 4.1–19.5 mU/mL). A diagnosis of myocardial infarction secondary to polycythemia vera (PV) with associated hyperviscosity was made. The JAK2 V617F gene mutation was detected. Phlebotomy was initiated with complete resolution of symptoms and further cardiac testing was deferred.
DISCUSSION: PV presents with thrombotic complications, due to to hyperviscosity and increased platelet activity, in 12 to 49% of cases. Stroke, deep vein thrombosis, pulmonary embolism, and myocardial infarction are associated with a mortality of approximately 30% in PV. Myocardial infarction accounts for 13% of arterial occlusions. In PV small increases in the hematocrit raise the blood viscosity exponentially, with a sharp increase in thrombosis incidence occurring at a hematocrit greater than 44%. Other presentations range from nonspecific complaints, such as headache and dizziness, to aquagenic pruritis, gastrointestinal symptoms, and erythromelalgia (painful extremities accompanied by erythema, pallor, or cyanosis in the presence of palpable pulses). PV is a chronic myeloproliferative disorder distinguished by the presence of erythrocytosis with trilineage myeloid involvement. The incidence is 2/100,000 per year. Median age at diagnosis is 60 years with a slight male to female predominance (1.2:1). Exclusion of acquired secondary causes of polycythemia, moderated by Epo response to chronic hypoxia or pathological production of Epo by tumor, is required. Diagnostic criteria developed by the Polycythemia Vera Study Group consist of increased red cell mass, splenomegaly, thrombocytosis, leukocytosis, elevated LAP, and vitamin B12 levels. Proposed revised World Health Organization criteria include assessment of Epo level, gene mutations, and clonal markers. Low serum Epo in the patient with erythrocytosis is highly suggestive of PV with an estimated specificity of >90%. The V617F mutation of the JAK2 gene is present in 95 to 97% of those with PV. By reducing thrombotic complications with aggressive phlebotomy and cytoreductive chemotherapy median survival has dramatically increased from less than two years to greater than ten years.

INTRAVENOUS IMMUNOGLOBULIN: A FRIEND OR A FOE?. B. Manickam[1]; M. Bollineni[1]; R. Jindal[1]; H. Friedman[1]. [1]St. Francis Hospital, Evanston, IL, Evanston, IL. *(Tracking ID # 190810)*

LEARNING OBJECTIVES: 1. To recognize acute renal failure (ARF) as a complication of intravenous immunoglobulin (IVIG) therapy. 2. To outline the risk factors and methods to minimize the incidence of IVIG nephropathy.
CASE: A 72-year-old female with history of diabetes, hypertension, congestive heart failure, and autoimmune hemolytic anemia was hospitalized for symptomatic anemia. She had normal vital signs, and had unremarkable physical examination. For autoimmune hemolytic anemia, the patient received Rituximab followed by two doses of IVIG at a dose of 800 mg/kg. Three days after the second dose of IVIG, she developed oliguric ARF with serum creatinine reaching a peak of 2.6 mg/dl on day 9. The urine analysis was positive for protein and blood with no casts. Fractional excretion of sodium was 4.9. The renal ultrasound revealed normal-sized kidneys with increased echogenicity and no hydronephrosis. Throughout the hospital course the patient received no nephrotoxic agent including radio contrast. The patient ultimately required hemodialysis for fluid overload refractory to diuretics, but her condition deteriorated and she died on day 17. Case 2: A 91-year-old male with history of coronary artery disease, chronic renal failure, and bradycardia underwent transurethral resection of prostate for obstructive urinary symptoms. His serum creatinine on admission was 2.3 mg/dl (baseline). During the hospital course, the patient developed idiopathic thrombocytopenic purpura with positive platelet antibodies, for which he received two doses of IVIG at a dose of 1000 mg/dl. Two days after IVIG therapy, the patient developed acute on chronic renal failure; serum creatinine reached a peak of 7.3 mg/dl on day 7. The urine analysis was positive for protein and blood with no casts. Fractional excretion of sodium was 12.3. The ultrasound of the kidneys showed no hydronephrosis. He received no nephrotoxic agents. The patient refused hemodialysis, and he died on day 12.
DISCUSSION: In modern practice, IVIG therapy is being increasingly used in the treatment of several autoimmune diseases such as immune thrombocytopenia, systemic lupus erythematosis, and demyelinating disorders etc. Development of ARF from IVIG therapy is infrequent, and it has been reported only in less than 100 cases. ARF develops within several days after the administration of IVIG and may persist for 1–2 weeks. The risk factors include preexisting renal failure, age > 65 years of age, dehydration, and high dose of IVIG therapy. The exact mechanism of IVIG associated ARF is unclear. Stabilizing agents such as sucrose, added to the preparation, to minimize the symptoms of fever, chills and back pain resulting from IVIG infusion, may be the probable cause of renal tubular injury; intracellular accumulation of sucrose leads to vacuole formation and cellular swelling as a result of osmotic induced water movement. Treatment includes discontinuation of IVIG and supportive measures. Dialysis will efficiently remove the putative osmotic substance and facilitate early renal recovery. Diluting the preparation in hypotonic fluid, decreasing the infusion rate, increasing the dosing interval, adequate hydration and discontinuing diuretics may minimize the incidence of ARF. In conclusion, given the increasing use of IVIG therapy, physicians should be cognizant of this unusual but serious form of renal injury, which can be avoided by identifying the risk factors and by taking proper precautions.

INVASIVE SINO-ORBITAL ASPERGILLOSIS. A. Gerstenblith[1]; C. Dahlen Alonso[1]; S.D. Sisson[1]. [1]Johns Hopkins University, Baltimore, MD. *(Tracking ID # 190222)*

LEARNING OBJECTIVES: 1. To review the differential diagnosis of cavernous sinus masses 2. To review the management of invasive sino-orbital aspergillosis

CASE: An 80-year old woman with diet-controlled diabetes presented with 4 months of intermittent, binocular diplopia and 6 days of unilateral right eye swelling, retro-orbital pain and "darkening" vision. Symptoms began following right sided sinus surgery for nasal polyps. The binocular diplopia did not vary with the time of day and was worse with right-ward gaze. She denied night sweats, weight loss, scalp tenderness, or jaw claudication. On physical examination, she was afebrile and had unilateral right-sided proptosis, decreased visual acuity and color vision, a relative afferent pupillary defect and complete ocular paresis of the right eye. Laboratory data were unremarkable; hemoglobin A1c was 5.9. Brain/orbit MRI showed an enhancing right orbital soft tissue mass extending into the ethmoid cells and posteriorly into the right cavernous sinus. Biopsy revealed extensive sclerosis, necrotic foci, a patchy lymphoplasmacytic infiltrate, and scattered fungal organisms with acute angle branching. Cultures grew Aspergillus fumigatus within 6 days.
DISCUSSION: The differential of cavernous sinus masses includes infectious, inflammatory, neoplastic, and vascular causes. Infectious causes include fungi, such as Mucormycosis, Bipolaris spicifera, and Aspergillus fumigatus, and various bacteria. Inflammatory causes include idiopathic sclerosing pseudotumor, idiopathic orbital inflammation and sarcoidosis. Neoplasms, either primary, such as meningiomas and neurofibromas, or metastatic, may also present as a cavernous sinus mass. Vascular causes include Wegener's granulomatosis, temporal arteritis and structural diseases such as carotid-cavernous fistulas and cavernous sinus aneurysms. Unless the diagnosis is obviously vascular, biopsy with culture is done. Fungal infections are more common in patients with deficiencies in neutrophil activity, HIV, and those taking corticosteroids. Invasive orbital fungal infections in immunocompetent patients are rare. Invasive sino-orbital aspergillus infections require aggressive treatment. Because the disease is rare, even in immunocompromised patients, there are no randomized therapeutic trials. From case series and expert opinion, recommended treatment begins with aggressive surgical debridement. As this is not always possible, especially when disease extends into the cavernous sinus, aggressive local irrigation with antifungals (ideally amphotericin B) during surgery and long-term systemic antifungal therapy are recommended. Amphotericin is the preferred systemic antifungal; however, its toxicities often limit use. Some describe successful treatment of orbital aspergillosis with periodic retro-bulbar amphotericin B injections as an adjunct to surgical debridement and systemic therapy. Others report successful treatment with systemic itraconazole; thus either itraconazole or voriconazole are acceptable amphotericin substitutes. Serial examinations and imaging are required to assess results and determine treatment duration. Even with aggressive treatment, however, many patients die within 2–16 months of their initial symptoms. Our patient underwent surgical debridement with amphotericin B irrigation followed by systemic antifungals. Her proptosis and pain improved but her visual acuity remained unchanged.

IS IT HCV OR NOT?. M.V. Lin[1]. [1]Pennsylvania Hospital, Philadelphia, PA. *(Tracking ID # 190148)*

LEARNING OBJECTIVES: 1. Recognize the possible etiologies in patients with anti-hepatitis C viral (HCV) antibodies positive, HCV RNA negative and without a history of liver disease. 2.Describe the management of such patients.
CASE: A 45-year-old man came to clinic requesting testing for communicable diseases after his wife discovered his extra-marital affair. His laboratory studies were positive for HCV antibody with undetectable HCV RNA. The liver profile was normal and he was HIV negative. Ultrasound of the liver showed no findings to suggest chronic liver disease. He denied jaundice or intravenous or intranasal drug use but had a history of hepatitis A. He had no body piercing or tattooing. He recalled a blood transfusion at age 8, and had engaged in high-risk sexual behavior. He drinks 14 beers per week and denies tobacco use. He was referred to a gastroenterologist.
DISCUSSION: Hepatitis C virus infection has a high rate of persistence. Patients with positive anti-HCV antibody and HCV RNA are actively infected. However, there are patients who are anti-HCV antibody positive, with normal liver enzymes, but are HCV RNA negative. Have they recovered from previous infection with viral clearance, or does the persistence of antibodies indicate a low level of viral replication in response to continuous antigen stimulation? HCV RNA, with presence of antigenomic viral RNA strand indicating active viral replication, was detected in the liver biopsy and peripheral mononuclear blood cells in patients presenting with this serology. One study demonstrated the reappearance of HCV RNA after 8.5 years of quiescence in a patient with initial negative serum HCV RNA, post prolonged course of prednisone. False positive results are seen in patients with underlying autoimmune disorders and hypergammaglobulinemia, and can be reduced by performing RIBA (recombinant immunoblot assay). Anti-HCV antibodies can be acquired passively via transfusions, maternal transmission or intravenous immunoglobulin therapy but usually disappear over a few weeks. Partial control of the virus before infection becomes chronic can result in transiently undetectable HCV RNA level. Thus patients should be re-tested after a few weeks. At low replication levels, HCV RNA copies can be below the limit of PCR assay. Patient who are anti-HCV antibodies positive, and HCV RNA negative have consistently demonstrated minimal liver histologic changes, and have remained serum HCV RNA negative, with normal ALT level at follow up to 3.6 years. Since there is evidence of extrahepatic viral replication, these patients should be considered potentially infectious. However, it is unclear whether these low levels of HCV RNA pose risks for transmission or reactivation. This patient does not need antiviral therapy or liver biopsy. He should be counseled regarding the modes of transmission to minimize the risk of re-infection. HCV RNA titers are low in genital secretions, and he can reassure his wife that sexual transmission rates are low. He is not a suitable candidate for blood or organ donation. Once HCV has infected the liver, incomplete clearance is common but the need for surveillance, appropriate testing, and frequency need to be further defined.

IS THE HEART COMPACTED?. A CASE OF NON-COMPACTION SYNDROME. J.L. Torres[1]; A. Saxena[1]; J. Panidis[1]. [1]Temple University, Philadelphia, PA. *(Tracking ID # 190352)*

LEARNING OBJECTIVES: 1. Recognize left ventricle non-compaction syndrome (LVNC) as an etiology of heart failure. 2. Determine its correct diagnosis and treatment management.
CASE: A male patient was transferred to our tertiary care facility for further management of his heart failure. He was a 40 year old athletic male with a history of severe LV dysfunction, mitral regurgitation with a left ventricular ejection fraction of 15–20%. He presented with SOB, lower extremity edema, and progressive decrease in exercise tolerance. His past medical history included hypertension, and diabetes mellitus. He functioned at a NYHA Class II level until one month prior to presentation. His symptoms have worsened but were not present at rest (NYHA class III). His vital signs were unremarkable other than oxygen saturation of 92% on RA. On neck exam had a JVD of 15 cmH20 with a+hepato-jugular reflex. Chest exam: had bibasilar crackles. Cardiac exam: regular rate and rhythm, with a III/IV murmur heard at the left lower sternal border radiating to the axilla, a S3 was present. Abdomen: normal active bowel sounds, no rebounding or guarding, ascites was present. Extremities were warm with 2 + pitting edema. Laboratory data: WBC 14.4, Hb 14 gr, Plt 86, sodium 126, potassium 3.2, chloride 79, bicarbonate 31, BUN 61, Cr 4.2, glucose 427, alk phos 176, AST 4260, ALT 4160, total bilirubins 4.2, albumin 3.3, cardiac enzymes were negative. ECG showed a normal sinus rhythm. CXR: bibasilar effusions, with an increased cardiac silhouette. Transthoracic echocardiography showed: LVEF 10–20%, severe diffuse hypokinesis of the LV with moderate dilatation. Doppler parameters were consistent with restrictive physiology, severe MR and TR. Moderate RV dilatation with moderately reduced function. PAP 47 mmHg. A diagnosis of LV non-compaction (LVNC) syndrome was suggested. A multi-detector computed tomography (MDCT) confirmed the diagnosis LVNC. He was treated aggressively with an adequate heart failure regimen. In addition, he was placed on amiodarone and a ICD was implanted. He is currently undergoing evaluation for a heart transplant.
DISCUSSION: Left ventricular noncompaction syndrome is characterized by arrest of the normal embryogenesis of the myocardium. Normally, the trabecular layer of the developing ventricular walls compacts during development from base to apex. In this condition, there is persistence of the fetal intertrabecular recesses leading to development of a spongy myocardium best seen along the apical and inferior left ventricular walls. Heart failure is by far the most common presentation of LVNC at any age. The gold standard for diagnosis has historically been 2-D echocardiography (TTE). The findings of a ratio >

2.0 between the thickness of the non-compacted and compacted layers in systole is considered to be pathognomonic. Limitations of TTE include difficulty in imaging the cardiac apex and inability to fully visualize the right ventricle. Cardiovascular magnetic resonance (CMR) and multi-detector computed tomography (MDCT), with their high resolution imaging capabilities, can confirm the diagnosis. MDCT is useful because of the ability to evaluate the coronary arteries and exclude cardiac thrombi. The ratio of > 2.5 between noncompacted and compacted myocardium has been used to confirm the diagnosis in MDCT. Therapy for LVNC consists of the standard medical therapy for heart failure ranging from drug therapy to mechanical device implantation to heart transplant.

IT'S NOT ALWAYS CELLULITIS. J.M. Healey[1]; G.H. Tabas[1]. [1]University of Pittsburgh, Pittsburgh, PA. *(Tracking ID # 189951)*

LEARNING OBJECTIVES: 1. Recognize diagnoses that mimic cellulitis 2. Manage erythema nodosum.
CASE: A 26-year-old previously healthy woman who was 17 weeks pregnant, presented with a painful, swollen, erythematous area on the dorsal aspect of her left foot. The patient first became aware of the problem 5 days previously when she awoke with a small area of redness on the inner aspect of her left foot. Over the next two days, the area of redness increased in size and spread towards her ankle. Oral cephalothin was prescribed by her physician for presumed cellulitis. Over the next two days, the patient reported that the area of redness was continuing to spread, and was exquisitely tender to touch. Her antibiotic was changed to oral clindamycin. Because there was no improvement, she was admitted to the hospital. Examination in the hospital revealed a large area of erythema and swelling on the dorsal aspect of her left foot approximately 7 cm in diameter and a second lesion on her calf. Both areas were warm to touch, indurated and tender to palpation. She was afebrile and the WBC count was normal. Intravenous cephalothin was started. An infectious specialist was consulted and he agreed with the diagnosis of cellulitis. By the second hospital day, the original area of inflammation on the foot was improving but the patient had developed a new lesion on the back of her ankle. Because of the appearance of the new lesion, the internal medicine team began to doubt diagnosis of cellulitis. The team felt that erythema nodosum was more probable because of the presence of multiple, well circumscribed indurated lesions. Dermatology was consulted and agreed with the diagnosis of erythema nodosum.
DISCUSSION: Erythema nodosum is an inflammation of subcutaneous fat that produces painful nodules. These lesions have been linked to drugs, pregnancy and hypersensitivity reactions to infections. It is important to note that any soft tissue inflammation can masquerade as cellulitis. Other diagnoses that can mimic cellulitis include DVT, acute gout, necrotizing fasciitis, cutaneous anthrax, and erythema nodosum. The key feature in this patient that lessened the likelihood of cellulitis was the number and distribution of areas of inflammation. Cellulitis most commonly begins as a single area of erythema that spreads as a continuous lesion. This patient, over the course of a week, had three separate areas of involvement. Treatment for erythema nodosum is includes bed rest, elevation of the leg, and NSAIDS. Rarely, corticosteroids are required.

KIKUCHI'S DISEASE: YOU BROKE MY HEART. A. Im[1]; A. Lopez-Candales[1]. [1]University of Pittsburgh, Pittsburgh, PA. *(Tracking ID # 189960)*

LEARNING OBJECTIVES: 1) To recognize the clinical features of Kikuchi's disease 2) To identify myocarditis as a potential complication associated with Kikuchi's disease and as an early marker for progression to SLE 3) To propose treatment of myocarditis with immunosuppression when manifested within the spectrum of Kikuchi's disease and SLE
CASE: A 37 year old female presented with vague complaints of progressive generalized weakness and intermittent fevers of several weeks duration. On presentation, she was found to have lymphadenopathy with leukopenia. An extensive infectious and rheumatologic workup were both unrevealing. Bone marrow biopsy was normal, but lymph node biopsy showed necrotizing lymphadenitis, suggestive of Kikuchi's disease. As Kikuchi's disease has been identified as a self-limited disease, no specific therapy was recommended and the patient recovered without additional intervention. A year later, she experienced the same constitutional symptoms with the addition of arthralgias. Leukopenia was once again found with new onset anemia. Further workup was in process when she presented to the hospital with acute chest pain. ECG showed ST-segment elevation, but serum cardiac markers were normal. Cardiac catheterization was performed but no coronary artery disease was identified. However, global hypokinesis of the left ventricle was seen, suggesting a non-ischemic cardiomyopathy. Laboratory studies now revealed a positive ANA and an elevated SSA antibody, suggesting an SLE-like syndrome. It was concluded that she had presented with an acute myocarditis and subsequent cardiomyopathy, likely related to her autoimmune disease. Plaquenil and high dose prednisone were administered and her symptoms resolved. An echocardiogram 3 months later showed improved systolic function and no residual wall motion abnormality.
DISCUSSION: Kikuchi's disease (KD) is a rare, self-limited disease that is most commonly seen in young women. On presentation, patients are found to have fever, fatigue, and cervical lymphadenopathy. Blood work will often reveal leukopenia and an elevated ESR. Serologic studies are negative and diagnosis is made by lymph node biopsy. Though the pathophysiology is unclear, it is thought to be related to an exaggerated immune response of T cells and histiocytes to an inciting infectious agent. Familiarity with this disease is important as it can prevent assumption of autoimmune disease or malignancy and the initiation of potentially toxic therapies. Treatment for KD is not indicated and symptoms generally resolve within 1 to 4 months. Recurrence is rare (3%), but KD has been associated with the development of SLE. Regarding cardiac complications, there have been case reports of myocarditis and heart failure associated with KD. In addition, the incidence of myocarditis has been reported as 9–25% in patients with SLE. All three disease processes share a similar pathophysiology related to an exaggerated immune response. In this patient, the onset of myocarditis may have been an early manifestation of autoimmune disease, and it initiated prompt treatment with immunosuppressive therapy and subsequent resolution of her symptoms. The treatment of SLE-related myocarditis has not been assessed in controlled trials, and cardiomyopathy associated with myocarditis will often resolve on its own. However, there has been observed efficacy of treatment with immunosuppressive therapy for improvement of cardiac function when associated with underlying autoimmune diseases.

LIMITATIONS OF DEVICE THERAPY: SUDDEN CARDIAC DEATH AFTER SUCCESSFUL AICD PLACEMENT IN CARDIAC AMYLOIDOSIS. V.M. Alla[1]; A. De Nazareth[1]; S. Pasupuleti[1]; K. Ulveling[1]; C. Hunter[1]. [1]Creighton University, Omaha, NE. *(Tracking ID # 189949)*

LEARNING OBJECTIVES: 1. Recognizing the clinical phenotype of cardiac amyloidosis. 2. Recognizing the limitations of device therapy in patients with cardiac amyloidosis.
CASE: A 46 year old female diagnosed with congestive heart failure was transferred for refractory symptoms. Prominent jugular distension, pedal edema and ascites were noted, EKG showed AF with controlled rate, low voltage complexes and telemetry showed runs of non sustained VT. Echocardiogram revealed non dilated ventricles with concentric hypertrophy, ejection fraction of 55% and bi-atrial enlargement with no pericardial effusion. Cardiac MRI revealed LVH and cardiomegaly. Cardiac catheterization revealed non obstructive coronary disease, diastolic equalization and concordance between right and left ventricular pressure tracings. Serum/urine electrophoresis revealed a large monoclonal band (Ig A kappa light chains). Abdominal fat pad biopsy was positive for amyloid and was confirmed on electron microscopy. The patient underwent AICD placement in view of non sustained runs of VT, inducible VT on EP study and h/o syncope. The next morning she was found unresponsive and noted to be in PEA which progressed to asystole. Emergent echocardiogram revealed no pericardial effusion. She was pronounced dead after unsuccessful CPR and ICD interrogation revealed no shockable rhythm. Autopsy revealed extensive amyloid infiltration and no obvious reason for Electromechanical disassosiation.
DISCUSSION: Though primary amyloidosis is rare (8.9/million) close to 60% have evidence of cardiac involvement. Mortality is attributable to a cardiac cause in about 50%. Amyloid infiltration leads to progressive thickening of heart, worsening compliance and heart failure (restrictive

cardiomyopathy). Conduction system abnormalities take the form of sinus node dysfunction, atrial fibrillation, heart block and ventricular tachycardia. There is preferential involvement of micro vasculature and sparing of epicardial coronaries. Clinical findings are dominated by signs of right heart failure and AF is exceedingly common. Syncope, angina and SCD can occasionally be the presenting problems. Low voltage complexes and pseudo infarct pattern are frequent on EKG and ventricular hypertrophy is the most frequent finding on echocardiogram. Granular sparkle of myocardium and atrial septal hypertrophy are characteristic but infrequent. Emerging techniques like strain rate imaging, MRI and nuclear scintigraphy have improved diagnostic accuracy. Cardiac catheterization usually reveals normal epicardial coronaries and the characteristic dip and plateau in the ventricular pressure tracings. Though Endomyocardial biopsy is the gold standard, characteristic echo and eletrocardiographic findings in the presence of monoclonal light chains and a confirmatory biopsy from a non cardiac tissue are sufficient for diagnosis. Clinical heart failure portends a dismal prognosis with a median survival of 4 months. Routine treatment for heart failure includes diuretics, cautious use of beta blockers and ace inhibitors. Digoxin should be avoided. Chemotherapy has limited efficacy but Stem cell therapy appears promising. Pacer and AICD placement are recommended for standard indications but there have been reports of SCD despite AICD placement. The reason for the limited efficacy of AICDs is unclear. It has been attributed to the higher incidence of EMD in this patient population secondary to extensive myocardial amyloid infiltration.

LIVER DISEASE IS SKIN DEEP. J. Breaux[1]. [1]Tulane University, New Orleans, LA. *(Tracking ID # 190547)*

LEARNING OBJECTIVES: 1. Recognize the presenting signs and symptoms of porphyria cutanea tarda. 2. Understand the pathophysiology of porphyria cutanea tarda. 3. Identify systemic diseases associated with porphyria cutanea tarda.
CASE: 62 year-old fisherman presented with three months of "fragile skin." He noted no additional symptoms, complaining only of recurrent vesicular lesions on sun-exposed areas of his body. He noted drinking three to five beers a day and he did not take any medicines. He did not have a history of blood transfusion or intravenous drug use. Vital signs were normal, as was his heart, lung and abdominal examination. Vesicles and bullae were present on the dorsa of both hands and face. He had facial hypertrichosis with underlying mottled brown-black pigmentation in the periorbital region. Blood count and electrolytes were normal; HIV and ANA tests were negative. He had an elevated serum ferritin, elevated liver enzyme tests and was hepatitis C positive. Urine was reddish, fluorescent under a Wood's light, and revealed elevated levels of uroporphyrin. His symptoms resolved slowly over two months; he stopped drinking and started weekly outpatient phlebotomy.
DISCUSSION: Porphyria cutanea tarda (PCT) is the most common disorder of porphyrin metabolism, and while it is frequently seen by the general internist, is frequently mis-ascribed to drug reactions. In normal heme biosynthesis, uroporphyrinogen decarboxylase converts uroporphyrinogen to coproporphyrinogen. PCT results from an accumulation of uroporphyrinogen in the skin due to a decreased activity of the UPG-D enzyme, increased amino acid substrates entering the porphrin metabolic pathway, or a combination of both. Photo-excited porphyrins in the skin serve as the catalyst by which ultraviolet light converts oxygen to two oxygen free radicals which are the cause oxidative damage to the skin. The cutaneous manifestations of PCT are found most frequently on light-exposed areas. Patients complain of increased fragility, vesicles and bullae. Facial hypertrichosis and hyperpigmentation in the periorbital region are findings are highly suggestive of PCT. PCT is autosomal dominant and, unlike the autosomal recessive acute intermittent porphyria, results in accumulation of water-soluable porphyrins that deposit in the skin and urine. For this reason, the diagnosis of PCT begins with examination of the urine. Confirmation by quantitative porphyrin analysis reveals elevated uroporphyrin and coproporphyrin. Innate coding for the UPG-D enzyme varies, and those with genetically determined lower quantities of the enzyme can succumb to PCT if the amino acid substrates entering the porphrin metabolic pathway are increased. An increase in amion acid entry is stimulated by starvation, alcohol use, and other inflammatory diseases such as systemic lupus erythematosis, Hepatitis C, HIV, and hemochromatosis. The internist must recognize the importance of evaluating for these conditions even after the diagnosis of PCT has been established. Our patient was subsequently diagnosed with Hepatitis C and hemachromatosis. Treatment of PCT begins with the elimination of alcohol, estrogen, or iron, decreasing the amount of amino acid substrates entering the porphyrin pathway. Phlebotomy is commonly used until either total urinary porphyrins diminish or the hemoglobin level decreases to 10 g/dL. In patients with hepatitis C, iron overload should be corrected with phlebotomy before consideration for interferon-ribavarin treatment.

LYME DISEASE CAN BE A HEADACHE. A. Mostaghimi[1]; J.D. Gonzalo[2]. [1]Beth Israel Deaconess Medical Center, Boston, MA; [2]Beth Israel Deaconess Medical Center, Brookline, MA. *(Tracking ID # 190399)*

LEARNING OBJECTIVES: 1. Recognize the natural history of Lyme disease. 2. Diagnose and manage neuroborreliosis.
CASE: A 25-year old male with type I diabetes presented with a week of headache, fatigue, and full body rash. Three months prior to presentation the patient noted a tick on his leg while working as a camp counselor in western Massachusetts. He was unsure whether he had been bitten but did not note any sequelae. Two weeks prior to presentation, the patient noted "cloudy thinking," neck stiffness, malaise, and a frontal headache that did not improve with NSAIDs. The symptoms persisted and a week later he developed a diffuse rash with multiple red, non-tender, non-pruritic macules on his trunk and extremities. Over the next several days the macules enlarged and developed central clearing. On presentation the patient had a low-grade fever and disseminated erythema migrans with over thirty lesions. His neurologic exam was remarkable for nuchal rigidity, mild photophobia, and intact cranial nerves. An electrocardiogram demonstrated normal sinus rhythm and laboratory studies showed a leukocytosis of 13.3. CSF analysis revealed a protein of 30, a glucose of 80, and 10 WBC with a differential of 51% lymphocytes, 22% monocytes, and 27% PMNs. CSF gram stain and culture were negative. Lyme serologies were positive by ELISA and confirmed by Western Blot testing. The patient was treated with two weeks of ceftriaxone followed by two weeks of oral doxycycline. His headache, nuchal rigidity, and rash resolved after 48 hours of therapy. His fatigue resolved after six weeks.
DISCUSSION: Lyme disease is a tick-borne illness caused by Borrelia burgdorferi. Despite being the most commonly reported tick-transmitted disease in the northern hemisphere, Lyme disease is largely restricted to endemic areas in the Northeast and upper Midwest regions of the United States. Fifty to seventy percent of patients present with erythema migrans, a localized skin reaction that appears at the site of inoculation and often resolves spontaneously. This classic skin lesion is sufficient for a clinical diagnosis of early disease. Laboratory testing for anti-Lyme antibodies is confirmatory but has low sensitivity in early disease: while only 34% percent of patients will be antibody positive upon presentation, 88% are antibody positive after one month. Positive ELISA testing should be confirmed by Western blot analysis. Secondary Lyme disease develops one to six months after exposure. It is caused by dissemination of borellia spirochetes and clinically presents as a generalized erythema migrans rash, Lyme carditis, and neuroborreliosis. Neuroborreliosis develops in approximately 15% of patients with Lyme disease and classically presents with a triad of aseptic meningitis, cranial neuropathy, and painful radiculitis. This patient's presentation was limited to lymphocytic meningitis with normal CSF protein and glucose. Current recommendations from the American Academy of Neurology support treatment of neuroborreliosis for two weeks. Although evidence demonstrates that oral doxycycline is likely equivalent to ceftriaxone in the absence of parenchymal disease, in clinical practice, parenteral antibiotics are commonly used in sequence with oral antibiotics for a total treatment duration of four weeks.

MARKED ELEVATION OF CA19–9 NOT ASSOCIATED WITH MALIGNANCY. I.I. El Hajj[1]; M. Sanders[2]. [1]University of Pittsburgh, Pittsburgh, PA; [2]NA, Pittsburgh, PA. *(Tracking ID # 189824)*

LEARNING OBJECTIVES: 1) To critically interpret a rise in the tumor marker CA 19–9. 2) To recognize that elevated levels of CA 19–9 may be secondary to a benign rather than a malignant process. 3) To describe the mechanism of rise in CA 19–9 levels.

CASE: An 86-year-old male was admitted for obstructive jaundice and elevated serum CA19–9. He reported a two-week history of progressive jaundice, dark urine and clay-colored stools. Recently, he had developed right upper quadrant pain, nausea, and subjective fevers. He denied weight loss or other systemic symptoms. Past medical history was significant for hypertension, hypothyroidism, and cholecystectomy. On physical exam, he was afebrile and jaundiced with mild right upper quadrant tenderness. Laboratory studies revealed abnormal liver function tests: SGOT, 35 IU/L; SGPT, 57 IU/L; alkaline phosphatase, 140 IU/L; ã-glutamyl transferase, 195 IU/L; total bilirubin 9.1 (direct 7.6) mg/dl with normal serum amylase and lipase and a markedly elevated CA19–9, 8667.9 U/mL. Right upper quadrant ultrasound revealed mild intrahepatic biliary ductal dilation. Abdominal CT confirmed moderate intra and extrahepatic biliary ductal dilatation, as well as a 1 cm stone obstructing the distal CBD. No pancreatic mass was observed. Endoscopic retrograde cholangiography (ERCP) with biliary sphincterotomy and mechanical lithotripsy was performed for stone extraction. His pancreatogram was normal. His post-operative course was uneventful. On follow-up visit one month later, he was asymptomatic with normal LFTs and a normal serum CA 19–9 (9.8 U/mL).
DISCUSSION: The carbohydrate antigen 19–9 (CA 19–9) is synthesized by normal human pancreatic and biliary ductal cells as well as gastric, colonic, endometrial, and salivary epithelia. The upper limit of normal for CA 19–9 is 40 U/mL. The test has a sensitivity of 81% and a mean specificity of 90% for the diagnosis of pancreatic cancer. The combination of CA19–9 level of >100 U/ml with an imaging modality (ultrasound, CT, or ERCP) suggestive of malignancy has a positive predictive value of 100% in non-jaundiced patients. At levels > 1000 U/ml, CA 19–9 specificity for pancreatic cancer is greater than 99%. Conditions other than malignancy known to cause significant elevations of this assay include cirrhosis and ascending cholangitis. Upon review of the medical literature, we found only four reported cases of elevated CA 19–9 (>1000 U/mL) levels associated with choledocholithiasis. Interestingly, in three of the four reported cases, patients presented with obstructive jaundice and ascending cholangitis which can be an additional factor to explain the elevated CA 19–9 levels. In our case, there was no evidence for cholangitis.. Several factors have been postulated to explain elevated CA 19–9 levels in biliary disease; however the exact mechanism remains unclear. These include: 1) leakage of CA 19–9 from the bile into circulation due to biliary tract obstruction, 2) enhanced production of CA 19–9 in the bile duct epithelium and the musosa of gallbladder due to an inflammatory process, and 3) reflux of CA 19–9 from the bile duct epithelium into the blood stream. Although the exact mechanism remains unclear, it is important to recognize that benign conditions can result in markedly elevated CA 19–9 levels and should be considered in the differential diagnosis.

MASKED LETHAL LIVER DISEASE. V. Ivanova[1]; A.L. Spencer[2]. [1]Allegheny General Hospital, Pittsburgh, PA; [2]University of Pittsburgh, Pittsburgh, PA. *(Tracking ID # 189298)*

LEARNING OBJECTIVES: 1. Identify difficulties in diagnosing hepatocellular carcinoma (HCC) 2. Outline recommendations for screening and treatment of HCC
CASE: A 69 year-old male with a 17-year history of asymptomatic alcoholic cirrhosis presented with fatigue, nausea, and increased abdominal girth for three months. He appeared mildly jaundice with ascites and hepatosplenomegaly. Laboratory evaluation revealed mild anemia, hyponatremia, and hypoalbuminemia with elevation of ammonia, bilirubin, Alkaline Phosphatase, and INR. AST/ALT ratio >2:1. Hepatitis panel was negative. AFP=699. CT-abdomen showed cirrhosis, portal hypertension, and possible neoplasm in the right hepatic lobe. MRI revealed a cirrhotic liver with hepatic fibrosis but no mass. Triple-phasic CT scan showed no evidence of focal hepatic lesion. Ultrasound revealed a grossly cirrhotic liver with ascites, portal vein and IVC thrombosis, no tumor. AFP increased to 1768 on day-2 and 2445 on day-4. Paracentesis did not reveal any malignant cells. Beta-hCG was negative. Liver biopsy showed well-differentiated, diffusely infiltrating HCC with angioinvasion. Liver transplant was precluded by the portal thrombosis and IVC thrombus. Patient was started on palliative chemotherapy.
DISCUSSION: HCC is the most common primary malignant tumor of the liver. It commonly develops as a complication of cirrhosis leading patients to have few, if any, symptoms specifically attributable to the tumor. Conventional tests of hepatic function do not distinguish HCC from other liver lesions or cirrhosis. AFP is normally present in high concentrations in fetal serum but in only minute amounts thereafter. Elevated AFP strongly suggests HCC with 80–90% sensitivity and 90% specificity. 500 mg/L is used as the cut-off; levels below this value may be found in patients with hepatitis or cirrhosis. False-positive results also occur in patients with nonseminomatous germ-cell tumors. For this reason, we checked Beta-hCG level when radiological studies were negative. Although non-diagnostic in our case, triple-phasic CT scan is the imaging technique of choice to diagnose HCC. The false-negative CT in our patient was likely secondary to the gross appearance of the tumor. HCC may take one of three forms: nodular, massive, or diffuse. The nodular variety accounts for 75% of HCC and usually coexists with cirrhosis with numerous round or irregular nodules scattered throughout the liver. The massive type is characterized by a large circumscribed mass and is most prone to rupture; it is more common in younger patients with a non-cirrhotic liver. In the rare diffusely infiltrating form, the liver is infiltrated homogeneously by indistinct minute tumor nodules which may be difficult to distinguish from the regenerating nodules of cirrhosis. Therefore liver biopsy is the primary tool to diagnose diffusely-infiltrating HCC. Treatment depends on the extent of disease, presence of cirrhosis, and degree of hepatic dysfunction. Tumor resection, liver transplantation, embolization, and chemotherapy are the main methods of treatment. Liver transplantation is performed if tumor is confined to the liver but is not resectable or if advanced cirrhosis precludes resection. HCC has very high recurrence rates and is seldom amendable to surgical cure highlighting the importance of screening. For high-risk persons, liver ultrasound and AFP measurement should be performed every 6-months, and for moderate risk persons, AFP should be measured every 6-months with annual ultrasound.

MASQUERADING AS THE GREAT MASQUERADER. J. Shen[1]; P. Yao[1]. [1]University of California, Los Angeles, Los Angeles, CA. *(Tracking ID # 190461)*

LEARNING OBJECTIVES: Recognize and diagnose an atypical presentation of granulomatous Pneumocystis jiroveci pneumonia in non-HIV infected patients.
CASE: A 70-year-old gentleman with a history of chronic mylelomonocytic leukemia and idiopathic thrombocytopenic purpura (ITP) status post splenectomy presented with cyclical, low-grade fevers for four weeks. Two months prior to admission, he had been treated with rituximab and high-dose corticosteroids for ITP. He had finished a course of prednisone two days prior to admission and had also been taking cyclosporine. He complained of an intermittent non-productive cough but denied any dyspnea, hemoptysis, diarrhea, or dysuria. He also denied fatigue, night sweats, chills, or weight loss. On physical examination, he was afebrile and well-appearing. Examination of the lungs was unremarkable and no lymphadenopathy was noted. Blood and urine cultures were negative and he had no leukocytosis. A chest radiograph was unremarkable. However, a CT of the chest revealed a right lower lobe nodule. He was initially started on rifampin, isoniazid, pyrizinamide, and ethambutol out of concern for tuberculosis. However, a biopsy was performed and the GMS stain revealed Pneumocystis jiroveci infection with prominent myofibroblastic proliferation and inflammation. Therapy for tuberculosis was discontinued. He was treated with pentamidine. and thereafter had complete resolution of his symptoms.
DISCUSSION: This case illustrates an atypical clinical presentation of Pneumocystis jiroveci pneumonia (PCP). This patient's risk factors for PCP included an underlying hematologic malignancy as well as ongoing therapy with corticosteroids and cyclosporine. PCP is a well-known opportunistic infection that typically affects patients with HIV infection. There are rare reports of cases of granulomatous PCP in patients with malignancy. As in this case, these patients presented atypically with minor symptoms and usually had nodular infiltrates on chest x-ray. In the majority of cases bronchoscopy with bronchioloalveolar lavage (BAL) was negative and the diagnosis was made only on biopsy. This case highlights the importance of considering the diagnosis of PCP in non-HIV-infected patientswith malignancy. PCP may present as a nodular or granulomatous disease, masquerading as an acid-fast bacillus infection. Clinicians should be aware that BAL is often falsely negative, and biopsy should be pursued to make the diagnosis.

METASTATIC ADRENOCORTICAL CARCINOMA PRESENTING WITH DIPLOPIA. G.D. Valdez[1]; G. Teran[1]; R.D. Smalligan[1]. [1]East Tennessee State University, Johnson City, TN. *(Tracking ID # 189965)*

LEARNING OBJECTIVES: 1- Recognize useful clinical findings that can point toward an unusual cause of Cushing's syndrome such as adrenocortical carcinoma. 2- Identify an unusual presentation of metastatic adrenocortical carcinoma such as intracranial metastasis producing sixth cranial nerve palsy.
CASE: A 43-year-old woman with a history of hypertension and diabetes mellitus presented with 5 months of amenorrhea, acne, and hirsutism, 3 months of abdominal pain with a 9 pound weight loss, and 2 of diplopia. PMH: HTN for 2 years, DM for 14 months. Family/social history: unremarkable and negative for smoking, alchohol or illicit drugs. Medications: metformin, lisinopril, glipizide, furosemide. Physical exam: BP 161/89, HR 96, RR 18, alert/oriented, cushinoid facies, neck with buffalo hump, abdomen obese with striae, no hepatosplenomegaly, skin with abundant acne and hair over thorax, neurological exam showed left sided sixth cranial nerve palsy. Laboratory: Hgb 14.5, WBC 11,000, creatinine 0.9, sodium 136, potassium 4.4, calcium 9.1, random cortisol 39 (5–23), AM cortisol 37 (5–23), urine cortisol 193 (<45), ACTH 7 (10–46), TSH 2.76(0.34–5.6), DHEA 15.3 (1.9–7.6), DHEA SO4 872 (35–430), testosterone 237 (10–70), normetanephrine 0.31 (<0.9), metanephrine 0.2 (<0.5), serum aldosterone 28 (<31), prolactin 6.5 (2.8–29.2). Abdominal CT showed a left adrenal mass (11.4×7.4 cm) and hypodense nodules In the liver with extensive retroperitoneal and mesenteric lymphadenopathy. Head MRI showed a 1.2×0.8×1.2 cm mass in the cavernous sinus adjacent to the pituitary gland compatible with metastases. Liver biopsy showed adrenocortical cells by specific stains compatible with Stage IV adrenocortical carcinoma. The patient received radiation therapy for the brain mass and palliative chemotherapy with mitotane. Ten days later the patient requested comfort care after developing intractable nausea/vomiting and renal failure and she died shortly afterwards.
DISCUSSION: Adrenocortical carcinoma is a rare neoplasm with an incidence of 0.02–2 cases per million per year. It affects females slightly more than males (4:3), in 53% of cases the tumor is functional with the most common presentation being Cushing's syndrome, occasionally along with virilization (10–25%). Our patient presented with florid Cushing's syndrome in the setting of difficult to control diabetes and HTN. The fact that she paradoxically lost weight and had associated virilization raised suspicions of adrenocortical carcinoma as the underlying cause of her hypercortisolism. Thirty-four percent patients with adrenocortical carcinoma have metastasic disease at the time of the diagnosis with the most frequent sites being liver, lymph nodes, lungs and rarely the bones. We found only one reported case of orbital metastases. Our patient had a cavernous sinus metastasis causing a left sixth nerve palsy and received radiotherapy as a palliative measure. Further palliative measures have not been standardized in this setting but mitotane is an oral agent that has shown some promise. Our patient developed nausea, vomiting and acute renal failure and a CT scan showed a gastric hematoma. Physicians should remember to consider hypercortisolism in cases of intractable hypertension and diabetes and also to consider adrenocortical carcinoma if there is an unexplained weight loss in this setting.

METFORMIDABLE FOE: METABOLIC ACIDOSIS IN A 68-YEAR-OLD WOMAN. C. Tang[1]; A.J. Kim[2]; P.P. Balingit[2]. [1]David Geffen School of Medicine at UCLA, Los Angeles, CA; [2]UCLA San Fernando Valley Program, Sylmar, CA. *(Tracking ID # 189538)*

LEARNING OBJECTIVES: 1) Recognize the presentation of metformin toxicity leading to metabolic acidosis. 2) Describe a rare case of acute renal failure secondary to metformin- associated metabolic acidosis.
CASE: 68 year old Latina woman with history of hypertension, diabetes mellitus, and hyperlipidemia presented to the emergency department with left back and flank pain. The patient described decreased urine output for two weeks and non-bloody emesis for five days associated with chills. Metformin had been prescribed for several months, and dose had been increased at the last routine primary care visit. Renal function was normal at that time. Other outpatient medications included hydrochlorothiazide, aspirin, prilosec, furosemide, ezetimibe/simvastatin, metoprolol, nifedipine, and insulin. On examination, vitals signs were significant for tachypnea with RR 27. The patient was alert and oriented. Cardiac, pulmonary, and abdominal examinations revealed no abnormalities. No lower extremity edema was noted. Initial laboratory data included Na 128, K 6.4, Cl 82, HCO3 18, BUN 61, Cr 9.3, glucose 46, and anion gap 28. Liver tests were within normal limits. CBC revealed WBC 12,000 with 81.4% neutrophils and hemoglobin 10.3. Lactic acid was 13.1. Lipid panel was normal. Arterial blood gas on room air showed pH 7.31, pCO2 20, pO2 90, HCO3 10, and O2 Sat 96. Urinalysis showed no active urinary sediment. CT abdomen showed mild perinephric stranding associated with the right kidney. The initial diagnosis of sepsis was entertained and the patient was admitted to the hospital. Initial management included volume resuscitation and administration of vancomycin and piperacillin/tazobactam. Repeat laboratory testing revealed worsening acidosis with HCO3 8 and anion gap 39. Emergent hemodialysis for correction of metabolic acidosis was ordered with good clinical response. Blood and urine cultures obtained revealed no bacterial growth. The etiology of acute renal failure was felt secondary to volume depletion in the setting of gastroenteritis and diuretic use. This subsequently caused a mixed acid-base disorder, with contraction alkalosis secondary to gastrointestinal losses. The patient was discharged after improvement of renal function was noted, and the patient was advised to discontinue metformin use.
DISCUSSION: Metformin has been established as one of the mainstays of treatment for type 2 diabetes, with both cardiovascular and mortality benefit. However, metformin associated lactic acidosis (MALA) is a serious but rare complication of this commonly prescribed hypoglycemic medication. Reported incidence of lactic acidosis is less than one case per 10,000 patient years. Contraindications to metformin therapy include renal impairment, hepatic disease, any past history of lactic acidosis, cardiac failure, chronic hypoxic lung disease and procedures such as surgery and administration of IV contrast. These conditions all predispose to increased lactate production and hence to the potentially fatal complication of lactic acidosis. Case reports have suggested that bicarbonate hemodialysis treatment early in the management of MALA may be beneficial. Volume resuscitation may stabilize the patient, and discontinuation of metformin is essential to prevent recurrence of MALA.

METHICILLIN-RESISTANT STAPHYLOCOCCUS AUREUS BACTEREMIA DUE TO PROSTATIC ABSCESS B.H. Chao[1]; J.M. Kidd[1]; A.W. Dow[1]. [1]Virginia Commonwealth University, Richmond, VA. *(Tracking ID # 190781)*

LEARNING OBJECTIVES: • To describe an unusual case of Methicillin-resistant Staph aureus (MRSA) bacteremia due to prostatic abscess • To emphasize the importance of surgical drainage to achieve cure in MRSA prostatic abscesses
CASE: A 40-year-old HIV-positive man with a CD4 count was 528/μL presented with a 10-day history of intermittent fever, urinary hesitancy, and intermittent abdominal pain relieved by urination. He denied dysuria, hematuria, nausea, diarrhea, or weight loss. His medical history was also significant for incision and drainage of a skin abscess with unknown bacteriology several months prior to presentation. He was sexually abstinent but had a history of having unprotected sex with men. On physical examination, his temperature was 37.8°C, blood pressure was 133/84 mmHg, heart rate was 107 beats/min, and respiration rate was 16 breaths/min. He appeared non-toxic. Abdominal examination revealed no tenderness or organomegaly. His prostate was soft, minimally tender, and slightly enlarged. The rest of his physical examination was normal. White blood cell count was 7.5×10^9/L with 79% neutrophils. Serum chemistry was normal and a prostate-specific antigen level was 2.9 ng/mL. Urinalysis revealed large leukocyte esterase, no nitrites, and 60 white blood cells per high power field. He was diagnosed with prostatitis and discharged on levofloxacin. The subsequent day, he returned to the emergency department with an inability to void. A foley catheter was placed. Later that day, blood cultures from his initial admission grew MRSA in two of four bottles. Urine culture remained no growth. He was readmitted to the hospital. CT of the abdomen and pelvis showed an enlarged prostate with multiple non-communicating peripherally enhancing hypodensities consistent with prostatic abscesses. Therapy with vancomycin was initiated. Over the next 6 days, the patient continued to have intermittent fever. Blood cultures continued to grow MRSA. A TEE was normal. On hospital day 6, repeat CT showed no change in the size of the prostatic abscesses. The next day, urology performed bedside transrectal drainage of the largest abscess with ultrasound guidance.

Culture of the purulent drainage grew MRSA. Three days after surgical drainage, the patient was afebrile, urinary symptoms had resolved, and serial blood cultures remained negative. He was discharged home to complete a 4-week course of vancomycin.
DISCUSSION: We report a case of MRSA bacteremia secondary to prostatic abscesses, as confirmed by cultures from the serum and abscess. Only three other case reports describing MRSA bacteremia associated with prostatic abscess have been published. Both our patient and the three other case reports in the literature required drainage of the abscess in addition to antibiotics for cure. Our case is the first described in the literature to be cured by ultrasound-guided transrectal drainage of the abscess. With the increasing incidence of MRSA infections, the incidence of prostatic abscess due to MRSA may increase. In the evaluation of a patient with persistent MRSA bacteremia, the potential for the prostate as a source of infection should be considered. Imaging studies such as CT should be performed with positive blood cultures for MRSA and any urinary symptoms, particularly if the bacteremia fails to resolve with antibiotic therapy. If an abscess is found, surgical debridement is necessary for cure.

MOLAR PREGNANCY AND THYROID STORM. B.E. Goldwasser[1]; A.L. Spencer[2]; W. Nadour[1]. [1]Allegheny General Hospital, Pittsburgh, PA; [2]University of Pittsburgh, Pittsburgh, PA. *(Tracking ID # 189411)*

LEARNING OBJECTIVES: 1) Describe the presentation, diagnosis, and treatment of thyrotoxicosis. 2) Outline the pathophysiology of molar pregnancy and thyroid disease.
CASE: A 24 year-old female at 3-weeks gestational age presented to the ER for vaginal spotting. A transvaginal ultrasound demonstrated a molar pregnancy with a 21-week sized uterus. The Beta-HCG was markedly elevated at 870,934. CT scan revealed a large loculated 15 cm cystic mass, arising from the anterior aspect of the uterus. She subsequently underwent a dilation and curettage; pathology was consistent with a complete mole. Following the procedure, the patient reported palpitations and was found to be hypertensive with systolic BP=150 and tachycardic with a pulse=140. She was started on magnesium sulfate for preeclampsia prophylaxis. Thyroid studies revealed TSH < 0.005 and free T4=7.77 consistent with thyroid storm which was felt to be secondary to her gestational trophoblastic disease (GTD). Total T3 was normal. She denied any prior history of cardiac disease, diabetes, thyroid disease, weight loss, fatigue, headaches, or diaphoresis. She was started on propanolol and methimazole after which her symptoms improved dramatically. Her Beta-HCG failed to suppress, so she was treated with 5 days of Dactinomycin and 5 cycles of methotrexate after which the Beta-HCG dropped to an appropriate level.
DISCUSSION: The presence of a complete mole often leads to excessive uterine size for expected gestational age. The marked elevation in serum Beta-HCG associated with a complete mole can lead to ovarian enlargement; hyperemesis gravidarum; preeclampsia, and hyperthyroidism. There is considerable similarity between the beta-subunits of HCG and TSH. As a result, HCG has weak thyroid-stimulating activity. Unlike patients with Graves' hyperthyroidism, patients with GTD usually do not have a high serum T3/T4 ratio, because of the severe nonthyroidal illness caused by the tumor. Patients with hyperthyroidism can have a dramatic constellation of symptoms including emotional lability, weakness, palpitations, heat intolerance, and weight loss despite a normal or increased appetite. Physical examination may be notable for tachycardia, atrial fibrillation, hypertension, hyperactivity, rapid speech, eyelid retraction due to sympathetic hyperactivity. Proximal muscle weakness, and hyperreflexia are other frequent findings.TSH is the initial diagnostic test for hyperthyroidism. Suppressed TSH and elevated free T4 confirms the diagnosis.Thyroid radioiodine uptake and scan can help differentiate Graves' hyperthyroidism from other causes such as an adenoma or toxic multinodular goiter. The pattern of elevated free T4 and normal T3 concentrations may be found in patients with hyperthyroidism who have a concurrent nonthyroidal illness that decreases extrathyroidal conversion of T4 to T3, such as GTD. Patients' with GTD who present with tachycardia or palpitations should be promptly evaluated for thyroid disease.Treatment of hyperthyroidism can involve surgery, radioactive ablation of the thyroid, or medications. Beta-blockers help control symptoms induced by increased adrenergic tone; propranolol is frequently used because it also decreases peripheral conversion of T4 to T3. Thionamides are used to block new hormone synthesis. For treatment of hyperthyroidism associated with GTD, primary therapy is directed against the tumor. However, thionamides are useful adjunctive therapy since hormone synthesis is occurring within the thyroid.

MORE THAN SKIN DEEP – NEUROCUTANEOUS MELANOSIS AND MALIGNANT INTRACRANIAL MELANOCYTOMA. M. Gladysz[1]; K. Pfeifer[2]. [1]Medical College of Wisconsin, Wauwatosa, WI; [2]Medical College of Wisconsin, Milwaukee, WI. *(Tracking ID # 189751)*

LEARNING OBJECTIVES: 1) Describe an unusual intracranial malignancy associated with congenital nevi. 2) Emphasize the importance of linking multiple clinical findings and considering rare but devastating diagnoses.
CASE: A 38-year-old gentleman presented with progressive worsening headaches that gradually started 2 months ago previously and were associated with intermittent blurred vision in the right eye and left eyelid drooping. His headaches were initially dull and pulsating in nature but progressed in intensity and became associated with severe right eye pain and photophobia. Physical examination revealed mild left ptosis with a blue-black patch around the left eye consistent with dermal melanocytosis in the ophthalmic division of the trigeminal nerve (nevus of Ota). Moreover, a 7×3 cm blue patch was identified on the left parietal scalp. On further questioning, the patient reported that these lesions had been present since age 11, but the scalp lesion had been increasing in size since it was first noted. Brain MRI subsequently demonstrated three circumscribed, homogenously enhancing lesions, including one located in the sellar-suprasellar region with extension to the left cavernous sinus and displacement of the cavernous intracranial carotid artery and optic chiasm. PET scan revealed an intense FDG uptake in the sellar mass and a large focus of uptake in the liver suspicious for malignancy. Full body CT found no evidence of another primary site of malignancy. Due to rapid progression of symptoms, pituitary hormonal abnormalities, and high suspicion for malignancy, he underwent subtotal resection of the pituitary mass and removal of the left parietal dural lesion with clinical improvement. Patient further underwent a biopsy of the liver lesion. Pathology of the sellar, left dural and liver lesions was consistent with malignant melanocytoma. The finding of melanocytomas along with melanin deposition in the meninges and a history of pigmented skin lesions was consistent with the diagnosis of neurocutaneous melanosis syndrome.
DISCUSSION: Primary intracranial melanocytic tumors are exceptionally rare lesions with a limited differential diagnosis. In the case of melanocytomas, lesions may be associated with neurocutaneous melanosis syndrome. Neurocutaneous melanosis is a rare disorder characterized by the presence of large, multiple congenital neurocutaneous melanocytic nevi and benign or malignant pigment cell tumors of the leptomeninges. Distant metastases are usually seen in primary leptomeningeal/intracranial melanomas; however, in more aggressive cases, the most frequently reported sites of metastasis are liver and bone. The treatment of choice is resection of the tumor, but adjuvant radiotherapy may be beneficial in cases of incomplete resection. Unfortunately, even with complete tumor removal, it has a relapse of almost 30%. Symptoms and signs of raised intracranial pressure, the presence of nevi of Ota, and dural-based masses should alert the treating physician to suspect Neurocutaneous melanosis and primary leptomeningeal/intracranial melanocytomas.

MR. JOHN DICE: A YELLOW FELLOW IN DISGUISE. D.U. Ambrocio[1]; A. Gordian[1]; W.N. Jarjour[1]. [1]University of Virginia Division of Clinical Rheumatology, Charlottesville, VA. *(Tracking ID # 189348)*

LEARNING OBJECTIVES: 1. Recognize the presenting features of autoimmune pancreatitis 2. Identify the clinical utility of an elevated IgG4 level
CASE: A 63 year-old Caucasian male with diabetes and hypercholesterolemia presented with a two-month history of abdominal fullness, clay colored stools, dark urine, and a twenty-pound weight loss. On exam, there was no palpable mass or significant abdominal tenderness, although the patient was notably jaundiced. Laboratory data: AST of 46, ALT of 118, alkaline phosphatase of 144, total bilirubin of 9.5, and CA19–9 of 18.8. CT scan revealed an enlarged pancreatic head. Liver, gallbladder, pancreatic and intrahepatic ducts were normal on MRI. Pancreatic FNA was unremarkable. ERCP demonstrated an extrahe-

patic bile duct stricture. A biliary sphincterotomy was performed and a Wallstent was placed across the stricture resulting in symptomatic improvement. Two months later, his symptoms recurred and he was scheduled for pancreatic surgery. Smooth muscle antibody, mitochondrial antibody, ANA, anti-ENA, ANCA, amylase and lipase were unremarkable. IgG4 was markedly elevated at 1310 mg/dL. A nuclear bone scan was negative. Chest, abdomen, and pelvis CT scans were unremarkable. ERCP demonstrated intrahepatic biliary strictures which prompted another Wallstent placement. Right hepatic duct brushing demonstrated atypical glandular epithelial cells. A clinical diagnosis of autoimmune pancreatitis (AIP) with primary sclerosing cholangitis (PSC) was established and surgery was cancelled. The patient was started on prednisone 40 mg with dramatic improvement.
DISCUSSION: The clinical presentation of AIP often masquerades as a pancreatic or biliary malignancy. The diagnosis requires careful analysis of clinical, radiographic, and histologic findings. The incidence of AIP is higher in Japan and typically affects men in their 60's. AIP often coexists with PSC, Sjogren's syndrome, IBD, retroperitoneal fibrosis, interstitial pneumonia, tubulointerstitial nephritis, hypothyroidism, rheumatoid arthritis, SLE, autoimmune hepatitis, and malignant lymphoma. The Intractable Pancreatic Diseases Research proposes the following criteria: main pancreatic duct narrowing and enlargement of the pancreas on imaging with one of the following: presence of autoantibodies, elevated gammaglobulin (IgG or IgG4) or fibrosis with pronounced lymphocytic and plasmacytic infiltration. The Mayo Clinic proposes the HISORt criteria which involve the presence of >1 of the following: diagnostic histology, characteristic imaging tomography and pancreatography with elevated IgG4 levels, or response to steroid therapy. Hamano et. al showed that an IgG4 cutoff of 135 mg/dL has a sensitivity of 90%, specificity of 98%, and accuracy of 95%. This study examined IgG4 levels in 20 patients with AIP compared with variable-matched healthy controls and 154 patients with pancreatic cancer, chronic pancreatitis, primary biliary cirrhosis, PSC, or Sjogren's' syndrome. Patients with AIP had a median serum IgG4 of 663 mg/dL; related pancreatic diseases, 135 mg/dL; healthy controls, 51 mg/dL. Pancreatic and extrapancreatic findings resolve with corticosteroids. Treatment with prednisone 30–40 mg can lead to 80% complete remission at three months. Steroid-sparing agents may be needed. Early consideration and diagnosis of AIP are critical in avoiding an unnecessary hemipancreatectomy.

MULTIPLE, MOTILE LARVAE IN A TRACHEAL ASPIRATE. V.K. Agarwal[1]; H. Khurana[1]; G.E. Mathisen[2]; N. Kamangar[3]. [1]University of California, Los Angeles, Los Angeles, CA; [2]University of California, Los Angeles, Sylmar, CA; [3]Olive View/University of California, Los Angeles Medical Center, Sylmar, CA. *(Tracking ID # 190286)*

LEARNING OBJECTIVES: 1. Recognize the major risk factors for Strongyloides hyperinfection including glucocorticoid use, impairment of cell-mediated immunity, chronic lung disease, and travel to or residence from endemic areas. 2. Diagnose hyperinfection syndrome based on clinical manifestations in the face of normal or nonspecific laboratory values.
CASE: A 30-year-old female immigrant from El Salvador with HIV/AIDS was admitted to our hospital for a two-week history of intractable nausea and non-bloody vomiting. The patient's most recent absolute CD4 count was 16 cells/uL with a corresponding viral load of <400 particles. She had been on HAART therapy since the time of diagnosis and high dose oral prednisone (six months) due to a suspected histoplasmosis/toxoplasmosis cervical spinal cord lesion. The patient's physical exam was significant for hyperactive bowel sounds and a diffuse, serpiginous rash. Work-up for an infectious etiology was initiated. Within 24 hours of admission, the patient developed a non-productive cough and high-grade fevers. Chest CT scan showed diffuse, bilateral fine nodular infiltrates with densely confluent ground glass opacities. By hospital day two, the patient's respiratory status decompensated, requiring intubation and admission to the intensive care unit. Flexible bronchoscopy with broncheoalveolar lavage revealed sequential increasing bloody aliquots consistent with diffuse alveolar hemorrhage. A tracheal aspirate revealed multiple, motile Strongyloides stercoralis in larvae form. The patient was started on albendazole and ivermectin. Due to concern over bioavailability of rectal ivermectin, FDA approval was requested for subcutaneous administration of ivermectin. The patient's condition continued to deteriorate, however, and despite decreasing numbers of motile larvae in subsequent sputum and stool samples, her recovery remained slow. After a two-month hospitalization, the patient was extubated and comfort care measures were instituted per her family's request.
DISCUSSION: Strongyloides stercoralis hyperinfection describes the syndrome of accelerated autoinfection of the intestinal nematode in the human host, often due to a derangement of immune status. Often considered endemic to tropical, subtropical and sporadically in temperate areas, there have been numerous reported cases of Strongyloides stercoralis infection in the United States. While a majority of Strongyloides infections are often self-limited with few or no symptoms, some individuals may be at risk for hyperinfection. Major risk factors include travel to or residence in endemic areas, chronic lung disease, altered or impaired cellular immunity and use of corticosteroids. As exhibited in our patient, gastrointestinal (intractable nausea and vomiting), pulmonary (cough and diffuse alveolar hemorrhage) and dermatologic (serpiginous rash) manifestations were most striking. More importantly, our patient had a history of HIV/AIDS and had been on a six-month course of prednisone for an infectious spinal cord lesion. Given the patient's deteriorating clinical status, administration of subcutaneous ivermectin was approved and initiated. While hyperinfection sydrome is rare in the HIV population, with fewer than 30 cases reported to date, it is a potentially fatal infection requiring immediate identification and antimicrobial intervention.

MY DARK URINE GIVES ME A HEADACHE. F. Makdsi[1]; L.J. Staton[2]; M. Panda[1]. [1]Society of General Internal Medicine, Chattanooga, TN; [2]University of Tennessee, Chattanooga, TN. *(Tracking ID # 190280)*

LEARNING OBJECTIVES: 1. Describe the spectrum of causes of microangiopathic hemolytic anemia. 2. Recognize the treatment options based on the underlying cause.
CASE: A 50 year-old African American male presented to the ER complaining of headache and blood in his urine. He had a history of chronic headaches and untreated HTN for years. His recent headache which was throbbing, constant, bifrontal and with no radiation started two weeks prior. He denied any other neurological changes. His blood pressure was 203/141 mmHg. Remainder of the physical exam was unremarkable. His platelet count was 61 th/mm3, hemoglobin 12.1 g/dl, retic count 3.9%, creatinine 2.4 mg/dl, BUN 29 mg/dl, total bilirubin 2.1 mg/dl, indirect bilirubin 1.8 mg/dl, LDH 823 u/l, urine albumin 100, urine RBCs greater than 100 per hpf and negative HIV. He was treated as a hypertensive emergency and was started on nicardipene drip which controlled his BP within 24 hours. However his creatinine and BUN remained elevated at 2.6 mg/dl and 29 mg/dl respectively. Platelet count remained at 60 th/mm3, hemoglobin 11.6 mg/dl. LDH decreased to 585 u/l, and hematuria resolved. A peripheral smear showed anisopoikilocytosis with occasional schistocytes and thrombocytopenia. Plasmapheresis was started through a femoral catheter for microangiopathic hemolytic anemia and patient received 5 cycles total. On discharge his hemoglobin was 9.6 mg/dl, hematocrit 28.1% and platelet count was 185 th/mm3 On follow up four months later his blood pressure was normal oral anti-hypertensives. Platelet count was 225 th/mm3, hemoglobin 13.3 mg/dl, hematocrit 39.2%, creatinine1.6 mg/dl, BUN 13 mg/dl, and ADAMTS 13 activity 77% (NL>67).
DISCUSSION: Thrombotic thrombocytopenic purpura (TTP) and hemolytic uremic syndrome (HUS) are thrombotic microangiopathies associated with thrombocytopenia, schistocytes and other conditions such as anemia and renal failure. The differential diagnosis includes thrombotic thrombocytopenic purpura (TTP), hemolytic uremic syndrome (HUS), vasculitis, untreated malignancy, catastrophic antiphospholipid syndrome, DIC, scleroderma renal crisis and malignant hypertension. Malignant hypertension is an important cause that may be overlooked. Its mechanism is presumed to be endothelial injury, RBC shearing and platelet trapping and removal. Management of microangiopathic hemolytic anemia is treatment of the underlying disease such as antibiotic in DIC due to sepsis and antihypertensive therapy in malignant hypertension. Plasmapheresis is the mainstay of treatment in TTP-HUS. Retrospectively our patient may not have needed plasmapheresis, given that his LDH decreased and hematuria resolved after hypertension treatment was initiated, prior to plasmapharesis. Furthermore, his ADAMTS13 activity later was found to be normal. Recognizing the underlying cause is sometimes difficult and relies on the individual

experience and opinion. Physicians will some times treat patients like TTP-HUS with plasmapheresis, given the high mortality of untreated TTP-HUS and the difficulty in ruling it out based on the clinical picture and lack of rapid available test.

MY WIFE HAS PET GOATS! J.M. Dower[1]; J. Reece[2]; M.E. Petrosky[2]; L. Davisson[2]. [1]WVU Ruby Memorial Hospital, Morgantown, WV; [2]West Virginia University, Morgantown, WV. *(Tracking ID # 189557)*

LEARNING OBJECTIVES: 1. To illustrate the importance of a detailed social history in developing an extensive differential diagnosis of infectious disease. 2. To discuss the etiology, clinical presentations and treatments of Q fever.
CASE: A 41 yo white male with a history of alcohol abuse was admitted with a three-week history of high fever, sweats, jaundice, decreased appetite, progressive abdominal distention and pain. Liver enzymes were elevated (AST 298, ALT 166, and total bilirubin 6.1). Imaging did not show any evidence of biliary obstruction. Examination of the patient revealed a diffuse maculopapular rash, lymphadenopathy, and hepatosplenomegaly. Social history revealed exposure to farm animals including his wife's five goats (one goat had given birth two months prior) and multiple, high risk, sexual contacts 10 years prior. Further testing identified a reactive RPR and PPA (formerly MHA-TP). He was diagnosed with syphilis and treated with IV followed by IM penicillin, and discharged. Subsequently, Coxiella burnetii titers returned strongly positive (IgM and IgG Phase 2 >1:1024) with positive Brucella antibody titers (IgM 4.45, IgG 0.13) and EBV titers (IgM >160, IgG >750). He was readmitted and received IV doxycycline and gentamicin with immediate resolution of fever. He completed 6 weeks of p.o. doxycycline. We suspect Q fever as the main process with other false positive serologies.
DISCUSSION: Q fever is a zoonotic disease caused by Coxiella burnetii. Cattle, sheep, and goats are the primary reservoirs of C. burnetii. Infection results from inhalation of airborne barnyard dust contaminated by dried placental material, birth fluids, and excreta of infected herd animals. Only about one-half of all people infected with C. burnetii show signs of clinical illness. Most acute cases of Q fever begin with sudden onset of one or more of the following: high fevers (up to 104–105° F), severe headache, general malaise, myalgia, confusion, sore throat, chills, sweats, non-productive cough, nausea, vomiting, diarrhea, abdominal pain, and chest pain. Fever usually lasts for 1 to 2 weeks. Weight loss can occur and persist for some time. Thirty to fifty percent of patients with a symptomatic infection will develop pneumonia. Additionally, a majority of patients have abnormal liver function tests, and some will develop hepatitis. In general, most patients will recover to good health within several months without any treatment. Only 1%–2% of people with acute Q fever die of the disease. C. burnetii exists in two antigenic phases, phase I and phase II. This antigenic difference is important in diagnosis. In acute cases of Q fever, the antibody level to phase II is usually higher than that to phase I, often by several orders of magnitude, and generally is first detected during the second week of illness. In chronic Q fever, the reverse situation is true. Antibodies to phase I antigens of C. burnetii generally take longer to appear and indicate continued exposure to the bacteria. Antibodies to phase I and II antigens have been known to persist for months or years after initial infection. Doxycycline is the treatment of choice for acute Q fever. Antibiotic treatment is most effective when initiated within the first 3 days of illness. A dose of 100 mg of doxycycline taken orally twice daily for 15–21 days is a frequently prescribed therapy. Quinolone antibiotics have demonstrated good in vitro activity against C. burnetii and may be considered by the physician.

MYCOBACTERIA MUCOGENICUM - IT'S IN THE WATER A. Shiloh[1]; A.P. Burger[1]. [1]Montefiore Medical Center, Bronx, NY. *(Tracking ID # 189910)*

LEARNING OBJECTIVES: 1. Recognize Mycobacterium mucogenicum as a human pathogen. 2. Describe the identification, pathogenicity, and treatment of M. mucogenicum.
CASE: A 60 year old female with end stage renal disease on hemodialysis was admitted for the evaluation of fever. One year earlier she had been hospitalized with a febrile illness attributed to pneumonia and discharged on a course of moxifloxacin. Aerobic blood cultures were reported positive for corynebacterium species and discarded as a contaminant. Current history elicited a year of general depression and fatigue. Physical exam revealed fever, tachycardia, and a right internal jugular tunneled dialysis catheter without any surrounding skin erythema or discharge. Other than an elevated creatinine, serum chemistry and CBC were unremarkable. Chest radiography was clear of infiltrates. Multiple aerobic blood cultures drawn from the catheter and peripheral blood were initially reported as growing corynebacterium species and additionally reported as staining acid-fast. The isolated organism was ultimately identified as Mycobacterium mucogenicum via high performance liquid chromatography (HPLC). The catheter was removed and anti-mycobacterial therapy was narrowed to an eight week course of clarithromycin and imipenem once susceptibility testing was completed. Subsequent blood cultures failed to grow the isolated organism.
DISCUSSION: M. mucogenicum is an infrequent but proven human pathogen. It is recovered from water distribution systems and contaminates hospital equipment including automated dialysis machines. M. mucogenicum, a species of rapidly growing mycobacteria (RGM), is ubiquitous in nature, resistant to disinfectants, and routinely isolated in environmental samples. Catheter-related infections are most often reported with M. mucogenicum but emerging literature links it to bacteremia, sepsis, and solid organ infection. Immune deficiency, due to cell mediated or chronic illness, predisposes to infection by RGM. Multi-organ and disseminated involvement, associated with a poorer prognosis, are more likely with cell mediated immune deficiency. In contrast to slowly growing mycobacteria, where growth is evident only after weeks, RGM produce evident growth within seven days of culture. On Gram staining they appear as Gram positive or Gram variable bacilli and stain acid-fast. Identification of RGM is difficult in routine microbiology labs, often misidentified for species including corynebacteria, nocardia, and rhodococci, which have similar Gram stain and acid-fast patterns. Advanced techniques, including HPLC of mycolic acids, nucleic acid hybridization, and gene sequencing are necessary to identify the different species of RGM. Empiric treatment with antituberculous antibiotics without subspecies identification and susceptibility testing is not recommended. Amikacin, imipenem, cefoxitin, sulfamethoxazole, linezolid, and fluoroquinolones are recommended as initial agents against M. mucogenicum. Catheter-related infection therapy includes removal of the offending catheter and an extended course of antibiotic therapy ranging from eight to sixteen weeks. Catheter reinsertion is recommended at a new site to decrease disease recurrence. It is unclear whether our patient's presentation was an acute infection with M. mucogenicum or a partially treated subacute infection misidentified one year earlier. Repeated isolation of atypical organisms in the absence of other pathogens should always warrant further investigation.

MYCOBACTERIUM SZULGAI MIMICKING PULMONARY TUBERCULOSIS S. Patel[1]; S.S. Kaatz[2]; M. Reyes[3]. [1]Henry Ford Hospital Detroit, Oak Park, MI; [2]Henry Ford Hospital Detroit, Detroit, MI; [3]Wayne State University, Detroit, MI. *(Tracking ID # 189502)*

LEARNING OBJECTIVES: Recognize the predisposing risk factors for the acquisition of Mycobacterium szulgai infection. Appreciate the differences in treatment duration and isolation requirements for this species of mycobacterium compared to Mycobacterium tuberculosis.
CASE: We report a case of a 59-year-old male with history of benign esophageal stricture who presented to the hospital with complaint of food getting stuck in his esophagus. Incidentally, chest radiography revealed a consolidation in the upper lobe of the right lung. Subsequent computed tomography (CT) of the chest revealed a cavitary lesion in the right lung apex. The patient denied any symptoms of cough, shortness of breath, fever or night sweats. His past medical history was significant for positive PPD at the age of 16 and isoniazid monotherapy for 9 months. The patient was hospitalized and sputum was collected for AFB smear and culture. Triple anti-tubercular therapy was initiated with isoniazid (INH), rifampin and ethambutol. Culture results came back positive for Mycobacterium szulgai susceptible to all the three anti-mycobacterial drugs and patient was kept on the same regimen. Two months later, repeat CT of the chest revealed shrinkage of the cavitary lesion. Meanwhile, repeat biopsies done for the work-up of recurrent dysphagia revealed poorly differentiated esophageal adenocarcinoma.

DISCUSSION: M. szulgai is a rare nontuberculous species that rarely cause infections in humans. The majority of patients are men older than 50 years with risk factors including alcohol abuse, underlying immuno-compromised states, such as cancer or HIV, smoking, COPD, or a history of pulmonary tuberculosis. Extrapulmonary infection due to M.szulgai includes cases of tenosynovitis of the hand, olecranon bursitis, osteomyelitis, keratitis, cervical lymphadenitis, and renal or cutaneous infection. Infections with this organism should raise the suspicion of an underlying malignancy or other immuno-compromising conditions that warrant prompt diagnostic evaluation and adequate management. Pulmonary disease secondary to M.szulgai is indistinguishable from that caused by M. tuberculosis, with chronic cough, weight loss and cavitary infiltrates. There is no documentation of human-to-human or animal-to-human transmission for M.szulgai infection; hence, these patients unlike those with M. tuberculosis pulmonary infections, do not need to be quarantined. M. szulgai is susceptible in-vitro to most anti-TB drugs. Although the optimal duration of treatment has not been established, a three- to four-drug regimen that includes 12 months of negative sputum cultures while on therapy is probably adequate. A four- to six-month therapy is probably sufficient for extra-pulmonary infections.

NEUROCYSTICERCOSIS WITHOUT DETECTABLE SPECIFIC ANTIBODY S. Kooturu[1]; S.Y. Reddy[2]; D. Burton[1]; K. Gujral[1]; A. Agnihotri[1]. [1]University of North Dakota, Fargo, ND; [2]JSS Medical College, Mysore,. *(Tracking ID # 190111)*

LEARNING OBJECTIVES: Neurocysticercosis (NCC) should be considered in patients presenting with seizures especially from endemic areas. MRI and histology are the absolute diagnostic criteria. Antihelminthic therapy is not indicated in all cases of NCC.
CASE: A 50-year-old Hispanic male presented with complex partial seizure. He had no prior significant medical illnesses. Neurological exam did not reveal any focal deficits. MRI showed four cysts distributed along the parietal, frontal and temporal areas. One of the cysts in the left frontal area had increased T2 signal in the adjacent brain parenchyma and peripheral enhancement with a central scolex. These findings were consistent with NCC. He was started on Phenytoin for seizure prophylaxis. Blood cultures, HIV-1/HIV-2, Toxoplasmosis IgM/IgG, stool for Ova & Parasites and PPD skin test were all negative. Cysticercosis IgG assay through western blot method was also negative. It was decided to treat the patient with antiepileptic with a close follow-up.A repeat MRI at 6 months showed no increase in lesion size or number.
DISCUSSION: NCC is caused by the larval stage of Taenia Solium. Headache and seizures are the most common clinical manifestations Differential diagnosis includes metastatic brain lesions, brain abscesses, toxoplasmosis, multiple tuberculomas, and hydatid cysts. Histological demonstration of the parasite, cystic lesions showing the scolex on CT or MRI, and direct visualization of ocular parasites by fundoscopic examination are absolute criteria for diagnosis. Positive serology by immunoblot is not needed to make the diagnosis. Although highly sensitive (83–100%), it may still be negative in proven NCC as highlighted by our case. Anticonvulsant therapy should be used in patients with seizures (as in our case), however its duration is unknown. There are conflicting studies regarding the benefits of antihelminthic therapy in symptomatic patients

NEUROMYELITIS OPTICA: IT'S NOT MS A. Khurana[1]; N. Vinayek[1]. [1]Sanford University of South Dakota, Sioux Falls, SD. *(Tracking ID # 190939)*

LEARNING OBJECTIVES: 1. Recognize Neuromyelitis optica as a distinct clinical entity from multiple sclerosis. 2. Recognize key treatment differences in these two separate diagnoses.
CASE: An 83 year old Native American female was admitted to the hospital with one week history of numbness and weakness of trunk and bilateral lower extremities. She denied any bowel or bladder incontinence. On physical examination, she had a distinct sensory level at around T2 level in upper thoracic region. Motor strength was 3–4/5 in bilateral lower extremities and 5/5 in upper extremities. MRI of spine showed T2 hyperintensity through out the cord from C2–3 to T11–12 level. Diagnosis of myelitis was made and extensive neurological and infectious work up was undertaken. CSF examination showed some pleocytosis with elevated protein but no oligoclonal bands. Patient's neuromyelitis optica antibody (NMO- IgG) came positive and patient was diagnosed to have Neuromyelitis optica. Patient was initially treated with high dose intravenous steroids and later with plasmapharesis. Patient experienced clinical improvement after plasmapharesis and was discharged on azathioprine. Patient was admitted one year later with hip fracture. She was doing very well neurologically on chronic maintenance immunosuppressive therapy with azathioprine.
DISCUSSION: Neuromyelitis optica (NMO; also known as Devic's disease) is a severe demyelinating condition of central nervous system characterized by optic neuritis and/or acute myelitis, contagious spinal cord lesions and NMO- IgG positivity. Given overlapping clinical features with multiple sclerosis (MS), it has largely been ignored by medical community, in favor of MS as one broad diagnosis. Recent clinical, radiological and immunopathological studies suggest NMO is a distinct clinical entity. Unlike MS, NMO is an uncommon disease in Caucasian population. Higher incidence is noted in Asian, Afro-Caribbean and South American descent. 75% of affected patients are female and mean age of onset is 40 years. The characteristic clinical features of this disease are optic neuritis and transverse myelitis. The two clinical events can present simultaneously or can be separated by many years. NMO may follow either a monophasic or relapsing course. More than 80% of the patients typically develop relapsing NMO. Relapses are generally more disabling than those in patients with MS. New proposed diagnostic criteria involve clinical, radiological and NMO-IgG seropositivity status. Spinal cord MRI characteristically shows contagious spinal cord lesion extending over three or more vertebral segments. CSF shows pleocytosis and elevated protein, but no oligoclonal bands (>80%) are seen in majority of NMO patients. Recent identification of NMO-IgG, a disease specific antibody, has made diagnosis of NMO even easier. Diagnosis of NMO as a separate entity is essential due to treatment differences. NMO patients are generally treated with immunosuppressant therapy, whereas MS patients are treated with immunomodulatory therapies. Acute relapses of NMO are managed with high dose steroids. Steroids failures may respond to plasmapharesis. Once treated, prevention of relapse is of utmost importance. Immunosuppressive therapy such as azathioprine appears to reduce the relapse rate. Interferon beta, the mainstay of treatment of relapsing MS, has no role in NMO. Prognosis for loss of sight and permanent paralysis is much worse for patients with NMO than MS.

NEVER SAY NEVER, ESPECIALLY WITH A NEGATIVE TEST T. Chang[1]. [1]Tulane University, New Orleans, LA. *(Tracking ID # 190599)*

LEARNING OBJECTIVES: 1. Recognize stroke as a presentation of neurosyphilis. 2. Understand the different testing methods for syphilis and how false negatives may occur. 3. Identify immune reconstitution inflammatory syndrome as a possible complication after initiating antiretroviral therapy.
CASE: A 39 year-old woman with HIV presented with the acute onset of right-sided weakness and slurred speech. Three weeks prior to presentation, her CD4 count was five and she was started on antiretroviral therapy. She noted no additional complaints. Her temperature was 102°F and her blood pressure was 193/107 mmHg. Her cardiac and pulmonary examinations were normal; there were no carotid bruits. Her left pupil was 5 mm and non-reactive; the optic discs were sharp and thick white retinal infiltrates were present bilaterally, consistent with CMV retinitis. She had a right lower facial droop with severe dysarthria. Her strength was 1/5 in the right upper and lower extremity with decreased tone; the left extremities were normal. An MRI showed areas of acute stroke in the left caudate, left internal capsule, and bilateral temporal lobes. Her cholesterol was normal. The lumbar puncture revealed 54 white blood cells, a protein of 55, and the VDRL was negative. The echocardiogram was normal. The RPR was non-reactive, but the MHA-TP was positive. She noted that her husband had syphilis 5 years ago and was not treated. Her CD4 count was repeated and had increased to 137 since the initiation of antiretroviral therapy. The acute presentation of CMV retinitis and neurosyphilis was consistent with immune reconstitution inflammatory syndrome. She was treated with penicillin with full resolution of her symptoms.
DISCUSSION: Immune reconstitution inflammatory syndrome is a worsening of preexisting infections that occurs following initiation of antiretroviral therapy. The diagnosis requires a low CD4 count prior to therapy, and a significant immunologic response to treatment. Meningovascular syphilis is recognized as the most common form of neurosyphilis. It can present with a stroke syndrome if the infected vessels

hemorrhages or as result of a vasculitis marked by vessel inflammation, endothelial thickening, fibrosis, and eventual occlusion. The cerebrospinal fluid often shows a lymphocytic pleocytosis and an elevated protein level. The diagnosis of syphilis can be made by non-treponemal tests (RPR, VDRL) which quantitatively measure serum reactivity surface antigens, or by treponemal tests (FTA-ABS, MHA-TP) which qualitatively detect antibodies to cellular components. Over time, nontreponemal tests may lose reactivity, and up to tenty-five percent of patients with late syphilis will have a negative RPR or VDRL. The general internist must be aware that false negative tests is higher in HIV-infected patients, especially at CD4 levels less than 200, and a negative RPR should not exclude the diagnosis. The progression to neurosyphilis may be more rapid in HIV infected patients, and the threshold for performing lumbar puncture should be lower in this population. Neurosyphilis is preferably treated with intravenous penicillin for fourteen days, and lumbar puncture should be repeated to monitor adequate response to treatment.

NEW ONSET LUPUS: NOT JUST A DIAGNOSIS IN THE YOUNG A.A. Patel[1]; K. Pfeifer[1]. [1]Medical College of Wisconsin, Milwaukee, WI. *(Tracking ID # 189584)*

LEARNING OBJECTIVES: 1. Recognize the presentation of late-onset systemic lupus erythematosus (SLE). 2. Examine the differences between late- and early-onset SLE.
CASE: A 60-year-old gentleman presented with a two-month history of excessive fatigue, memory loss, dyspnea with exertion, intermittent fevers, and weight loss. Physical exam was significant for 2/6 systolic ejection murmur, decreased bibasilar breath sounds, and 4/5 muscle strength of the upper and lower extremities. Initial lab studies showed a white count of 1.8 K/UL (normal 4.0–10.0), hemoglobin of 10.9 g/dl (normal 13.0–17.0), and platelet count of 110 K/UL (normal 150–400). Peripheral blood smear showed pancytopenia with no morphologic abnormality and a bone marrow biopsy showed a hypocellular bone marrow. Chest CT showed bilateral pleural effusions, and thoracentesis found the pleural fluid to be exudative in nature. Lumbar puncture was negative for any infectious etiology, and brain MRI showed no evidence of acute abnormalities, only chronic microvascular ischemia and age-compatible brain parenchymal involution. Subsequent evaluation for rheumatologic causes of his problems found an ANA titer of 57 U/ml (normal 0–10) as well as an anti-double stranded DNA antibody of 1308 IU/ml (normal 0–99) and an anti-Smith antibody of 535 U/ml (normal 0–99). Complement levels (C3, C4, CH50) were also decreased. Urinalysis revealed proteinuria and hematuria prompting a renal biopsy which was consistent with lupus nephritis. A diagnosis of systemic lupus erythematosus (SLE) was made, and the patient was started on high-dose steroids, plaquenil, and cyclophosphamide. The patient had significant improvement in his symptoms and was subsequently discharged to a subacute facility for further rehabilitation.
DISCUSSION: Systemic lupus erythematosus (SLE) predominantly affects women in their 20s and 30s, and common symptoms include fatigue, fever, weight loss, arthralgias, skin lesions, nephritis, pleurisy, vasculitis, cognitive defects, and pancytopenia. In 10–20% of patients, the diagnosis is made in the fifth decade of life or later. Elderly patients with SLE present less often with classic manifestations such as arthritis, malar rash, photosensitivity, and nephropathy. Studies have documented findings such as myositis, serositis, and neurological involvement as the common presenting features in this subset of patients. Furthermore, high titers of anti-double stranded DNA (anti-dsDNA) occur less frequently in the older onset group leading to the theory that anti-dsDNA decreases with aging. It is likely the initial diagnosis in this older group is made late due to the atypical presentation, and at least some studies have suggested a higher mortality in elderly patients with newly diagnosed SLE. This case serves as a reminder that SLE is a disease that affects a variety of age groups, and a heightened clinical awareness is important as the population continues to age.

NO FEVER WORKUP REQUIRED A.J. Thanjan[1]; M. Shaines[1]. [1]Department of Medicine, Albert Einstein College of Medicine/Montefiore Medical Center, Bronx, NY. *(Tracking ID # 189823)*

LEARNING OBJECTIVES: 1) Identify the signs and symptoms of secondary syphilis 2) Recognize the Jarisch-Herxheimer reaction as a response to treatment of syphilis

CASE: A 24-year-old African-American man presented with a rash that begun on his proximal arms and legs three weeks prior. The rash slowly spread across his body including his palms and soles. The patient noticed two lesions on his scalp that led to hair loss in those areas. He also had a sore throat and malaise. The patient had unprotected anal intercourse with men for the last year. There was no previous history of sexually transmitted diseases. His initial vital signs: T 98.1 ° F, P 109, BP 115/77, RR 18, room air SaO2 97%. On exam, the patient had a diffuse papulosquamous pink-based rash of 0.5–1 cm in diameter located across his body especially around his truncal region. Two small tender pink macules were also located near the glans penis, and a small ulcer was found in the right palatine tonsil. Nontender, mobile lymphadenopathy was noted in the cervical, axillary, and femoral areas. In addition, two small areas of distinct alopecia were noted. He had no focal neurological deficits. Initial labs included WBC 7.9, RPR 1:32, and the TP-PA was reactive. The patient was treated for secondary syphilis with Penicillin G Benzathine 2.4 million units intramuscularly. Twenty minutes later he developed a temperature of 103.3 ° F. He also complained of headache, diaphoresis, and myalgias. Acetaminophen was given with improvement of his symptoms and return of his temperature to 97.8 ° F.
DISCUSSION: Secondary syphilis develops in 25% of untreated infections normally occurring 6–8 weeks after the primary chancre. The fastest growing group of patients developing syphilis is men who have sex with men and rates are highest among African-Americans and Hispanics in the U.S. In recent syphilis outbreaks in the United States, the HIV co-infection rate was between 25 to 70%. Generalized nontender lymphadenopathy, in particular epitrochlear nodules, is seen in secondary syphilis. A papulosquamous rash with involvement of palms and soles seen in this case is classic for the condition. Patchy alopecia is due to follicular syphilides involving hair follicles of the scalp. The Jarisch-Herxheimer reaction is a dramatic response that can occur with the initiation of therapy for syphilis. This reaction occurs in 90% of those with secondary syphilis and is characterized most commonly by fever, headache, and myalgias. The reaction was first described in mercury treatment for syphilis. The Jarisch-Herxheimer reaction is nonspecific and can also be seen in Lyme disease, Q fever, brucellosis, and typhoid fever. It is believed that this reaction is caused by antibiotic use that leads to rapid endotoxin release from bacteria that cannot be immediately cleared. As was seen in our patient, subjects usually defervesce within 12 to 24 hours after initiation of treatment. The intensity of the reaction is proportional to the severity of inflammation present. Usual care entails symptomatic treatment with anti-pyretics. Recognizing this mild transient reaction will prevent physicians from being led astray from their initial diagnosis of syphilis.

NO MORE NAUSEA? BESTILL MY HEART! C. Chakraborti[1]. [1]George Washington University, Washington, DC. *(Tracking ID # 189457)*

LEARNING OBJECTIVES: 1. Recognize the potential side effects of commonly used medications, even adverse reactions that are considered uncommon. 2. Recognize the unintended consequences of patient safety efforts.
CASE: A 38 year-old woman with a history of erosive gastritis and gastroesophageal reflux disease presented to the hospital with nausea and vomiting of several days duration. She complained of several days of odynophagia and was anorexic for two days prior to admission. She reported alcohol use, but no tobacco or illicit drug use. Her past medical history included hypertension, but not DM, angina, CAD. Her only outpatient medication was the combination hypertension medication valsartan/hydrochlorothiazide. Physical exam revealed mild tachycardia, mild tenderness in the mid-epigastrum, but was otherwise normal. Laboratory values revealed a normal complete blood count and lipase. Blood chemistry was significant for serum potassium of 3.3 mmol/L, serum magnesium of 1.5 mEq/L, and serum BUN/creatinine of 18 mg/dL and 1.0 mg/dL, respectively. A contrast computed tomography scan of the abdomen was normal. The patient received intravenous fluids, and was started on the intravenous proton-pump inhibitor, pantoprazole. The patient was scheduled for an endoscopy the next morning, and overnight, the patient received intravenous ondansetron for nausea symptoms. The procedure revealed grade 3 erosive gastritis and the patient was sent to the telemetry floor for post-procedure monitoring prior to discharge. The medicine team was notified by the telemetry unit that the patient had an abnormal rhythm, although the patient was

asymptomatic. A 12-lead electrocardiogram demonstrated a heart rate of 45 beats per minute and Mobitz type 2, second-degree AV block. An electrocardiogram on admission was significant only for sinus tachycardia, but otherwise having normal axis and intervals. Previous recent electrocardiograms (October, 2006) were normal. Other inpatient medications included only an oral "GI cocktail" consisting of 10 cc 2% viscous lidocaine and 30 cc Maalox.
DISCUSSION: Case reports have revealed rare cardiac dysrhythmias associated with ondansetron. Arrhythmias with pantoprazole have not been reported. As a serotonin receptor antagonist (5-HT subtype 3), ondansetron can exert effects on the myocardium. Although the causal relationship between ondansetron and our patient's heart block cannot be proven, the clinical situation must be taken into account. Our patient had previously normal electrocardiograms, no prior history of heart disease, and did not have symptoms suggestive of a cardiac event. Our case illustrates an occurrence of an uncommon side effect of an increasingly common anti-emetic. Our institution recently prohibited the use of another common anti-emetic, promethazine, due to recent reports of soft-tissue damage associated with intravenous administration. As a consequence, intravenous ondansetron has seen an upsurge in use. A thorough understanding of the associated pharmacology should surround newer medications, especially those that are seeing an increase in use. Patient safety concerns for intravenous promethazine stem from a few cases of soft-tissue injury and may have unintended consequences. Intravenous ondansetron may have a similar incidence of severe arrhythmias as the use of this medication increases.

NOCARDIA PERICARDITIS S.K. Subbarayn[1]; S. Chandrashekaran[1]. [1]University of North Dakota, Fargo, ND. *(Tracking ID # 189499)*

LEARNING OBJECTIVES: Consider nocardia pericarditis in immunocompromised patients presenting with hemodynamic instability. Recognize the protean manifestations of nocardiosis.
CASE: A 55-year-old man presented with fever, worsening shortness of breath and cough with expectoration of greyish sputum for four weeks. Significant past medical history included autoimmune hemolytic anemia treated with long term prednisone after splenectomy and a left pneumonectomy for lung cancer. On examination, blood pressure was 118/60 mmHg with pulsus paradoxus, heart rate 126/min, respiratory rate 36/min, and temperature 101 F. The patient was in moderate respiratory distress. JVP was elevated. Heart sounds were distant. WBC count was elevated at 29,500/cu.mm. Transthoracic echocardiogram revealed a 6 cm pericardial effusion with diastolic collapse of the right ventricle consistent with pericardial tamponade. Pericardiocentesis was performed with drainage of 450 ml of serosanguineous fluid. Pericardial fluid cytology did not reveal any malignant cells but GMS staining showed thin branching chains consistent with nocardia. CT scan of the chest revealed multiple irregular nodules in the right lung suspicious for metastases. These findings were not present on a previous CT scan performed two months ago. Culture from sputum and bronchial washings grew Nocardia asteroides. MRI of the brain did not reveal any intracranial abscess. HIV testing was negative. Antimicrobial therapy with bactrim, amikacin and meropenem was initiated. Surgery was deemed too risky in this patient given his tenuous pulmonary status with a solitary lung. A follow up CT chest a month later showed cystic change in the nodules suggestive of response to the antibiotic regimen. Unfortunately, the patient died from septic shock with multiorgan failure six weeks later.
DISCUSSION: Nocardia pericarditis is an uncommon complication of disseminated nocardiosis that occurs in immunocompromised hosts like patients with underlying malignancies, HIV, chronic lung diseases, patients on long term corticosteroid therapy, organ transplant recipients, diabetics, chronic alcoholics and injection drug abusers. Cardiac tamponade has been the initial presenting feature in many of the patients with nocardia pericarditis described in the literature. A pulmonary focus was documented in most patients with pericardial involvement, suggesting that lungs were the portal of entry. Nocardiosis may have an acute, subacute or chronic course. It can mimic malignancy or chronic granulomatous diseases such as tuberculosis. Invasive techniques may be required to obtain a good sample for culture and blood cultures are rarely positive. Therefore diagnosis of this condition requires a high degree of suspicion. Treatment of invasive nocardiosis includes surgical drainage and appropriate antibiotics. Patients with nocardia pericarditis and pericardial effusion have a better chance of survival if they have an early pericardiectomy followed by long course of appropritate antibiotics. Pericardiostomy alone may not be sufficient as there can be recurrence of the tamponade or development of constrictive pericarditis. Sulfonamides are the drugs of choice. Combination therapy of sulfonamides, imipenem and amikacin has been used. Our case underscores the importance of considering nocardia pericarditis in immunosuppressed patients presenting with hemodynamic instability.

NON-HIV ASSOCIATED PROGRESSIVE MULTIFOCAL LEUKOENCEPHALOPATHY B. Yehia[1]; A. Davison[1]; S.D. Sisson[1]. [1]Johns Hopkins University, Baltimore, MD. *(Tracking ID # 189789)*

LEARNING OBJECTIVES: 1. Recognize the clinical features of progressive multifocal leukoencephalopathy (PML) in HIV-negative patients 2. Diagnose PML in HIV-negative patients
CASE: A 66 year-old female with chronic kidney disease, hypothyroidism, hepatitis C, status post liver transplantation 10 years ago presented with progressive weakness. Symptoms began 7 months prior with left hand numbness, progressing to sensory deficits in her left face and leg. Two months prior, she developed weakness in her left arm, leg, and face. Medications included mycophenolate mofetil. Review of systems was negative for mental status changes, seizures, or visual deficits. On physical exam, vital signs were normal. Neurologic testing revealed a left facial droop, 3/5 strength in the left upper and lower extremities, and reduced pinprick and vibration on the left arm, leg, and face. Reflexes were 2 + and symmetric in the biceps, triceps, and knees; the Babinski response was positive bilaterally. Brain MRI demonstrated FLAIR signal abnormalities in the subcortical white matter of bilateral frontal lobes, right parietal lobe, thalamus, pons, and both cerebellar hemispheres. CSF showed glucose 49, protein 32, WBC 2, RBC 0, oligoclonal bands 0, VDRL, HSV, CMV, and EBV negative, JC virus (JCV) PCR positive. HIV serology was negative. The patient's neurologic findings were attributed to progressive multifocal leukoencephalopathy (PML) in the setting of liver transplantation and immunosuppressive drugs. Despite tapering off the mycophenolate mofetil, the patient's weakness, sensory deficits and mental status rapidly declined. Discussions between the patient, family, and medical team led to her discharge to hospice care.
DISCUSSION: PML is a progressive demyelinating disease of the central nervous system caused by JCV infection. Almost all cases of PML occur in immunocompromised hosts, with HIV/AIDS accounting for 85% of all PML cases. Non-HIV associated PML is seen in patients with lymphoproliferative disorders, chronic inflammatory diseases, in those who use natalizumab, and post-transplantation. Clinical features vary and include focal motor and sensory deficits, visual changes, ataxia, and loss of higher cortical function with personality changes and cognitive impairment. Seizures are an infrequent manifestation of PML. Brain MRI is far more sensitive than CT scan in detecting PML. Typical MRI findings include subcortical white matter lesions that are hypointense on T1-weighted and hyperintense on T2-weighted and FLAIR imaging, without mass effect or gadolinium enhancement. CSF may show mild pleocytosis (< 20 cells/l), elevated protein, and normal glucose. PCR amplification for JCV, which has a sensitivity of 75%, should be performed in all suspected cases. Brain biopsy demonstrates demyelination and oligodendrocyte nuclear enlargement leading to cell lysis. JCV can be detected using immunohistochemistry and in situ hybridization. Diagnosing PML in HIV-infected and HIV-negative patients is the same, and involves identifying characteristic clinical and MRI findings of PML plus JCV confirmation by histology or CSF analysis. A diagnosis of "possible" PML is made when clinical and imaging features are present, but JCV is not detected. To date no effective therapy has been identified in non-HIV associated PML, whereas HAART has been shown to improve survival in HIV-infected patients with PML. Prognosis is poor; median survival is 6 months.

NOT ALL BRAIN LESIONS ARE CREATED EQUAL P. Gupta[1]; R.B. Delos Santos[1]. [1]University of Michigan, Ann Arbor, MI. *(Tracking ID # 190012)*

LEARNING OBJECTIVES: 1. Review the clinical presentation of multiple sclerosis. 2. Recognize the radiographic appearance of tumefactive multiple sclerosis. 3. Know that proton MR spectroscopy can be used as a non-invasive tool to assist with the diagnosis of multiple sclerosis.
CASE: An otherwise healthy 37 year old female presented to a local hospital with left arm parasthesias and word finding difficulties. Initial work-up found a 3 cm corona radiata lesion with mass effect on head CT.

She was placed on steroids with improvement and discharged. While awaiting further outpatient workup she became dyspneic with recurrence of her left arm paresthesias and new migrating hyperesthesias. She was sent to our ED for further evaluation of both her shortness of breath and brain lesion. A CT chest confirmed a pulmonary embolus (PE), and non-contrast head CT showed a slight interval increase in size of the lesion with minimal mass effect. Further history from the patient revealed that her previous word-finding difficulty had completely resolved, whereas her left arm paresthesias had resolved and then recurred. Consultation with neurology revealed suspicion that the lesion was more likely related to multiple sclerosis and less likely neoplasm, thus anticoagulation was started for treatment for her acute PE. Subsequent MRI showed at least three areas of high T2 and FLAIR signal in addition to the large left periventricular area seen initially on CT. Proton MR spectroscopy was consistent with a demyelinating process, and much less likely a neoplasm. The patient was discharged on both anticoagulation therapy for her PE and prednisone for her multiple sclerosis.
DISCUSSION: Multiple sclerosis (MS) has a national prevalence of 1 in 1000, with increased risk among women aged 20 to 45 and those of Northern European descent. Classically, patients have neurologic symptoms such as paresthesias, optic neuritis, or weakness that remit and recur. Diagnosis is based on a combination of clinical history and radiographic findings, as there is no single test diagnostic of multiple sclerosis. Cerebrospinal fluid tests including oligoclonal band identification and immunoglobulin G index can also be helpful in the evaluation of these patients. Radiographically, patients usually develop periventricular white matter lesions or plaques that are easily seen on MRI. On occasion however, MS can also present as it does in the above case, with a CT scan consistent with a neoplasm. This is known as tumefactive multiple sclerosis. Usually in such cases a brain biopsy is required to fully rule out malignancy. In this case, proton MR spectroscopy was able to determine that the patient's brain lesions were in fact due to a demyelinating process, or MS, rather than a tumor. Proton MR spectroscopy is a relatively new radiographic tool that measures the ratios between certain biochemicals. In the case of demyelination, a decreased N-acetyl aspartate to creatine ratio is consistent with MS. Thus, the diagnosis was made with the help of a non-invasive test rather than a biopsy. This case demonstrates an unusual presentation of a common disease process. Given the patient's age, history and clinical presentation, the diagnosis of multiple sclerosis far outweighed the likelihood of a CNS neoplasm. An early and accurate diagnosis in this case had obvious management implications. Eventually proton MR spectroscopy proved this initial clinical diagnosis to be correct.

NOT JUST ANOTHER CASE OF SMALL BOWEL OBSTRUCTION - CECAL VOLVULUS IN A HEROIN ADDICT S. Leung[1]; C. Wong[1]; J.K. Stulman[1]. [1]Albert Einstein College of Medicine and Montefiore Medical Center, Bronx, NY. *(Tracking ID # 189920)*

LEARNING OBJECTIVES: 1. Recognize that cecal volvulus clinically resembles obstruction of the small intestine. 2. High index of suspicion for the diagnosis of cecal volvulus in chronic opioid users presenting with abdominal pain and distention.
CASE: A 53-year-old man with no medical/surgical history presented with acute onset of sharp, non-radiating periumbilical abdominal pain for one day. His social history was significant for 20 years of daily nasal heroin use. The patient reported no symptoms of nausea or vomiting. On admission, he was afebrile, abdominal exam was notable for hyperactive bowel sounds and diffuse periumbilical abdominal tenderness. Laboratory data were significant for a urine toxic screen that was positive for opiates. WBC count and electrolytes were normal. Initial CT showed distended loops of small bowel measuring up to four centimeters in diameter suggestive of focal ileus. During the course of hospitalization, the patient developed progressive nausea, vomiting and significant abdominal distention with hypoactive bowel sounds, although he continued having normal bowel movements. On hospitalization day four, repeat CT showed the "coffee bean" sign with the cecum in an abnormal position and dilated to nine centimeters with an apparent twist in the mesentery consistent with cecal volvulus, the ileocecal valve was shown prominently. Urgent colonoscopy was performed for decompression. Areas of erythema and friable mucosa were suggestive of ischemic changes. No masses or polyps were identified. The patient subsequently underwent emergent right hemicolectomy. Pathology showed areas of ischemic-type necrosis, including focal ulcerations in the cecum. The patient recovered uneventfully.
DISCUSSION: Cecal volvulus is a rare disorder of nonfixation, rather than pure malrotation. It most commonly occurs as an axial twisting involving the cecum, terminal ileum and ascending colon. The incidence ranges from 2.8 to 7.1 per million people per year and it is responsible for about 1% of all adult intestinal obstruction. Prior abdominal surgery is the most common cause, other etiologies include adynamic ileus, chronic constipation and distant colon obstruction. Patients with cecal volvulus may be clinically indistinguishable from patients with small bowel obstruction which makes arriving at the correct diagnosis difficult. Abdominal CT is the preferred imaging modality for diagnosing cecal volvulus. The "coffee bean", "bird beak" and "whirl" signs are the common CT findings associated with acute cecal volvulus. In terms of treatment, the success rate of reduction of volvulus by endoscopic colonoscopy approach is about thirty percent, and the recurrence rate is unknown. It is generally agreed that patients with acute cecal volvulus require surgical intervention. Opioids have profound effect on motor inhibition of the gastrointestinal track in which constipation is being a well-known adverse effect. It is also well recognized as a major risk factor for developing acute colonic pseudo-obstruction and postoperative ileus after postoperative opioid use. Methadone Ileus Syndrome was first described by Rubenstein in 1976. This case illustrates an unusual cause of cecal volvulus in an adult without any surgical history. Our patient's cecal volvulus likely resulted from chronic heroin use. High level of suspicion for the diagnosis of cecal volvulus should be given to all chronic opioid users who present with abdominal pain and distention.

NOT YOUR USUAL GASTROENTERITIS A. Srivastava[1]; J. Henao[2]; A. L. Spencer[1]. [1]Allegheny General Hospital, Pittsburgh, PA; [2]Allegheny General, Pittsburgh, PA. *(Tracking ID # 190356)*

LEARNING OBJECTIVES: 1) To outline the differential diagnosis of a young individual with kidney failure 2) To recognize HIV nephropathy as a cause of renal dysfunction 3) To describe treatment options for HIV nephropathy
CASE: 28 year old African-American male with no known past medical history presented to the ER with nausea, vomiting, diarrhea, and dull epigastric pain which had worsened over the past month. He was in his usual state-of-health until 3-months prior-to-admission when he developed severe dental pain for which he was prescribed 800 mg bid ibuprofen and a prolonged course of Amoxicillin by his dentist. He subsequently developed nausea, vomiting, diarrhea, and malaise which brought him to the ER 4 weeks prior-to-admission where he was diagnosed with a probable viral gastroenteritis and sent home. At that time, his creatinine was 2.5. His symptoms continued to progress and he returned to the ER with the above symptoms. He reported 15 bowel movements/day but denied hematochezia or melena. Physical examination revealed mild HTN and no remarkable findings. He had no edema. Laboratory evaluation revealed: sodium 133, potassium 5.9, chloride 109, BUN 77, and creatinine 11.1. Alb 1.8, cholesterol 181, TG's 301. UA 4+protein, 15–30 RBC and WBC, few granular casts, and occasional renal tubular epithelial cells. C.Dificile toxin was negative and EKG was normal. Ultrasound revealed normal appearing kidneys with no evidence of hydronephrosis, mass, or calculus. Despite aggressive IV hydration and cessation of NSAIDS, his renal function did not recover and he was started on hemodialysis. Renal biopsy revealed collapsing focal segmental glomerulosclerosis (FSGS) and granulomatous interstitial nephritis. ANA, complement, ASO, hepatitis serologies, glucose, blood cultures, and echocardiogram were unremarkable. HIV testing was positive. He was started on antiretroviral therapy (HAART).
DISCUSSION: The differential diagnosis for acute renal failure (ARF) in this young man was quite broad. While his labs and urine sediment reflected a nephrotic picture given the proteinuria, hypoalbuminemia, and elevated lipids, he also had significant GI losses contributing to a pre-renal state. He was exposed to large doses of NSAIDs and antibiotics which may have lead to acute tubular necrosis or acute interstitial nephritis. While membranous nephropathy is the most common form of nephrotic syndrome in adults, FSGS is very common among African Americans and secondary causes should be sought. It is imperative that HIV infection be included in the differential diagnosis of ARF in young adults given its increasing prevalence and high association with FSGS and nephrotic syndrome. HIV associated nephropathy (HIVAN) accounts for approximately 1% of new ESRD cases in the United States and is the single most common cause of chronic renal disease in HIV + patients. HIVAN is characterized by progressive renal insufficiency in patients with

nephrotic-range proteinuria, without significant edema. The typical pathological feature of HIVAN is a distinct collapsing form of glomerular sclerosis within the morphological spectrum of FSGS. HAART has been shown to have beneficial effects on the prevalence and progression of HIVAN. Prior to HAART, patients with HIVAN usually progressed to ESRD within a year. Studies now show that HAART prolongs the development of ESRD. This case underscores the importance of recalling HIV nephropathy as a common cause of nephrotic syndrome in young adults.

NUTRITIONALLY VARIANT STREPTOCOCCI: NOT YOUR EVERYDAY ENDOCARDITIS S.A. Keck[1]; M.G. Ho[1]; J.M. Babik[1]; R. Salazar[1]. [1]University of California, San Francisco, San Francisco, CA. *(Tracking ID # 189636)*

LEARNING OBJECTIVES: 1) Recognize the diagnostic and management difficulties in treating nutritionally variant streptococcal prosthetic valve endocarditis 2) Identify the risks and benefits of anticoagulation in patients with endocarditis.
CASE: A 51 year old Chinese woman with a history of chronic mitral stenosis with homograft mitral valve replacement 10 years earlier, atrial fibrillation, and prior embolic stroke presented with 2 weeks of fever and myalgias. She had taken antibiotic prophylaxis before undergoing a dental extraction 6 weeks prior to presentation. On physical examination, the patient was febrile but hemodynamically stable. Cardiac exam was notable for an irregularly irregular rate, a 2/6 non-radiating holosystolic murmur at the base and a 1/6 diastolic murmur at the apex. Extremities revealed no stigmata of endocarditis. Neurologic exam was nonfocal. Labs were remarkable for normocytic anemia and mild leukocytosis. Echocardiogram showed a 1 cm mitral valve vegetation. Vancomycin, gentamicin and rifampin were initiated for empiric treatment of prosthetic valve endocarditis, but gentamicin was discontinued on the second hospital day after her creatinine increased from 0.6 mg/dL to 1.7 mg/dL. Her creatinine returned to baseline after discontinuing gentamicin. Three out of three blood cultures from admission grew nutritionally variant streptococci with intermediate sensitivity to penicillin (MIC 0.5). She was continued on vancomycin and rifampin, and surveillance cultures became negative after 2 days of antibiotics. After consultation with the cardiothoracic surgery service, and taking into account the patient's wishes, mitral valve replacement was not pursued. Warfarin, which the patient was taking for atrial fibrillation, was continued throughout her hospitalization. The patient completed 6 weeks of antibiotics, with surveillance blood cultures negative at 6 weeks after stopping antibiotics.
DISCUSSION: Nutritionally variant streptococci (NVS), which include Granulicatella adiacens and Abiotrophia defectiva, are part of the normal oral flora and account for about 5% of endocarditis cases. They are classified as nutritionally variant because they require additional compounds for growth on traditional culture media. NVS endocarditis cases have relatively high rates of embolism, bacteriologic failure, and mortality rates. Many experts recommend treating NVS endocarditis with high-dose penicillin or vancomycin, plus gentamicin. Only five other cases of NVS prosthetic valve endocarditis have been reported in the literature, and only one case was cured with medical therapy alone, using vancomycin, gentamicin and rifampin. As gentamicin could not be used due to the patient's renal failure, vancomycin and rifampin alone were continued with good clinical outcome. Another challenging issue in this case was anticoagulation, which is usually avoided if possible, in patients with left sided endocarditis given the risk of hemorrhagic conversion of septic emboli in the brain. After extensive discussion of the risks and benefits of anticoagulation in a patient with prior embolic stroke from atrial fibrillation, but also with left sided endocarditis from an organism known to have a high rate of embolism, the patient elected to continue anticoagulation and she did well with no neurologic events. This case serves to 1) discuss the management of NVS endocarditis and 2) outline the risks and benefits of anticoagulation in a patient with atrial fibrillation and left sided endocarditis.

OLD WINE IN A NEW BOTTLE S. Gogineni[1]; S. Chandrashekaran[2]; M. Toumeh[3]. [1]University of North Dakota, Fargo, ND; [2]Merit Care Hospital, Fargo, ND; [3]UND, fargo, ND. *(Tracking ID # 189876)*

LEARNING OBJECTIVES: Identify milk alkali syndrome as an important cause of hypercalcemia. Recognize that determination of the right dose of calcium and vitamin D supplementation in patients with hypoparathyroidism can be challenging.
CASE: A 64-year-old woman presented with progressively worsening weakness and dizziness over a period of two weeks. She also had a syncopal episode on the day of presentation. Medical history included total thyroidectomy for papillary thyroid cancer at age 16. She had recurrence of the tumor at age 44 and neck dissection was performed, following which she was diagnosed with hypoparathyroidism. Her medication regimen included 2.5 gm of calcium carbonate and 1 mcg of calcitriol daily. In addition, she consumed two glasses of vitamin D supplemented milk every day. Physical examination revealed a dehydrated but alert woman. Laboratory data showed bicarbonate 27 mmol/l, creatinine 3.7 mg/dl, BUN 40 mg/dl, calcium elevated at 14.8 mg/dl, albumin 3.9 g/dl, phosphorus 3.4 mg/dl. The calculated GFR was 13 ml/min. Her baseline creatinine documented a year ago was normal at 1.0 mg/dl. ABG showed a pH of 7.50. Urinalysis was normal. Renal ultrasound was negative. Intact PTH was less than 2.5 pg/ml and total 25-hydroxy vitamin D level was normal at 40 ng/ml. A diagnosis of milk alkali syndrome was made. The calcium carbonate and calcitriol were discontinued. The patient was volume repleted with intravenous normal saline. The serum calcium normalized at 8.5 mg/dl after 3 days of treatment and the creatinine improved to 3.1 mg/dl. Patient was discharged on 1.0 gm of calcium carbonate and 0.5 mcg of calcitriol every day
DISCUSSION: The triad of hypercalcemia, metabolic alkalosis and renal insufficiency is called the milk alkali syndrome. It is associated with ingestion of large amounts of calcium and absorbable alkali and was historically seen in patients prescribed milk and alkali for the healing of peptic ulcer disease. The amount of calcium carbonate required to be ingested per day to cause milk-alkali syndrome has been reported to vary from 2.5 g to 40 g. The milk-alkali syndrome begins with the development of hypercalcemia in susceptible individuals. Hypercalcemia produces a decrease in GFR. The combined effects of increased alkali intake, a fall in GFR, and hypercalcemia then led to metabolic alkalosis. The alkalosis helps to maintain the hypercalcemia by decreasing calcium excretion. The problem is perpetuated by the volume contraction that ensues from vomiting and the natriuretic effects of hypercalcemia, further aggravating hypercalcemia and alkalosis. Management of calcium levels in patients with hypoparathyroidism is a therapeutic challenge, as the normal protective negative feed back mechanism involving PTH is lacking. Ingestion of calcitriol further increases the serum calcium by increasing absorption from the gut and tubular reabsorption. Therefore, patients with hypoparathyroidism should be closely monitored and treated with doses of calcium and vitamin D that are just sufficient to maintain serum calcium levels at the lower limit of the normal range.

ONE PATIENT, TWO PRIMARY LUNG CANCERS, TWO PARANEOPLASTIC SYNDROMES I.I. El Hajj[1]; F.H. Rubin[1]. [1]University of Pittsburgh, Pittsburgh, PA. *(Tracking ID # 189821)*

LEARNING OBJECTIVES: 1) To recognize paraneoplastic syndromes in the early diagnosis of malignancy. 2) To identify symptoms suggestive of pulmonary hypertrophic osteoarthropathy and of the syndrome of inappropriate secretion of antidiuretic hormone (SIADH).
CASE: An 80-year-old woman with COPD, and a 100 pack-year smoking history, presented with a 3 month history of nonspecific bilateral hip and thigh pain. Discontinuation of atorvastatin had no effect on her pains. Because of a mildly elevated ESR, she received a therapeutic trial of prednisone for possible polymyalgia rheumatica., with modest improvement. On physical examination 6 months after the onset of her pains, she was noted to have clubbing of the fingers and toes. Chest x-ray showed a right middle lobe (RML) nodule which was not present 6 months earlier. A PET CT scan of chest revealed 2.3×2.5 cm RML nodule, FDG avid, with a 5 mm nodule in the superior segment of the left lower lobe (LLL), PET negative. She subsequently underwent resection of her RML. Pathology showed moderately differentiated adenocarcinoma. Within two weeks of surgery, her thigh pains resolved completely. She returned to work as a part-time clerk. Six months later, the patient presented with headache, weakness, and nausea. Cranial CT scan was negative. Laboratory studies were suggestive of SIADH, with hyponatremia reaching 132 meq/l. A follow-up chest CT scan showed an increase in the size of the LLL nodule. A CT guided fine needle aspiration of the nodule was highly suspicious for a second primary lung cancer. A LLL superior segmentectomy was performed, which revealed an invasive well differentiated adenocarcinoma with focal features of bronchoalveolar carcinoma with negative margins. Lymph nodes were negative for malignancy

(T1N0M0). Her hyponatremia and nonspecific symptoms resolved within weeks. 4 months after surgery, the patient is doing well.
DISCUSSION: Our patient's first adenocarcinoma of the lung was heralded by the development of pulmonary hypertrophic osteoarthropathy 6 months before the appearance of the tumor on x-ray. Symptoms disappeared after resection of the tumor. Pulmonary hypertrophic osteoarthropathy is characterized by clubbing of the fingers and toes, painful periostitis of the long bones, and sometimes a polyarthritis Our patient's second adenocarcinoma of the lung presented with symptomatic hyponatremia from SIADH, which also resolved after resection of the tumor. SIADH is characterized by hyponatremia, hypo-osmolarity, and inappropriately high urinary osmolarity in the presence of clinical euvolemia and normal renal, adrenal, and thyroid function. Both presentations represent paraneoplastic syndromes (PNS), which are defined as clinical syndromes involving non-metastatic systemic effects that accompany malignant disease. Because PNS symptoms may occur before the local symptoms of the primary tumor, early recognition may lead to earlier diagnosis. PNS can be seen in all cancer types, but are more common with lung cancer, especially the small cell type. There is no decisive laboratory method for identification of PNS. The diagnosis is primarily clinical and requires a high index of suspicion and exclusion of other etiologies.

OPTIC NEUROPATHY, A RARE PRESENTATION OF LYME'S DISEASE. C.K. Mamillapalli[1]; F.M. Modhia[1]; S. Nekkanti[1]; H. Vats[1]. [1]Marshfield Clinic, Marshfield, WI. *(Tracking ID # 190694)*

LEARNING OBJECTIVES: 1. To distinguish different types of optic neuropathy and its diagnosis. 2. To discuss Lyme's disease as a possible cause.
CASE: A 58 year old Caucasian female was admitted to the hospital with decreasing vision and pain in the right eye. The pain was subacute and of 3 weeks duration. In the out-patient evaluation her inflammatory markers were found to be elevated and she was diagnosed clinically as giant cell arteritis causing ischemic optic neuropathy. She was started on high dose steroids and a bilateral temporal artery biopsy was performed, which was normal. She was admitted to the hospital as her visual symptoms continued to worsen despite treatment with steroids for ten days. Ocular examination showed visual acuity of 20/30 in the right eye and 20/20 in the left eye. Visual field mapping showed centrocecal scotoma and an enlarged blind spot in the right eye and small pericentral scotoma in the left eye. Fundoscopic exam demonstrated optic disc edema on the right. Laboratory evaluation for auto immune etiology and syphilis were negative. Vitamin B12 level was normal. The Magnetic resonance imaging [MRI] scan of brain revealed enhancement of optic nerve sheath bilaterally. Cerebrospinal fluid [CSF] analysis was normal and polymerase chain reaction [PCR] for Lyme antigen was negative. However, the serum Western Blot was positive for Lyme IgG and IgM. We employed the criteria used by Sibony et al and concluded that this patient satisfied the criteria for explaining Lyme's disease as the possible cause for her optic neuropathy. She was treated with intravenous Ceftriaxone for 3 weeks and then oral Doxycycline for 3 months. At review in Ophthalmology out patient clinic after 3 months her symptoms had completely resolved.
DISCUSSION: Optic neuropathy refers to damage to the optic nerve due to any cause, common causes being ischemic, demylenation, infections, inflammation, genetic, toxins and trauma. Ischemic optic neuropathy can be either ateritic or non arteritic. Non arteritic ischemic optic neuropathy presents as unilateral sudden visual loss, fundoscopy shows papillitis and MRI scan is usually normal. Arteritic type of ischemic optic neuropathy is usually caused by giant cell arteritis; vision loss is sudden onset, can be unilateral or bilateral and is associated with headaches and scalp tenderness. In demylenating optic neuropathy, symptoms are unilateral with sub acute onset and prognosis is good with most of the patients recovering visual function in few weeks. The patient in our case did not fit into any of the categories described above, due to this she had extensive work up done to rule out less common causes. Sibony et al published a large case series which concludes that optic neuritis is exceedingly uncommon in Lyme's disease and is usually expressed as unilateral or bilateral papillitis. In this study of 440 cases of optic neuritis in a hyper-endemic area, only one case met the criteria for strong evidence for causal linkage of optic neuritis (papillitis) with Lyme's disease. Review of case reports in the literature showed optic neuropathy caused by Lyme's disease showed good response with antibiotics.

P-ANCA: MORE THAN MEETS THE EYE A. Im[1]; E.B. Schwarz[1]. [1]University of Pittsburgh, Pittsburgh, PA. *(Tracking ID # 189958)*

LEARNING OBJECTIVES: 1) To recognize the importance of prompt treatment of RPGN due to P-ANCA vasculitis 2) To state the evidence supporting early treatment with plasma exchange as a way to improve morbidity and mortality of P-ANCA vasculitis
CASE: A 27 year old male without significant past medical history presented to his primary care physician with a 2 month history of progressive weakness and fatigue, and a 1 month history of occasional nosebleeds. Blood work showed a BUN and creatinine of 116 and 14.3 respectively, and he was admitted to the hospital for acute renal failure. On physical exam, he was found to be hypertensive, with an otherwise normal physical exam. RBC casts in his urine suggested a glomerulonephritis. Serologies showed a positive ANCA and anti-MPO (P-ANCA). A renal biopsy revealed a pauci-immune glomerulonephritis, and he was diagnosed with a P-ANCA small-vessel vasculitis. CT of the chest showed no evidence of pulmonary hemorrhage, and a nasal septum biopsy was negative for any evidence of disease. He was started on dialysis, and began immunosuppressive therapy with IV solumedrol and oral cyclophosphamide. On the sixth day of treatment, he developed acute respiratory distress requiring transfer to the ICU, after which a CXR showed bilateral opacities concerning for alveolar hemorrhage. He was then started on plasmapharesis in addition to IV cyclophosphamide and solumedrol. After 8 days of plasma exchange, his respiratory function improved and his pulmonary hemorrhage resolved on subsequent imaging. He continued treatment with oral cyclophosphamide and prednisone taper as an outpatient and did not experience any further complications.
DISCUSSION: Rapidly progressive glomerulonephritis (RPGN) can present insidiously with vague symptoms that do not necessarily indicate the potential severity of the disease. Prompt workup of the etiology of RPGN is essential as treatment strategies vary, and delay in initiating therapy can increase chances of irreversible disease. The most common cause of RPGN is ANCA-associated small-vessel vasculitis (45–60%), which can result in severe complications. Irreversible renal failure occurs in 25–50% of cases. Early initiation of aggressive immunosuppression for ANCA-positive vasculitis is aimed at achieving clinical remission as quickly as possible (defined as resolution of inflammatory manifestations). Current guidelines recommend combination therapy with high dose steroids and cyclophosphamide. Even with aggressive immunotherapy, 5-year survival is 65–75%. The ANCA protein, which was previously identified as a clinical marker of disease, has been established as carrying pathogenic potential itself and is believed to be primarily involved in the disease process. As such, removal of ANCA through plasma exchange should aid in inducing remission and limiting complications and severity of disease. Currently, the role of plasmapharesis in early treatment for patients who present with renal-limited disease is unclear. Our patient initially presented with renal-limited vasculitis, and was therefore treated with high dose steroids and cyclophosphamide. During this treatment, however, he rapidly developed progressive complications. After subsequent treatment with plasmapharesis, these complications resolved completely. Given the pathogenesis of this disease, early treatment with plasmapharesis may improve outcomes of ANCA-associated vasculitis.

PNEUMOCOCCAL MENINGITIS SECONDARY TO UNTREATED OTITIS MEDIA N. Chen[1]; G. Huang[1]; J. Cosgriff[1]. [1]Yale Department of Medicine, Waterbury, CT. *(Tracking ID # 190144)*

LEARNING OBJECTIVES: Diagnose severe acute otitis media and identify appropriate medical therapy for both acute otitis media and bacterial meningitis.
CASE: 46 year-old female with history of Factor V Leiden deficiency and deep venous thrombosis presents with fever and altered mental status one week after evaluation at another institution where she was diagnosed with a perforated right tympanic membrane and treated with pain medication. She had been febrile over the past week and on the day of admission developed incoherent speech. In the ED, she was delirious, febrile, and hypertensive. Non-contrast head CT revealed acute right sinusitis. Patient experienced cardiac arrest, was intubated, resuscitated and admitted to the intensive care unit. Ceftriaxone, Ampicillin, Vancomycin, Dexamethasone, and Acyclovir were administered for presumed meningitis and sepsis secondary to otitis media. She showed no recovery and was declared brain dead the day after admission. Autopsy showed grossly purulent right cerebral hemisphere, and blood cultures grew Streptococcus pneumoniae.

DISCUSSION: The most common bacterial agent causing acute otitis media (AOM) is Streptococcal pneumoniae, accounting for approximately 50% of cases. AOM is characterized by rapid onset, middle ear effusion and inflammation or purulent otorrhea without otitis externa. Because most infections resolve spontaneously, watchful waiting is recommended in adults to prevent antibiotic resistance. Antibiotic treatment is recommended for adults with severe infection, defined as moderate to severe otalgia OR fever greater than 39 C. Lack of improvement by 48–72 hours in a patient on antibiotics suggests presence of another disease or inadequate antibiotic therapy. The prevalence of drug-resistant pneumococci is as high as 35% and an otogenic focus can be found in one-third of patients presenting with pneumococcal meningitis. Mortality from pneumococcal meningitis ranges from 16%-37% with neurological sequelae in 30–52% of surviving adults. Delay in antibiotics is associated with an increased risk for adverse outcome. Adverse outcome of pneumococcal meningitis is related in part to poor sterilization of the cerebral spinal fluid (CSF). Sterilization of CSF in pneumococcal disease takes greater than four hours compared to only two in meningococcal disease. Dexamethasone given prior to or in conjunction with antibiotics has been shown to decrease mortality in patients with bacterial meningitis, particularly pneumococcal meningitis. Dexamethasone use for meningitis in developing countries has recently become controversial. By the time the patient presented to our hospital she had signs of meningitis and sepsis and although antibiotics were given within one hour of presentation and she received dexamethasone, she did not recover. This vignette highlights the key features of severe AOM and the importance of antibiotics in this setting as well as the potentially fatal complication of meningitis. The virulent pathogen pneumococcal pneumoniae is the most common bacterial cause of acute OM and has the greatest mortality and morbidity when it progresses to meningitis.

PNEUMOMEDIASTINUM-A RARE COMPLICATION OF PNEUMOCYSTIS CARINII PNEUMONIA S. Arora[1]; J. Hadam[1]. [1]Allegheny General Hospital, Pittsburgh, PA. *(Tracking ID # 189735)*

LEARNING OBJECTIVES: 1. To recognize pneumomediastinum as a complication of Pneumocystis carinii pneumonia (PCP) 2. To identify appropriate therapy and follow up of pneumomediastinum in the setting of PCP pneumonia
CASE: A 46-year-old male with a 20 pack-year history of smoking presented with respiratory distress with an oxygen saturation of 85% on room-air, requiring emergent intubation. For the last two months he had complained of progressive dyspnea on exertion and subjective fevers. He had previously been prescribed multiple courses of antibiotics, but his symptoms continued to worsen. The patient denied any complaints of chest pain, palpitations or abdominal discomfort. Further history revealed a twenty-pound weight loss over the last two months and that he engaged in unprotected sex with men. Laboratory testing confirmed a diagnosis of HIV with a CD4 count of 12. Bronchial washings were positive for Pneumocystis carinii pneumonia (PCP). Chest X-ray (CXR) showed diffuse bilateral alveolar infiltrates and free air in the mediastinum. An immediate CT scan of the chest showed extensive pneumomediastinum, with air tracking around esophagus, trachea and pulmonary trunk, bilateral ground glass opacities and sub-pleural blebs. He denied any history of a recent endoscopic procedure, retching, vomiting or trauma. A gastrograffin study for evaluation of possible esophageal perforation or bowel rupture was negative. The pneumomediastinum was most likely caused by rupture of sub-pleural blebs secondary to PCP pneumonia. On appropriate treatment for PCP pneumonia with bactrim and steroids the condition improved. He was followed by serial CXR and CT scans to verify a decrease in size of the pneumomediastinum.
DISCUSSION: Pneumocystis carinii pneumonia (PCP) is the most common opportunistic infection and frequently an AIDS-defining illness. Pneumomediastinum is defined as free air in the mediastinum, usually originating from the alveolar spaces or the conducting airway. Patients typically present with symptoms of chest pain or cough and progressive dyspnea on exertion as our patient had. Spontaneous pneumomediastinum is more frequently seen in infants and children especially with asthma, and has a prevalence ranging from 1 in 800 to 1 in 42,000 of pediatric patients presenting to the emergency department. In adults, pneumomediastinum is usually seen secondary to trauma, endoscopic procedures, Boerhaave syndrome or underlying lung disease such as emphysema. Spontaneous pneumomediastinum is a rare but serious complication of PCP pneumonia that occurs secondary to rupture of subpleural blebs. Clinicians should keep PCP as a differential while evaluating cases of pneumomediastinum, especially in patients with suspicion of HIV, as it may be a presenting sign. Fortunately, management is usually conservative and involves aggressive treatment of the PCP pneumonia with antibiotics and steroids.

PNEUMOPERICARDIAL TAMPONADE RESULTING FROM A SPONTANEOUS GASTROPERICARDIAL FISTULA K. Lanka[1]; S.R. Bruhl[1]; N. Imran[1]; W.R. Colyer[2]. [1]The University of Toledo Medical Center, Toledo, OH; [2]University of Toledo, Toledo, OH. *(Tracking ID # 189726)*

LEARNING OBJECTIVES: Pneumopericardium is a rare but serious cause of mortality. Although the differential diagnosis for pneumopericardium is relatively short, determining the exact etiology is critical as this drastically changes the treatment strategy. Here we report a case of spontaneous pneumopericardium secondary to gastric ulcer perforation in association with a hiatal hernia. Our unique experience with this rare and often fatal disease suggests that early diagnosis combined with an early and aggressive surgical strategy is critical for minimizing morbidity and mortality.
CASE: A 63 year-old male patient presented to the ER with acute onset of retrosternal chest pain that woke him from sleep. The pain was described as heaviness with a sharp quality that was severe, unremitting and progressed over 2 days. The patient denied any associated dyspnea, nausea, vomiting, or diaphoresis during this course; however he did report one episode of nausea and vomiting just prior to presentation. Electrocardiography in the ER showed prominent ST elevation in Leads I, II, and AVL as well as V3-V6 leading to emergent cardiac catheterization. However, early fluoroscopic imaging in the cardiac catheterization lab showed a large anterior pneumopericardium. Given the likely need for emergent surgery, the patient next received a CT of the chest with oral gastrograffin that revealed extensive pneumomediastinum, pneumopericardium and a large hiatal hernia and failed to show obvious leak of contrast into the pericardium or mediastinum. During this time the patient's vitals remained stable and since his pain had been brought under control, a conservative approach was first attempted. However, over the next few hours the patient became hemodynamically unstable and the patient's hemodynamics was consistent with tamponade physiology requiring intubation and the need for exploratory surgery. Intra-operatively the patient was found to have a large hiatal hernia with a gastropericardial fistula. Even though the post-operative course was complicated with acute respiratory distress syndrome, the patient recovered with no residual disabilities and was discharged from the hospital on post operative day 19.
DISCUSSION: Gastropericardial fistula is a rare and fatal cause of spontaneous pneumopericardium. The uniqueness of this case lies not only in the rarity of the gastropericardial fistula, but even more by its spontaneous etiology and the patient recovery despite numerous complications. In a review of the literature, Brander et. al. (2002) reported 63 cases of pneumopericardium due to various etiologies including trauma (33%), barotraumas (33%), pericardial infections (3%), and pericardial fistulas (30%). Of these, only two were secondary to gastropericardial fistulas, both had previous histories of gastric surgery, and only one survived. Previous reports of gastropericardial fistula from any cause have been shown to carry extremely high mortality rates. A review of the literature done by Letoquart et. al., (1990) showed that 42 of 52 reported cases ended in fatalities, with a mortality reaching 85%. They also showed that only patients treated with an early, radical surgical approach combined with treatment in an intensive care setting survived. Our patient's successful recovery reinforces these conclusions and the need for early diagnosis and aggressive surgical management.

POTENTIALLY FATAL COMPLICATION OF UNCONTROLLED HYPERTENSION W. Nadour[1]; A. Spencer[1]. [1]Allegheny General Hospital, Pittsburgh, PA. *(Tracking ID # 189550)*

LEARNING OBJECTIVES: 1-To recognize the wide spectrum of clinical manifestations of acute aortic dissection 2-To outline the pathophysiology and classification of aortic dissection
CASE: A 48 year-old white male with a history of morbid obesity, hypertension, CAD, tobacco and alcohol abuse presented to the ER with sudden onset of left leg weakness and numbness along with abdominal

pain for the past hour. Vital signs revealed a pulse=58, blood pressure=200/100 (right arm) and 170/90 (left arm). Physical exam revealed an obese male in moderate distress, intact cranial nerves, clear lungs, distant heart sounds without murmurs, vague diffuse abdominal pain which was out of proportion to physical exam, no palpable mass, and diminished pulses in the left arm and foot. EKG showed sinus bradycardia. Abdominal ultrasound failed to visualize the aorta because of patient body habitus. Laboratory workup including CBC, BMP, LFTs, amylase, lactic acid, INR, cardiac enzymes, and ABG were unremarkable. Enhanced CT of chest-abdomen-pelvis revealed type A thoracic aortic dissection extending into the abdominal aorta, involving the superior mesenteric artery, left renal artery, left common iliac artery, and left external iliac artery. An arterial-line was placed and Nicardipine was initiated to control his blood pressure. Two hours after admission, he underwent successful repair of his aorta. His peripheral pulses were restored and he was transferred to a facility for rehabitalization without any permanent neurological deficits.
DISCUSSION: Acute aortic dissection (AD) can be one of the most dramatic cardiovascular emergencies, with a mortality rate as high as 1% per hour for the first 48 hours after symptom onset if not promptly recognized and treated. AD involves a tear in the intimal layer, followed by formation and propagation of a subintimal hematoma. This produces a false lumen or double-barreled aorta, which can reduce blood flow to the major arteries arising from the aorta. Approximately 75% of dissections occur in those aged 40–70 years with peak incidence between 50–65 years; male-to-female ratio is 3:1. The strongest risk factor for AD is uncontrolled hypertension which is observed in >2/3 of cases. Classically, AD presents with sudden onset of severe chest, back, or abdominal pain characterized as ripping or tearing in nature. However, AD has been reported to present with various symptoms other than pain, especially neurological and cardiovascular manifestations such as in our patient who presented with symptoms of acute mesenteric ischemia, diminished distal pulses, and peripheral nerve ischemia (numbness) rather than typical tearing chest pain. However, clues from the physical exam including diminished upper extremity pulses and the 30-point difference in blood pressure directed us to suspect AD. AD is classified into Type A which involves the ascending aorta (DeBakey types I and II) and requires surgical repair, and type B type which involves the descending aorta only (DeBakey type III) and can usually be managed medically. This case highlights the importance of considering aortic dissection in the differential diagnosis of any patient who presents with sudden vascular or neurological symptoms and performing a detailed physical exam including measurement of blood pressure in both arms to detect this fatal complication.

PRIAPISM: A SURPRISING FIRST MANIFESTATION OF SICKLE CELL TRAIT. D. Kilari[1]; S. Hassan[2]. [1]NewYorkMethodist Hopsital, Brooklyn, NY; [2]New York Methodist Hospital, brooklyn, NY, Brooklyn, NY. *(Tracking ID # 190310)*

LEARNING OBJECTIVES: Patients with sickle cell trait are usually asymptomatic. We present a rare event, priapism, which is commonly seen in sickle cell disease but almost never in sickle cell trait.
CASE: A 28 year old married African American male, presented with painful erection upon waking that morning. He had three similar episodes in the past month which lasted less than an hour. He denied any history of painful crisis, recent medication, illicit drug use, trauma, or unusual sexual activity prior to the episode. He denied any family history of sickle cell disease and was unaware that he had the trait. Physical examination was significant for swelling of both testicles and an erect penis, with tenderness at the suprapubic, testicular and penile regions. Laboratory tests revealed hemoglobin (Hb) of 14.6 g/dl with a MCV of 93.9 fl and a normal coagulation profile. Hb electrophoresis showed 54.4% A, 4.5% A2 and 41.5% S, consistent with sickle cell trait. Terbutaline and intracorporal phenylephrine produced no response. The corpora cavernosa was irrigated and 200 ml of dark fluid was drained, with a significant improvement in his symptoms. He was discharged with improvement on day 7. The patient had no recurrence of symptoms as of five months following discharge.
DISCUSSION: Priapism, the presence of a persistent, painful, erection of the penis lasting more than four hours, is common is sickle cell disease but with only two case reports known to us in patients with sickle cell trait. In the general population the incidence of priapism is 1.5/100,000 person-years, and it is most often idiopathic, followed by drug induced priapism. Other than sickle cell disease, it has been reported in patients with leukemia, thalassemia, Fabry's disease, multiple myeloma or following spinal cord lesions, trauma and unusual sexual activity. Sickle cell trait normally causes no complications, although increased urinary tract infection, gross hematuria, or hyphema may occur. Rarely crisis-like complications may occur at high altitude, hypoxia or exercise, such as exertional heat illness or idiopathic sudden death. Because of the absence of history or evidence of other etiologic factors, sickle cell trait is likely the cause of our patient's priapism which occurred for the fourth time in the past month.

PRIMARY EXTRAMEDULLARY PLASMACYTOMA OF THE LYMPH NODES IN A YOUNG RENAL TRANSPLANT PATIENT K. Lanka[1]; M. Taleb[1]; R. Chaudhary[1]. [1]The University of Toledo Medical Center, Toledo, OH. *(Tracking ID # 189722)*

LEARNING OBJECTIVES: Any plasma cell dyscrasia is a rare presentation of post-transplant lymphoproliferative disorder, with extramedullary plasmacytomas being an extremely rare presentation. In general, plasmacytoma of the lymph nodes (PLN) represent only about 2% of all extramedullary plasmacytomas. PLN rarely recur and do not progress to multiple myeloma when compared to other extramedullary plasmacytomas. To our knowledge, PLN as a post-transplant lymphoproliferative disorder has never been reported. Here we report a case of primary PLN in a 22 year-old renal transplant patient who is on immunosuppressive therapy for 20 years.
CASE: A 22 year-old male with history of cadaveric renal transplant at the age of 2 years was admitted with complaints of abdominal pain and low grade fever for six days. The pain started in the periumbilical region with no radiation and was not associated with nausea, vomiting, diarrhea, or melena. The patient's past medical history is significant for renal transplant in 1987 secondary to focal segmental glomerulosclerosis and he has been on azathioprine, tacrolimus and prednisone for the last 20 years. His initial labs include: Hgb 10.9 g/dl, Hct 32.6%, WBC 7.7 thou/mm3, BUN 30 mg/dl, Cr 1.5 mg/dl (Baseline 1.4 mg/dl), and Lactate 1.5 mmol/l. CT scan of the abdomen and pelvis showed large retroperitoneal and inguinal lymphadenopathy. Biopsy of the retroperitoneal lymph nodes showed a lymphoplasmacytic infiltrate suggestive of plasmacytoma. Immunofixation studies of the serum showed monoclonal kappa IgG gammopathy with IgG levels of 3000 mg/dl. Skeletal survey did not show any lytic lesions suggestive of multiple myeloma and there was no bone marrow involvement. FDG-PET scan showed extensive retroperitoneal, mesenteric and inguinal lymphadenopathy. Based on all these findings a diagnosis of PLN nodes was made and the patient was started on chemotherapy with Bortezomib and steroids. Bortezomib was chosen based on its excellent activity in extramedullary plasmacytomas in case reports compared to more conventional treatments. So far the patient has received 3 cycles of chemotherapy and the most recent FDG-PET scan showed significant interval improvement of lymphadenopathy. Patient will receive 3 more cycles of chemotherapy and will be followed up with a FDG-PET scan. He will then be considered for radiation therapy, which was initially considered but since there was a concern about damage to the transplanted kidney, chemotherapy was initiated first.
DISCUSSION: Plasmacytomas are rare, terminally differentiated monoclonal plasma cell tumors that were first recognized in transplant recipients in 1969. These tumors are described to occur in allograft, skin, peritoneum, gastrointestinal tract, and gingiva and rarely at other sites. Occurrence of primary plasmacytomas of lymph nodes is very rare. So far less than 20 cases of PLN have been reported and these cases appeared to have better prognosis than other plasmacytomas. Our experience with this rare case so far supports this data by significant improvement in tumors and we hope to have a complete remission with the completion of treatment.

PROFOUND ANEMIA IN A YOUNG MALE- CLUES TO HHT N. Venkatraman[1]; S. Yadav[1]; S. Nadipanini[1]; C. Pierce[1]; R. Nagarad[1]; G. A. Abrams[1]; M. Arguedas[1]. [1]UAB Internal medicine residency program, Montgomery, AL. *(Tracking ID # 190889)*

LEARNING OBJECTIVES: 1. Recognition of Hereditary Hemorrhagic Telangiectasia (HHT) as a cause for iron-deficiency anemia in a young male. 2. Early recognition can prompt further work up to screen for visceral involvement which is the main cause of the morbidity and mortality of HHT.

CASE: A 30 year old male presented to the emergency room with a history of hematemesis, hematochezia and melena of 5 months duration. The patient denied fever, weight loss, epistaxis, hemoptysis and easy bruisability. The past history was significant for unexplained microcytic anemia treated with iron supplements and multiple blood transfusions. Pertinent physical findings included telengiectasias of the oral mucosa and dried blood in the nasal cavity. There was no evidence of petechiae, purpura or ecchymosis and the abdominal and digital rectal exam was within normal limits. He had a profound microcytic anemia with a hemoglobin 2.9 gm/dl, hematocrit 11.8%, MCV 48 fl and RDW 22.3%. The iron studies revealed serum iron 90 mcg/ml, TIBC 343 mcg/ml and a ferritin 1 ng/ml. The coagulation studies, chemistries and LFTs were within normal limits. The patient was transfused 4 units of packed red blood cells and gastroenterology was consulted to evaluate the cause of bleeding. The colonoscopy was within normal limits. The esophagogastroduodenoscopy revealed arteriovenous malformations (AVMs) at the gastroesophageal junction measuring 3-mm to 6-mm in diameter. The stomach also revealed numerous lesions throughout the mucosa in the cardia, fundus and body.3 lesions were identified in the duodenum measuring 2-mm to 6-mm in diameter. The patient fulfilled two of the four international consensus diagnostic criteria for HHT and he was discharged home with a CT chest and abdomen to look for other visceral involvement.
DISCUSSION: HHT is an autosomal dominant disorder of the blood vessels, which affects approximately 1 in 5,000 people. It is uncommon in African-Americans and Asians. The features include epistaxis, gastrointestinal-bleeding, and iron-deficiency anemia and characteristic mucocutaneous telangiectasia. Gastrointestinal-bleeding occurs in approximately 20 to 40% of persons with HHT and manifests after 40 years of age. Management includes surveillance for undiagnosed AVMs and treatment for complications such as nosebleeds, gastrointestinal-bleeding, anemia, pulmonary AVMs, cerebral AVMs, and hepatic AVMs. Treatment of nosebleeds with humidification and nasal lubricants, laser ablation, septal dermoplasty, or estrogen-progesterone therapy can prevent anemia. Individuals with GI bleeding are treated with iron therapy to maintain hemoglobin concentration; endoscopic application of a heater probe or laser; surgical removal of bleeding sites; and estrogen-progesterone therapy. Iron replacement and red blood cell transfusions are used to treat anemia. Pulmonary AVMs with feeding vessels that exceed 3-mm in diameter require occlusion. Cerebral AVMs greater than 1-cm in diameter are treated by surgery, embolotherapy, and/or stereotactic radiosurgery. The treatment for hepatic AVMs is liver transplantation. Surveillance includes annual evaluations for anemia, neurologic conditions and re-evaluation for pulmonary AVMs every one-two years during childhood and every five years thereafter. Education material and the location of centers available from the HHT foundation should be given to the patient.

PULMONARY ARTERIOVENOUS MALFORMATION K. Vipul[1]; A.A. Donato[2]; B.K. Awsare[3]. [1]Reading Hospital and Medical Center, Wyomissing, PA; [2]Reading Hospital and Medical Center, West Reading, PA; [3]Thomas Jefferson University, Philadelphia, PA. *(Tracking ID # 190792)*

LEARNING OBJECTIVES: 1) Recognize pulmonary arteriovenous malformations can lead to cerebral embolic disease. 2) Perform initial diagnostic work-up and appropriately refer patient for definitive treatment of pulmonary arteriovenous malformation.
CASE: A 51 year-old female was evaluated for transient left arm paresthesia and slurred speech which resolved within a few hours. A right sided single pulmonary nodule was seen on chest x ray one month earlier during workup for chest pain. Initial vital signs were stable with room air saturation 98% and blood pressure 122/64 mm Hg. Skin and mucosal examination revealed no bleeding or telangiectasias. Heart sounds were normal without murmur and lung fields were clear without audible bruit. CNS examination was non-focal. Magnetic Resonance Imaging of the brain revealed a chronic distal middle cerebral artery right parietal hypodensity but no acute findings. Cerebral angiography was normal. CT thorax angiography with three dimensional reconstructions demonstrated that the nodule was in fact an arteriovenous malformation of 2 cm. diameter with a 4 mm feeding artery. Trans-esophageal echocardiogram visualized all four pulmonary veins entering the left atrium. With saline contrast echocardiogram, agitated saline was seen crossing into left atrium via the left inferior pulmonary vein. A diagnosis of pulmonary arteriovenous malformation with transient ischemic attack was made. Under direct visualization, trans-catheter coil embolization was performed with no residual blood flow through the arteriovenous malformation.
DISCUSSION: Pulmonary arteriovenous malformations are abnormal thin walled vessels providing direct capillary free communication between pulmonary and systemic circulation. Paradoxical embolism across the malformation can lead to cerebrovascular accidents while infected emboli cause solitary or recurrent brain abscesses. Diagnosis can be made with contrast-enhanced echocardiography. When 5–10 mL of agitated sodium chloride solution is injected into a peripheral vein, visualization of contrast material in the left atrium after a delay of 3–8 cardiac cycles confirms an intrapulmonary shunt. Three-dimensional CT imaging of the chest and contrast pulmonary angiography are also used to detect size, architecture and plan treatment. Traditional indications for treatment are symptomatic hypoxemia, paradoxical embolization and progressive enlargement of lesions. Imaging based indications are diameter size greater than 2 cm. and feeding vessel 3 mm. or larger. Definitive treatment is performed by embolization of feeding arteries using balloon or coils.This should be followed by shunt fraction measurement and chest imaging to confirm resolution.

RASH AND ABDOMINAL PAIN: TIME TO PANIC? P.L. Chaffin[1]; A.M. Brown[1]; P. Bulova[1]. [1]University of Pittsburgh, Pittsburgh, PA. *(Tracking ID # 190362)*

LEARNING OBJECTIVES: 1) Recognize the classic presentation of Henoch-Schonlein Purpura (HSP) in adults 2) Describe the gastrointestinal presentation of HSP in adults and the need for testing
CASE: A 45 year-old male with no pertinent past medical history presented from an outside hospital with rash, arthralgias, abdominal pain and bright red blood per rectum (BRBPR). He first noticed a periumbilical rash twelve days prior to presentation. The rash spread to his trunk and lower extremities with minimal upper extremity involvement. He noted eights days of polyarthralgias, five days of crampy abdominal pain, and diarrhea and BRBPR on the day of admission. He presented to an outside hospital and was transferred because of no available gastroenterologist. Upon presentation, the patient continued to have the above symptoms but no BRBPR. His exam was notable for a maculopapular non-blanching purpuric rash with areas of confluence and interspersed hemorrhagic bullae most notable on his lower extremities and buttocks. He had diffuse abdominal tenderness without rebound or guarding. His laboratory results were notable for creatinine:1.3; WBC:17.9, Hgb:18.9; LFTs:WNL; lactate:WNL; UA:trace protein. Based on the clinical presentation the patient was diagnosed with HSP, later confirmed on skin biopsy. He was started on prednisone at 2 mg/kg with good relief of abdominal pain. He returned 2 days after discharge due to recurrence of BRBPR, nausea, and vomiting. A CT showed increased bowel edema but no obstruction, ischemic bowel, or perforation. The patient was maintained on steroids with improvement of abdominal pain and nausea.
DISCUSSION: The classical presentation of HSP includes palpable purpura, arthralgias, cramping abdominal pain, and nephritis. Though more common in children, approximately ten percent of HSP cases occur in adults. Abdominal symptoms occur in approximately 50–75%, with lower rates in adults according to some studies. Conversely, GI bleeding may be more common in adults (59% vs. 28% in children) according to one retrospective study. Renal involvement tends to be more frequent and severe in adults. In addition, intussusception is less common in adults and there are case reports of protein-losing enteropathy, pancreatitis, cholecystitis, bowel perforation, bowel stricture and obstruction secondary to HSP vasculitis. Two recent small randomized trials of steroids in children and anecdotal evidence of corticosteroids in adults suggest that steroids reduce the mean length of abdominal symptoms, but do not prevent the occurrence of abdominal or renal disease. The gastrointestinal manifestations of HSP, including abdominal pain and bleeding, tend to be self limited in most cases. In the majority of cases abdominal pain is preceded by the typical rash; however, in some series abdominal complaints preceded the rash making the diagnosis more elusive (10–20%). In such diagnostic dilemmas, upper/lower endoscopy has been useful in recognizing mucosal lesions consistent with HSP. Otherwise, the role of endoscopy is limited to patients with severe bleeding requiring localization/intervention. In patient with severe abdominal pain, CT is helpful in ruling out complications such as bowel

perforation, obstruction, or stricture and directing the need for surgical intervention. Due to the lower incidence of HSP in adults, providers should look for primary causes of the vasculitis including auto-immune disorders or malignancy in this population.

RECCURENT MENINGITIS: "IS THIS SERIOUS DOC?" A.M. Catana[1]; M. Cheung[1]; A.P. Burger[1]. [1]Montefiore Medical Center, Bronx, NY. *(Tracking ID # 190206)*

LEARNING OBJECTIVES: 1. Recognize Mollaret syndrome as a form of recurrent aseptic meningitis 2. Diagnose Mollaret meningitis and possible treatment with antiviral medications.
CASE: A 55 year old female with history of stage 0 chronic lymphocytic leukemia for 5 years presented with a two day history of severe headache, malaise, nausea, vomiting, generalized muscle aches associated for the last day with neck stiffness and photophobia. Her past history was significant for two previous episodes of aseptic meningitis 5 and 6 years ago, both requiring hospitalization. Physical examination was remarkable for a stiff neck. No other neurological signs were present. CT and MRI of her brain were unremarkable. The peripheral white cell count was 12,100/mm3, with 50% lymphocytes, 43% granulocytes, 6% monocytes, 1% eosinophils. CBC was otherwise normal. A lumbar puncture was performed. Given a history of penicillin allergy, the patient was empirically treated with meropenem, SMX-TMP and vancomycin for bacterial meningitis. The cerebrospinal fluid (CSF) was colorless, clear. Analysis showed glucose level of 41, total protein of 192, WBC 186, with a differential count of 100% lymphocytes, and RBC of 24. Serum C3, C4 and total complement levels were within normal range. Lyme serology was non-reactive. The treatment was stopped after 24 hours based on the negative gram stain and cultures. After 48 hours polymerase chain reaction (PCR) returned positive for herpes simplex virus (HSV) type 2 and acyclovir was started. The patient was discharged home symptom free on suppressive therapy with valacyclovir for one year.
DISCUSSION: Benign recurrent aseptic meningitis is characterized by at least 3 episodes of aseptic meningitis with spontaneous remission of symptoms. Typically these occur over 3–5 years punctuated by symptom free periods. This clinical entity was first described by P. Mollaret in 1944 and is often referred to as Mollaret meningitis. HSV type 2 has been identified as the most common causative agent. Others are enterovirus, Epstein-Barr virus, HSV-1, Coxackie viruses B5, B2, Echoviruses 9 and 7. The etiology remains undefined in almost half of the cases of aseptic meningitis. Pathologically HSV-2 colonizes the sacral sensory ganglia during the latent periods. Reactivation of HSV-2 results in recurrent genital herpes and is postulated that it also causes Mollaret meningitis. More often reactivation is associated with asymptomatic infection and viral shedding in the absence of symptoms. HSV-2 infections are common, occurring in 1 out of 5 American adolescents and adults. According to CDC for the last 20 years the number of Americans with genital herpes increased by 30%. Women are more frequently affected compared than men with regards to the reported cases of HSV-2 Mollaret meningitis. The attacks are not associated with a concurrent outbreak of genital herpes. Therefore the etiology of the infection may escape detection. It can be diagnosed by PCR analysis of CSF for HSV. The prompt diagnosis of this type of meningitis can prevent repeated hospital admissions and the attacks can be treated with acyclovir. There is no clear guideline with respect to dose and duration of therapy for this rare disease that has spontaneous resolution of symptoms. The efficacy of long-term antiviral prophylaxis is unknown and might prove to be of some benefit in decreasing the number of recurrences.

RECIPE FOR A DIAGNOSIS FEATURING ERYTHEMA NODOSUM A. Radhakrishnan[1]; H. Manyam[1]; J. Hadam[1]; A. Sahud[1]. [1]Allegheny General Hospital, Pittsburgh, PA. *(Tracking ID # 189423)*

LEARNING OBJECTIVES: •Recognize that CMV can manifest in a immunocompetent host. •Recognize that erythema nodosum should prompt consideration for CMV in the setting of fever of unknown origin.
CASE: A 39 year old male with no significant past medical history presented to the outpatient setting with 5 days of fever, cough, polyarthralgias, and a rash characterized by tender erythematous nodules on the anterior surface of both shins. He exhibited anterior cervical lymphadenopathy, bilateral testicular tenderness, and had multiple superficial oral apthous ulcers. He had a recent negative HIV antibody test. A week prior to the onset of symptoms he reported contact with his six-year-old son who had been treated for a non specific febrile illness. Primary diagnostic consideration was given to acute Rheumatic fever, Parvovirus, CMV, EBV, acute Histoplasmosis, Tuberculosis, acute Sarcoidosis (with Lofgren syndrome), and acute retroviral syndrome. Laboratory data showed a positive CMV IgM titer at 1.31 IV. The remaining work-up was negative.
DISCUSSION: Cytomegalovirus (CMV) is largely a disease of children and the immunocompromised. Skin changes associated with CMV have been reported up to 40% of cases such as maculopapular rashes, petechiae, purpura, urticaria, ulcerative lesions and vesicular lesions. We describe an acute mononucleosis syndrome presenting with erythema nodosum in an immunocompetent host. Erythema nodosum has been associated with a wide variety of infectious and noninfectious conditions but has rarely been reported in the context of acute CMV but should prompt diagnostic consideration given the varied and protean manifestations of CMV disease. Erythema Nodosum is a cutaneous reaction involving an immune mediated hypersensitivity reaction to an infectious agent. It can be a sign of a serious systemic disorder that is potentially treatable if the etiology has been identified. There has been only one reported case in the literature involving erythema nodosum with an acute CMV infection in an adult immunocompetent host. We report the second known case.
Conclusion: When attempting to find the etiology of Erythema Nodosum, CMV must be considered regardless of ones immunological status.

RECURRENT ABDOMINAL PAIN - CAN SUMP STUMP YOU? G. Nishant[1]; A. Tindini[1]; R.C. Jones[2]. [1]Society of General Internal Medicine, Chattanooga, TN; [2]University of Tennessee, Chattanooga, TN. *(Tracking ID # 189731)*

LEARNING OBJECTIVES: 1. To describe a rare but potentially debilitating and recurring cause of abdominal pain, nausea and fever that is being increasingly diagnosed. 2. To increase awareness amongst PCP about the course, associations and long term prognosis of Caroli's disease
CASE: A 38 year old white male presented with a three day history of right upper quadrant and epigastric abdominal pain, mild right costo-vertebral angle tenderness nausea, vomiting and fever. He denied tobacco, alcohol or illicit drug use. He was being treated with ciprofloxacin for urinary tract infection diagnosed 2 days prior when he presented to ER with similar complaints. Past medical history was significant for Caroli's disease diagnosed 8 years previously when he presented with similar complaints and was diagnosed with Caroli's disease based on characteristic CT and ERCP findings. Subsequently, he underwent cholecystectomy, common bile duct removal and hepaticojejunostomy 6 years ago. On this admission he had a temperature of 99.80F. Blood pressure was normal; heart rate was 96/min. His physical exam was remarkable only for mild epigastric tenderness. Significant laboratory values included a WBC of 14.3th/cubic mm, creatinine of 1.7 mg/dl, bilirubin of 0.8 mg/dl and alkaline phosphatase of 231U/l. Urinalysis, blood and urine cultures were normal. CT of abdomen demonstrated pneumatobilia, bilateral urolithiasis and bilateral renal cysts without distortion of the renal architecture. Because of a high index of clinical suspicion for intrahepatic cholangitis, he was treated with piperacillin-tazobactam and metronidazole. Further evaluation with ERCP was done, to rule out the presence of Sump Syndrome, which showed normal drainage of the anastomotic limb to the intestines. He improved clinically and was later discharged on oral levofloxacin to be followed as an outpatient.
DISCUSSION: Caroli's disease is a congenital disorder characterized by multifocal, segmental dilatation of large intrahepatic bile ducts. Most cases are transmitted as autosomal recessive and are associated with autosomal recessive polycystic kidney disease. Pathogenesis is related to deranged remodeling of the ductal plate of intrahepatic bile ducts during development. Clinical manifestations are related both to the biliary abnormalities and portal hypertension from hepatic fibrosis. Bile duct dilation predisposes to bile stagnation leading to intraductal lithiasis. Bacterial cholangitis occurs frequently and may be complicated by septicemia. Labs typically show an elevation of alkaline phosphatase, direct bilirubin, and leukocytosis. Diagnosis is established by imaging studies that demonstrate bile duct ectasia and irregular, cystic dilation of intrahepatic bile ducts. Treatment is largely supportive. Cholangitis and sepsis are treated with antibiotics and biliary stone extraction when feasible. Patients may require prolonged courses of antibiotics. In patients who have underwent cholecystectomy, CBD removal and Roux-en-Y anastomosis of the hepatic ducts to small intestine, as in

our patient, the segment of CBD between the anastomosis and the ampulla of Vater can act as stagnant reservoir or sump and cause recurrent abdominal pain or symptoms of cholangitis. Prognosis is variable depending upon disease severity and coexisting renal dysfunction. These patients also have an increased risk of cholangiocarcinoma. As Caroli's disease is being diagnosed more frequently with improved diagnostic capabilities, awareness by PCP is vital.

RECURRENT EXUDATIVE ASCITES: TAPPING INTO AN UNCOMMON CAUSE S.S. Nichani[1]; B. Xue[1]. [1]University of Michigan, Ann Arbor, MI. *(Tracking ID # 190883)*

LEARNING OBJECTIVES: 1) Recognize Peritoneal Mesothelioma as a rare cause of ascites that is difficult to diagnose. 2) Recognize the importance of an aggressive diagnostic approach in all cases of unexplained exudative ascites.
CASE: A 52-year-old woman with a past medical history of hypothyroidism and shingles presented with one month onset of abdominal distention, nausea, and decreased appetite. Three years ago, she had an exploratory laparotomy for a presumed perforated diverticulitis and ascites, and a serosal biopsy showed mesothelial hyperplasia. One year ago, she had another episode of ascites which spontaneously resolved after a large volume paracentesis. One week prior to presentation, she underwent a paracentesis which showed 15435 WBCs (72% neutrophils, 23% histiocytes) and 945 RBCs per cubic millimeter of peritoneal fluid, and a serum-ascites albumin gradient of less than 1.1 g/dl. Bacterial and fungal cultures, AFB stain, and cytology were all negative. Hepatic enzymes, ANA, CA125, CEA, and CA19–9 were also normal. She had a nontender, moderately distended abdomen with shifting dullness on percussion. Abdominal and pelvic CT only showed large volume ascites. Repeat paracentesis on admission showed a lower fluid WBC count (8417 cells/cmm) but was otherwise unchanged from the previous examination. An exploratory laparotomy was considered but the patient opted for symptomatic treatment and outpatient follow up. One month later, another paracentesis showed atypical, mildly pleomorphic mesothelial cells arranged in groups resembling papillary fronds. The immunohistochemical staining pattern, different from the earlier serosal biopsy, was highly suggestive of malignant mesothelioma. She subsequently underwent debulking surgery and intraperitoneal hyperthermic chemotherapy (IPHC) with mitomycin.
DISCUSSION: Peritoneal mesothelioma (PM) accounts for a third of all cases of mesothelioma with an incidence of approximately 100–300 new cases every year in the United States. The overall median survival is less than one year. Only half of patients have a history of asbestos exposure and no definitive genetic or environmental associations have been established. Clinical symptoms are usually non-specific, with abdominal distension and pain being the most common. CT scanning is useful for differentiating between the "dry" and "wet" varieties of PM. The "dry" type usually presents with multiple small masses or a single dominant localized mass with little or no ascites. As in our case, the "wet" type usually presents with ascites but no dominant mass. A tissue biopsy is required for a definitive diagnosis in most cases. Depending on histologic type, patients have a relatively indolent to a highly aggressive clinical course. Metastasis is uncommon and there is currently no staging system for this disease. Treatment usually involves cytoreductive surgery and IPHC. Early diagnosis and treatment significantly prolongs overall survival, with almost half the patients alive at 5 years. Ascites is a common clinical presentation and yet PM is a rare cause with a poor prognosis that is difficult to diagnose. It should be noted that although the diagnosis was made via paracentesis in this case, ascitic fluid cytology has limited diagnostic sensitivity. Clinicians should pursue an aggressive diagnostic evaluation that includes surgical exploration to rule out PM in all cases of unexplained exudative ascites.

RECURRENT PAROTITIS IN A WOMAN WITH SJOGRENS SYNDROME, SARCOIDOSIS OR BOTH? A.R. Ogdie[1]; F.B. Vivino[1]. [1]University of Pennsylvania, Philadelphia, PA. *(Tracking ID # 189963)*

LEARNING OBJECTIVES: Diagnose Sjogren's Syndrome Diagnose Sarcoidosis
CASE: A 69 year old Caucasian female with a history of Sjogren's syndrome (SS) presents for evaluation of recurrent parotitis for 3 years. She related a 15 year history of dry eyes and dry mouth but never had a salivary gland biopsy or positive autoantibodies. Other problems included a gastric mucosa-associated lymphoid tissue (MALT) lymphoma, blepharitis, an episode of pleuritis, Raynaud's phenomenon, cheliosis, stomatopyrosis, and recurrent lip sores. The physical exam was remarkable for a diminished sublingual salivary pool, fissuring of the tongue, and absence of parotid swelling. A Schirmer's tear test was 0 mm and 1 mm over 5 min OU and an unstimulated salivary flow rate was low. Serum protein electrophoresis demonstrated hypergammaglobulinemia. Elevation of immunoglobulins G, A, and M, sedimentation rate, serum angiotensin converting enzyme (ACE) level, and rheumatoid factor (RF) were noted. Other testing revealed negative or normal antinuclear antibody (ANA), anti-cyclic citrullinated peptide (anti-CCP), antibodies to SS-A or SS-B antigens, metabolic panel, and calcium. Magnetic resonance imaging demonstrated heterogeneous parotids with multiple small hyperdense and hypodense lesions. Salivary scintigraphy exhibited impaired uptake and stimulated discharge in all major salivary glands. Finally, a biopsy obtained due to recurrent parotid swelling showed acute and chronic inflammation and non-caseating granulomas. No signs of infection or focal lymphocytic sialadenitis were seen. A chest CT was normal without mediastinal lymphadenopathy.
DISCUSSION: Sjogren's syndrome is characterized by symptoms of xerostomia and keratoconjunctivitis sicca caused by lymphocytic invasion of exocrine glands (e.g. salivary glands and lacrimal glands) but can have systemic effects. SS can be primary or secondary, the consequence of another autoimmune disease such as lupus, rheumatoid arthritis, scleroderma, or polymyositis. Diagnosis is made when 4 of 6 of the American-European criteria are met including #5 or 6: 1) ocular symptoms, 2) oral symptoms, 3) ocular signs, 4) oral signs, 5) histopathology (focal lymphocytic sialadenitis), and 6) positive anti-SSA or SSB. This patient met 4 criteria but failed to satisfy the requirement for autoimmunity (5 or 6). Sarcoidosis is most common among young African American women. While most have pulmonary symptoms, some may present with isolated salivary gland involvement resulting in swelling, firmness, pain, and decreased salivary production. Diagnosis of sarcoidosis is based on clinical findings, radiographic findings such as hilar lymphadenopathy, histopathology demonstrating noncaseating granulomas, or elevated ACE level. Elevated calcium, alkaline phosphatase, hypergammaglobulinemia, positive RF or ANA are common. This patient has histologic evidence and laboratory findings consistent with sarcoidosis. This case presents an interesting diagnostic dilemma. This patient has sarcoidosis mimicking SS. Several cases have been reported and generally the biopsy lends the most discriminative information. Interestingly, this patient had a gastric MALT lymphoma, most often associated with SS, and is the first reportable case in the setting of sarcoidosis. This patient's presentation emphasizes the overlapping signs and symptoms between Sjogren's syndrome and sarcoidosis and the benefits of histologic confirmation to verify one diagnosis and exclude the other.

RECURRENT PNEUMOPERITONEUM: DON'T JUST DO SOMETHING, STAND THERE! D.R. Gutknecht[1]. [1]Geisinger Medical Center, Danville, PA. *(Tracking ID # 189223)*

LEARNING OBJECTIVES: Appreciate that not all spontaneous occurrences of air under the diaphragm require surgery. "Watchful waiting" may be all that is required, even if episodes recur.
CASE: Free air under the diaphragm is usually a surgical emergency. This report describes a patient who had three episodes of pneumoperitoneum, each resolving without specific treatment. A frail 85 year-old woman with diabetes, mild CHF, and diverticulosis reported sharp but diminishing pain in the upper left abdomen. She had no fever, vomiting, or new cardiopulmonary symptoms. Vital signs and physical examination were unremarkable but a chest x-ray showed free air under the diaphragm. Laboratory studies including WBC count were normal. Antibiotics were given for presumed diverticulitis. CT examination confirmed pneumoperitoneum and diverticulosis but no signs of diverticulitis were seen and no site of perforation was identified. A surgery consultant recommended conservative care and after two days the patient was discharged well. A chest x-ray three weeks later showed no free air. One month later the patient noted dry cough and a chest film again showed free air. She had no abdominal pain and no pneumonia. She was observed with no special treatment and the free air was gone on a chest x-ray three weeks later. Ten months thereafter, a new respiratory illness led to yet another chest film, with pneumoperitoneum again

evident. That free air disappeared after one week and she has had no recurrences in the six months since.
DISCUSSION: When air appears to be present under the diaphragm clinicians should be careful about image misinterpretation and should also consider recent procedures, such as laparoscopy and peritoneal dialysis, which can cause iatrogenic pneumoperitoneum. When these possibilities have been ruled out, the presence of free air usually means that a viscus has ruptured, with emergency surgery frequently indicated. Peritonitis does not, however, invariably occur and carefully selected patients can sometimes be treated conservatively. This syndrome of "non-surgical spontaneous pneumoperitoneum" most often follows diverticular air leaks, either sigmoidal or jejunal, but air entry related to gynecological conditions, air leaks due to pulmonary disease, and complications of pneumatosis cystoides intestinalis are other causes to consider. With much at stake, surgery consultation is always in order but in selected patients the findings of negative abdominal examination and absence of fever and leukocytosis are indications that cautious observation may be all that is needed. Recurrences, presumably due to the same "benign" phenomena that caused the first episode, can occur but even then, as this case has shown, surgery may not be necessary.

REFRACTORY LACTIC ACIDOSIS IN PREGNANCY N. Talreja[1]; M.D. Vanderbilt[1]; K. Clarke[1]. [1]Western Pennsylvania Hospital, Pittsburgh, PA. *(Tracking ID # 190769)*

LEARNING OBJECTIVES: 1. To emphasize the need to supplement total parenteral nutrition (TPN) with thiamine containing vitamins. 2. To include thiamine deficiency as a differential diagnosis of refractory lactic acidosis.
CASE: A 33 year old female in 19th week of her 4th pregnancy complicated by hyperemesis gravidarum (HG) presented to our hospital for evaluation of abdominal pain for 1 week. Currently, she had twin preganancy and was on TPN for last 5 weeks because of severe HG. Past medical history included asthma, hypothyroidism and anxiety disorder. She denied seizure disorder. She denied alcohol, drug or tobacco use. Labs on admission showed anion gap=15, CO2=10 and sodium=120. An ultrasound on admission confirmed fetal viability. She was presumed to have urinary tract infection and was started on IV fluids and antibiotics. The following day, patient was found to be unresponsive and had to be intubated for airway protection. She was hypotensive and tachycardic requiring vasopressor support and IV fluid resuscitation. Serum glucose was 259, sodium=128, CO2=5. AG=20. Blood gas showed metabolic acidosis with pH=6.81 with a lactate of 10.51. Renal function tests and liver function tests were normal. Pan cultures were sent. Patient was started on bicarbonate drip and empiric antibiotic coverage. The subsequent day, patient self-extubated herself but the lactate level remained high. All the cultures came back negative. Thiamine deficiency was then considered and the local TPN provider was contacted. It was found that patient had not received thiamine supplementation in TPN. Patient's serum thiamine level was sent and 100 mg of IV thiamine was administered. The lactate level came back normal 4 hours after administration. Her heart rate and glucose levels also normalized. Her thiamine level received later was 0.2. Unfortunately, an ultrasound of gestational sac at this time showed only one of the fetuses to be viable.
DISCUSSION: Various causes of lactic acidosis are identified which include tissue hypoperfusion (due to cardiac failure or decreased systemic vascular resistance) or reduced arterial oxygen content due to pulmonary disease, severe anemia or CO poisoning, liver failure, cancer, strenuous exercise, seizure, alcohol ingestion, biguanide toxicity and thiamine deficiency. In our case, all other causes were ruled out and thiamine deficiency was found to be consistent in this pregnant female with HG requiring TPN. Thiamine is a necessary cofactor of an enzyme subunit of the pyruvate dehydrogenase complex, a key-enzyme complex in aerobic metabolism which transforms pyruvate into acetylcoenzyme A, thus enabling it to enter the tricarboxylic acid cycle. Under conditions of thiamine deficiency, pyruvate is converted instead to lactate. A deficiency in thiamine pyrophosphate prevents the formation of acetyl-CoA from pyruvate and leads to anaerobic metabolism. Anaerobic metabolism in turn results in severe metabolic acidosis which is unresponsive to sodium bicarbonate administration, as seen in our case. If untreated, thiamine deficiency can lead to serious morbidity and even mortality. To the best of our knowledge, this is the third case reported in literature of a pregnant female with HG on TPN presenting with LA secondary to thiamine deficiency.

RENAL TUBULAR ACIDOSIS WITH FANCONI SYNDROME ASSOCIATED WITH TENOFOVIR B. Mocanu[1]; B. Holt[2]; M. Panda[2]. [1]University of Tennessee, Chattanooga, TN; [2]Society of General Internal Medicine, Chattanooga, TN. *(Tracking ID # 189733)*

LEARNING OBJECTIVES: 1. The importance of recognizing features of proximal (type 2) renal tubular acidosis (RTA) with Fanconi type syndrome 2. Recognize the association between Truvada (Emtricitabine/Tenofovir) and type 2 RTA with Fanconi syndrome
CASE: A 69 year old Caucasian female with a history of HIV, hepatitis C, diabetes mellitus and previous medical noncompliance was admitted to the hospital for severe anemia and acute kidney injury on chronic kidney disease. Review of her records revealed a baseline creatinine 1.4 mg/dl. On admission, she was found to have a normal anion gap metabolic acidosis (HCO3 15 mmol/L, Cl 111 mmol/L, Na 138 mmol/L), hypokalemia 3.3 mmol/L, hypophosphatemia 1.7 mmol/L, an elevated creatinine 3.6 mg/dl and glucosuria despite normal serum glucose. With no recent diarrhea, she had a positive urinary anion gap of 47 in the setting of a normal fractional excretion of sodium, thus providing evidence that urinary ammonium excretion was impaired. With her normal anion gap metabolic acidosis with impaired ammonium excretion, hypokalemia, hypophosphatemia and glucosuria, a diagnosis of proximal (type 2) renal tubular acidosis with Fanconi syndrome was made. Multiple myeloma is the most common cause of proximal renal tubular acidosis in persons of her age, but this was excluded based on a recent bone marrow biopsy. The patient had been on HAART therapy which included truvada, a combination pill consisting of emtricitabine and tenofovir, ritonavir and atazanavir, for several months under the direction of her infectious disease physician. Her HAART therapy was discontinued, as it was felt that her proximal renal tubular acidosis with Fanconi syndrome was most likely a result of the truvada and specifically tenofovir. Her hypokalemia was treated with scheduled potassium supplements, and her metabolic acidosis was treated with IV fluids with sodium bicarbonate. She was eventually discharged on sodium bicarbonate tablets, potassium supplements and off of her HAART regimen until seen by her infectious disease physician.
DISCUSSION: Proximal (type 2) renal tubular acidosis is uncommon in adults and results from impaired bicarbonate reabsorption at the proximal tubules. Normal anion gap metabolic acidosis with impaired ammonium excretion and hypokalemia are typically seen in this disorder. Fanconi syndrome may also occur with proximal RTA and it is diagnosed by the presence of glucosuria despite normal serum glucose, hypophosphatemia and hypouricemia. Tenofovir is a reverse transcriptase inhibitor frequently used as a component of the HAART regimen to control the HIV virus and it is 70–80% renally excreted. This medicine has been reported to cause proximal renal tubular acidosis and Fanconi syndrome. Because patients with HIV are living much longer now as the therapy for this disease has continued to improve, physicians must familiarize themselves with the potential side effects of the HAART regimen medicines - including renal tubular acidosis with Fanconi syndrome.

REVERSIBLE CORPUS CALLOSUM LESION IN LEGIONNAIRES' DISEASE: AN UNUSUAL PRESENTATION S. Gupta[1]; S. Gupta[1]. [1]Albert Einstein Medical Center, Philadelphia, PA, Jenkintown, PA. *(Tracking ID # 190326)*

LEARNING OBJECTIVES: Unusual lesions found on brain MRI of patients with an infectious disease may be related to the infection itself and may be reversible with appropriate treatment of the infection. One needs to be aware of such presentations so that inappropriate treatment based on the appearance of lesions alone is not initiated.
CASE: We describe a 47-year old HIV positive male who presented with a week's history of fever, cough, diarrhea and slurred speech. Neurological examination revealed mild confusion, dysarthria and nystagmus. Serum chemistry was remarkable for hyponatremia. CXR revealed an infiltrate in the right lower lobe, and he was started on treatment for community-acquired pneumonia. Urinary antigen came back positive for Legionella pneumophila serogroup 1 and he was continued on moxifloxacin with the addition of rifampin for the treatment of Legionnaire's disease. The patient then became progressively more confused and dysarthric, without any focal neurological signs. MRI brain revealed a lesion in the splenium of corpus callosum which was hypointense on Apparent Diffusion Coefficient (ADC) mapping and hyperintense on diffusion imaging along with scattered high-intensity signal foci throughout periventricular white matter. MR angiography revealed no abnormalities. Unfortunately, he

also developed acute renal failure with severe metabolic acidosis necessitating mechanical ventilation and hemodialysis. He was extubated after 5 days, when repeat neurological examination showed marked improvement in the nystagmus with some residual dysarthria. His previous confusional state resolved completely. Repeat MRI brain performed 14 days after the first one showed complete resolution of the lesion. His pneumonia cleared and the renal failure which was attributed to acute tubular necrosis resolved completely.
DISCUSSION: Legionnaires' disease may be associated with confusion, dysarthria, and cerebellar signs of gait and limb ataxia. Neuroimaging studies have shown abnormalities in patients with neurological deficits and Legionella infections ranging from abscess to cerebral oedema on CT, multifocal lesions on brain scintigraphy, bilateral symmetrical foci of brain stem demyelination on MRI, and bilateral mesial temporal FLAIR MRI hyperintensities following seizures in acute legionnaires' disease. The pathogenic mechanism of Legionella induced neurological dysfunction is unknown. The Gram negative bacterium has rarely been demonstrated directly in postmortem brain tissue. An endotoxin effect accounting for the neurological dysfunction has been hypothesized. Legionella species can also generate pores in eukaryotic cell membranes, leading to cell death by osmotic lysis. Such features of Legionella pneumophila may have been responsible for our patient's reversible corpus callosum lesion, though the local vulnerability of the splenium remains unexplained. Application of newer imaging methods such as MRI may show brain lesions in Legionnaires' disease to be more common than previously appreciated. The above case illustrates that it is important to be aware that a corpus callosum lesion in a patient with this disease may not be a manifestation of stroke, but a part of the primary disease itself, which would resolve with appropriate treatment.

REYNOLD'S PENTAD WITHOUT THE CHOLANGITIS C. Yoon[1]. [1]New York University, New York, NY. *(Tracking ID # 190403)*

LEARNING OBJECTIVES: 1) Recognize Reynold's pentad, in this case, a well-known constellation of symptoms in an uncommon disease 2) Review the appropriate diagnostic and therapeutic options of a pyogenic hepatic abscess
CASE: A 59 year-old man with Hepatitis C presented with a two-week history of nausea, vomiting and, most recently, altered mental status. He was found to be febrile and hypotensive and was admitted to the intensive care unit for treatment of his septic shock. Physical exam was significant for a morbidly obese patient only oriented to person; jaundice; icteric sclerae; diffusely tender abdomen with guarding, most noticeable in the right upper-quadrant; no obvious evidence for ascites; and the presence of asterixis. Liver function tests revealed transaminitis of 300's IU/L, elevated conjugated bilirubin and serum albumin 2.0 gm/dL. Chest x-ray demonstrated clear lung fields and a moderately elevated right hemidiaphragm. The differential diagnosis of this patient's septic shock was cholangitis versus spontaneous bacterial peritonitis versus meningitis. Ultrasound of the abdomen showed only small pockets of ascites but multiple, large, loculated hepatic abscesses in the right hepatic lobe, the largest measuring 15×10×11 cm. Computer tomography of the abdomen and pelvis reaffirmed our concern for hepatic abscess and also demonstrated resolving diverticulitis. The patient soon underwent percutaneous drainage with catheter placement. Two-and-a-half liters of purulent fluid were drained in the first 24 hours. Although fluid cultures were ultimately negative, blood cultures drawn at the time of admission and prior to antibiotic administration grew Streptococcus Intermedius. Repeat chest x-ray following drainage showed symmetric diaphragms.
DISCUSSION: Symptoms of hepatic abscesses can mimic many other intra-abdominal processes. The patient in the above case actually presented as a classic case of ascending cholangitis with all the features of Reynold's pentad: fever, right upper-quadrant pain, jaundice, confusion and hypotension. As with ascending cholangitis, presence of Reynold's pentad in a patient with hepatic abscess is associated with significant morbidity and mortality. Other symptoms commonly associated with this disease include anorexia, nausea and vomiting. However, they remain fairly non-specific. Laboratory abnormalities usually include elevated alkaline phosphatase, elevated bilirubins and hypoalbuminemia. Ultimately, imaging studies are critical in making the diagnosis. While ultrasound and computer tomography are the most common diagnostic methods of choice, even routine chest x-ray can raise one's suspicion for hepatic abscess. Abnormalities of the chest x-ray may include right-sided pleural effusion, atelectasis, and an elevated right hemidiaphragm. In rare cases, gas in the hepatic lobe may also be visible. Treatment of hepatic abscesses requires both long-term antibiotics and drainage of the purulent fluid. The decision to proceed with percutaneous or surgical drainage largely depends on the number of lesions present, the size of the abscess and its location. Despite the presence of multiple loculated abscesses in our patient, we pursued percutaneous drainage and placement of an indwelling catheter, leaving the option for surgical drainage, should he need it. With percutaneous drainage, our patient improved significantly and repeat-imaging demonstrated near total drainage of the fluid.

RISKY BUSINESS: ASSESSING OPERATIVE RISK IN THE COCAINE-POSITIVE PATIENT E.R. Schockett[1]. [1]University of Pennsylvania, Philadelphia, PA. *(Tracking ID # 190306)*

LEARNING OBJECTIVES: (1) Describe the metabolism of cocaine and the time-course of metabolite detection in urine toxicology testing. (2) Recognize the specific risks of cocaine when assessing pre-operative fitness in medicine consultation.
CASE: A 53 year-old male with a history of anxiety presented by fire rescue with one day of left ankle pain and swelling since losing his balance and falling from a second story roof. The patient denied any loss of consciousness or other trauma. He denied any recent alcohol or drug use nor suicidal ideation. Plain films and CT of the left lower extremity confirmed an acute comminuted, minimally displaced fracture of the calcaneus. He was admitted to podiatry and a medicine consult was called for pre-operative risk assessment. Review of systems was negative in detail. He described unlimited exercise tolerance prior to this injury, denied any past surgical history, took only ibuprofen as needed, and was unaware of his family history. He smoked 1 pack of cigarettes and drank 2 beers daily and described a history of crack/cocaine use until 2 weeks prior. Physical exam was notable for stable vital signs, swelling and tenderness over the left lateral malleolus, intact pulses and sensation throughout the extremity, and pain-limited range of motion. His EKG, chest radiograph and admission laboratory tests were within normal limits. However, urine toxicology was positive for cocaine. Urine toxicology was repeated 2 and 4 days later and was again positive for cocaine. Despite a recommendation by medicine consult to proceed with surgery, anesthesiology declined the case and the patient was discharged with instructions for outpatient follow-up.
DISCUSSION: Cocaine is now the leading cause of drug related deaths and emergency room visits in many American cities, making it an important topic in medicine consultation. Cocaine hydrochloride is a water-soluble salt made of an alkaloid extract from the erythroxylon plant grown in Peru and Bolivia. 80–90% of cocaine is metabolized into benzoylecgonine, the main urine metabolite, and norcaide, which is produced in the liver through the cytochrome P450 system. Drug testing typically detects the urine metabolite using a fluorescent polarization immunoassay with a reference of cocaine in animal urine. Presence of metabolite does not correlate with degree of impairment or serum drug level. Peak plasma concentrations of cocaine occur at 1–6 hours, depending on route of administration, though urine metabolite may be detected 2–4 days after use, and even as late as 10–22 days with heavy use. As a potent vasoconstrictor, cocaine may exacerbate the severe hypertension threatened by general anesthesia via an increase in cardiac output, peripheral vasoconstriction, and direct sympathetic cardiac stimulation. Further administration of beta-adrenergic antagonists may worsen hypertension causing subarachnoid hemorrhage or rupture of aortic aneurysm. Coronary artery vasoconstriction can be caused both by cocaine and its metabolites leading to ischemia or infarction several hours after cocaine use. Due to the lack of evidence regarding ongoing effects of cocaine metabolites, along with the practical limitation of patient history taking, the medicine consultant must assess the possibility of ongoing peri-operative risk in the cocaine-positive patient. Therefore, until more conclusive evidence is available, non-urgent surgeries should be deferred until drug screening is negative.

RUNNING DOWN THE WRONG PATH WITH A DIABETIC FOOT INJURY C. Weng[1]; S. Greenfield[1]; J.H. Isaacson[1]. [1]Cleveland Clinic Lerner College of Medicine, Cleveland, OH. *(Tracking ID # 190099)*

LEARNING OBJECTIVES: 1. Identify the clinical features that warrant investigation for Charcot foot. 2. Outline the treatment approach for Charcot foot.

CASE: A 50 year old man with diabetes developed right foot pain and swelling while running. He was started on oral antibiotics for a presumptive diabetic foot infection, but failed to improve and was admitted for intravenous antibiotics. Physical examination demonstrated edema, erythema of the right foot and peripheral sensory neuropathy in both feet. X-Ray of the foot was negative for osteomyelitis. After 5 days of intravenous antibiotic treatment and bedrest, his symptoms improved and he was discharged with oral antibiotics. Nine days after discharge he presented with worsened painless swelling and erythema in his foot. MRI showed fractures of the cuneiform bones consistent with Charcot foot arthropathy. The patient was treated with a single dose of intravenous pamidronate, total contact casting, and nonweightbearing. After several months of this treatment he recovered to full ambulatory status.
DISCUSSION: Charcot foot is an example of a neuropathic joint in which loss of sensation in a weight-bearing joint leads to bony destruction and eventual deformity. The pathophysiologic basis of Charcot foot is dominated by two primary theories: the neurotraumatic and neurovascular processes. In the former, decreased somatic sensation allows repeated minor trauma to the foot as a result of diminished stability and pain sensation. The neurovascular theory relies on autonomic neuropathy leading to increased blood flow and resulting osteolysis/osteopenia. Clinically patients may present with acute pain, swelling, and increased temperature in the affected foot. Plain radiographs and/or MRI are important in establishing the diagnosis of Charcot arthropathy. Characteristic findings include dislocation deformities (usually in the midfoot joints), marrow edema, and pathological fractures. Left untreated chronic deformity, painless swelling, and abnormal motility of the foot may result. The acute presentation of Charcot foot has significant overlap with typical diabetic foot infections, yet only a small minority of diabetic patients develops Charcot foot. The clinician is thus challenged to develop a strategy to identify this small group of patients without subjecting all patients with acute diabetic foot problems to costly MRI evaluations. Clinical features that raise the possibility of Charcot joint include the presence of sensory neuropathy, history of minor trauma, improvement of swelling with elevation and failure to respond to antibiotics. Once identified, treatment of Charcot foot typically requires a universally aggressive approach called Total Contact Casting (TCC) to provide stability and equalize pressure within the foot. Ultimately, TCC minimizes long term foot deformity and in the setting of concurrent ulcers, improves wound healing. Alternative therapies including electrical bone stimulation and bisphosphonate therapy have shown promise in restoring bone integrity. Clinicians must remain alert to the possibility of a Charcot joint in patients with diabetes, sensory neuropathy and an acute foot problem. Our patient had a sensory neuropathy and likely sustained trauma while running. The persistence of symptoms despite antibiotics led to an MRI which established Charcot foot and allowed for appropriate treatment.

SADDLE NOSED WITH SINUSITIS: A CASE OF WEGENER'S GRANULOMATOSIS S.T. Eldakar[1]; L.D. Ward[1]. [1]Temple University, Philadelphia, PA. *(Tracking ID # 190331)*

LEARNING OBJECTIVES: 1. Describe the value of ANCA testing in patients with suspected WG. 2. Recognize clinical manifestations of Classic vs. Limited WG
CASE: A 30 year-old female who immigrated from Mexico 6 years prior, with a history of a + ppd presented with a 3 week history of fever, cough and hemoptysis. She noted chills, night sweats, 20 pound weight loss, nausea, vomiting and chronic headaches. Physical exam: HR 137 bpm, temperature 102.3, BP 115/78, respirations 18/min and POx 98% RA, injected conjunctiva bilaterally, a nasal bridge deformity, bibasilar crackles and decreased breath sounds at the right lung base. CT scan of the thorax revealed bilateral micronodular densities with diffuse ground-glass opacities predominantly in the mid lungs; a right lung nodule and a right axillary lymph node. Sputum stainings for AFB were negative x3 and she was HIV negative. Bronchial washing and transbronchial biopsies were performed, with the latter demonstrating poorly formed noncaseating granulomas and fungal spores. The samples were negative for AFB, CMV and HSV I/II. A sinus CT scan showed parasinusitis, rhinitis, mastoiditis, bilateral otitis media and a nasal septum perforation suspicious for granulomatous disease. Ophthalmologic consultation diagnosed scleritis and acute anterior uveitis of both eyes. A C-ANCA and anti-protease-3 (APO) were positive. The patient was diagnosed with Wegener's Granulomatosis, discharged home and started on cyclophosphamide and oral corticosteroid therapy. Since her discharge, the patient has had multiple medical admissions for stridor and hoarseness of voice.
DISCUSSION: Wegener's granulomatosis (WG) is a systemic vasculitis predominantly of the medium and small arteries, but can also affect the venules, arterioles, and large arteries. WG occurs in two distinct forms, classic and limited, differentiated by their degree of renal involvement. Patients with limited-WG lack renal disease, as opposed to classic WG, which may present with rapidly progressive glomerulonephritis. Both forms typically involve the eyes and respiratory tract. Approximately 90% of patients have nasal involvement and septal perforation may result. Erosive sinus disease and subglottic stenosis are also characteristic of WG. The clinical manifestations of WG in the lung can range from asymptomatic nodules to fulminant alveolar hemorrhage. Radiographic findings of pulmonary infiltrates and nodules are often misdiagnosed as pneumonia and tuberculosis. Proper diagnosis of WG must consider the clinical exam, radiographic and biopsy results, in addition to antibody assays. WG is typically a antineutrophil cytoplasmic antibodie (ANCA) positive vasculitis, however a negative ANCA assay does not preclude diagnosis, with 40% of patients testing negative. Positive immunofluorescence tests for ANCA must be confirmed by enzyme immunoassays for antibodies to either PR-3 or MPO (myeloperoxidase). C-ANCA and P-ANCA are differentiated by their respective staining. C-ANCA titers can not be followed for disease activity as these titers decrease with immunosuppression, without becoming negative. Likewise, patients initially C-ANCA negative may become positive with disease progression and therefore negative C-ANCA tests may provide a false sense of security. The predictive value of positive C-ANCA patients increases with higher pretest clinical suspicion.

SALMONELLA CHESTER URINARY TRACT INFECTION: A CASE REPORT A. Gimovsky[1]; C.M. Rivera[1]. [1]Albert Einstein College of Medicine, Bronx, NY. *(Tracking ID # 190705)*

LEARNING OBJECTIVES: To recognize Salmonella species as a cause of urinary tract infection with associated morbidity in patients with no apparent risk factors.
CASE: A 53 year old man presented with two days of dysuria, urgency, frequency, pelvic pain, dark urine, a self-reported temperature of 100°F, and chills. He denied pain on ejaculation, nausea, vomiting, diarrhea, or recent travel or trauma and was monogamous. Social history was significant for Bangladeshi birth living in the United States for his adult life, and current work as a baker. Physical exam revealed a temperature of 100.5°F, tachycardia, a benign abdomen, no costovertebral angle tenderness, a non-tender prostate and guaiac negative stool. His peripheral white blood count was 18,500 cells/microliter and urine contained 51–100 WBC/high power field, many bacteria, and trace leukocyte esterase. Computed tomography scan of the abdomen revealed an enlarged prostate with mild fatty stranding around the bladder base. Blood cultures were sterile; urine culture was positive for Salmonella chester. The patient was treated with oral ciprofloxacin 500 mg twice daily and after two days was discharged with a three-week course of ciprofloxacin.
DISCUSSION: The National Salmonella Surveillance System reported that 17, 4442 urinary Salmonella isolates represented 2% of all Salmonella isolates from 1980 through 1999 (1). Salmonella chester is an unusual serotype. An isolated Salmonella chester UTI, to our knowledge has not been previously reported. Diagnosing a Salmonella UTI is clinically difficult in the absence of enteritis. Work up for the etiology of a Salmonella bacteruria may be important when considering the at-risk populations. These include patients with diabetes, HIV, those taking immunosuppressive agents, carriers of Schistosomiasis mansoni and hematobium, and those with genitourinary abnormalities. It is important to diagnose Salmonella infection, because treatment duration is longer than when treating other pathogens, and treatment of 3–4 weeks should be considered. In Salmonella UTI, bacteriuria was persistent in 42.2% of patients in one series after 2 or more weeks of antibiotics, and in 10.7% after more than 3 weeks. However, 21.1% had recurrent disease that occurred after treatment of 3.5–5 weeks (2). Thus, infection can be recurrent despite lengthened treatment. Furthermore, there may be more antibiotic resistance, which also may contribute to the high rate of recurrence. In one study of 1420 UTIs, Salmonella species demonstrated high resistance to many antibiotics (3). In addition, mortality is high, 22%, presumably related to co-existence of the above-mentioned risk factors. This case exemplifies the need to consider

Salmonella species as a cause of UTI even in patients without apparent comorbidities or risk factors for the disease, as it requires prolonged treatment without which serious morbidity or mortality can occur. 1) Sivapapasingam S et al. Salmonella bacteriuria: an increasing entity in elderly women in the United States. Epidemiology and Infection. 2004;132:897–902. 2) Tena D et al. Urinary tract infection due to non-typhoidal Salmonella: report of 19 cases. Journal of Infection. 2007;54 (3):245–9. 3) Tessema B et al.. Predominant isolates of urinary tract pathogens and their antimicrobial susceptibility patterns in Gondar University Teaching Hospital, Northwest Ethiopia. Ethiopian Medical Journal. 2007; 45(1):61–7.

SEEING THROUGH THE SYMPTOMS: SPLENIC RUPTURE AS A COMPLICATION OF COLONOSCOPY L. Wasson[1]. [1]Tulane University, New Orleans, LA. *(Tracking ID # 190604)*

LEARNING OBJECTIVES: 1) Recognize the signs and symptoms associated with splenic rupture 2) Identify splenic rupture as a potential complication of routine colonoscopy.
CASE: A 77 year-old man presented with abdominal pain, incontinence, and light-headedness. The symptoms began twelve hours after a routine screening colonoscopy. He noted the sudden onset of intense, diffuse abdominal pain accompanied by stool incontinence and light-headedness. His vitals signs were normal, with only slight hypotension and tachycardia. His cardiac and pulmonary examinations were normal. His abdominal examination was normal, but there was pain associated with rolling onto his left side. There were no peritoneal signs and the liver was of normal size; the spleen was not palpated. His hemoglobin was 10.4 g/l and his creatinine was 1.7. The remaining laboratory studies, including a chest X-ray and abdominal X-ray, were normal. Twelve hours later, his abdominal pain acutely worsened. His hemoglobin dropped to 6.6 g/dl. An abdominal CT was obtained, revealing a ruptured spleen with accompanying fluid in the pelvis. He was immediately taken to surgery and an active splenic bleed with a large capsular splenic hematoma were identified. The patient died four days later from a cardiopulmonary arrest.
DISCUSSION: As routine screening colonoscopies increase in incidence, the general internist must be aware of the potential complications from this procedure. Splenic rupture is an easily overlooked and life-threatening complication of colonoscopy, and usually occurs from direct trauma to the spleen in patients with a marked angulation of the splenic flexure, an excessive splenocolic ligament traction, or a decrease in the mobility between the spleen and the colon. Risk factors for splenic rupture include previous abdominal surgery, inflammatory bowel disease, difficult colonoscopic and therapeutic procedures, and being in the supine position during colonoscopy. The signs and symptoms of the typical tramatic splenic rupture may not be present in rupture due to colonoscopy. A subcapsular hematoma is common, and the typical hemodynamic instability may not be immediately apparent, as was the case in our patient. Because the spleen rests deep towards the retroperitoneal area, signs and symptoms of an acute abdomen may also not be apparent until late in the disease. The diagnosis is usually made by the general internist's early suspicion, based upon vague abdominal pain and left-sided discomfort following a colonoscopy. An immediate CT scan confirms the diagnosis, and urgent surgical intervention is the key to successful treatment. As the incidence of endoscopic screening increases, so will the medical errors associated with these procedures. It is the general internist's thoroughness in the history and physical examination that will prevent significant morbidity and mortality from these errors.

SHEDDING AN EXOSKELETON: REVERSAL OF CALCINOSIS UNIVERSALIS IN A 44-YEAR-OLD WOMAN P.A. Michas-Martin[1]; J. Barton[2]; J. Yazdany[2]. [1]New York Medical College, Valhalla, NY; [2]University of California, San Francisco, San Francisco, CA. *(Tracking ID # 189241)*

LEARNING OBJECTIVES: ' Diagnose a patient presenting with calcinosis universalis, including appropriate work-up, and recognize medical conditions associated with this clinical sign ' Treat calcinosis universalis in a patient diagnosed with scleroderma with probenecid
CASE: A 44-year-old Hispanic woman presented to the emergency department complaining of fatigue, proximal muscle weakness, a 20-pound weight loss, and diffuse, painful skin hardening. At the onset of her illness approximately two years prior, the presence of skin findings and muscle weakness had led to a preliminary diagnosis of dermatomyositis. However, because the patient lost her health insurance (became uninsured) shortly thereafter, she was lost to follow-up until the current presentation. Her past medical history was otherwise unremarkable, and her only medication was ibuprofen. Physical examination revealed an ill-appearing, cachectic woman with tachycardia, but normal blood pressure and respirations. Other pertinent findings included facial skin tightening, a decreased oral aperture, scattered squared-off telangiectasias over the face and trunk, and severe, diffuse hardening of the skin over the trunk, abdomen, arms, and legs. Several areas of hardened skin were ulcerated and draining purulent material. Laboratory assessment revealed a profound microcytic anemia (hematocrit 9) and a positive anti-nuclear antibody (1:640 in a speckled pattern). A chest X-ray and an abdominal CT showed diffuse calcification overlying the soft tissues, a pattern reminiscent of an exoskeleton. An echocardiogram revealed moderate pulmonary hypertension. Endoscopy determined that the patient's anemia was secondary to a gastric ulcer, likely a result of frequent NSAID use. The patient was given a diagnosis of limited scleroderma, and after medical stabilization, started on (off-label) probenecid 500 mg for her profound calcinosis and discharged home. She was lost to follow-up for an additional year, but continued therapy with probenecid. Upon re-presentation to the outpatient clinic, her calcinosis had improved remarkably, although she continued to have skin tightening in a pattern consistent with scleroderma, as well as associated pulmonary hypertension.
DISCUSSION: Calcinosis universalis is an uncommon manifestation of connective tissue diseases and has a broad differential diagnosis. In this case, the patient developed scleroderma, which was manifested by pulmonary hypertension, skin tightening, telangiectasias, and remarkable diffuse calcinosis. She had dramatic liquefaction of calcinosis nodules with probenecid over time. While the pathophysiology of calcinosis universalis remains unclear, this report, along with a handful of others in the literature, suggest that long-term probenecid treatment may benefit these patients.

SILENT BUT DEADLY: A CASE OF ASYMPTOMATIC COMMON VARIABLE IMMUNODEFICIENCY (CVID) K.A. Hartmann[1]; M. Vasudev[1]; J.M. Routes[1]. [1]Medical College of Wisconsin, Milwaukee, WI. *(Tracking ID # 189395)*

LEARNING OBJECTIVES: 1. Recognize the common presenting signs and symptoms of CVID. 2. Identify the common laboratory tests used to screen for CVID. 3. Describe the treatment for CVID.
CASE: A 32 year old, healthy male presented for employee physical examination for a volunteer fire department job. His past medical history included sinus infections (about 1 per year) that typically resolved without antimicrobials and otitis media as a child. There was no history of pneumonia or other unusual infections. The physical examination was normal. Routine laboratory studies demonstrated a low total protein 5.7 g/dL (6.0–8.0) and albumin 3.8 g/dL (4.0–5.5) levels. Based on the low protein level, quantitative immunoglobulins were obtained and demonstrated panhypogammaglobulinemia [IgG 336 mg/dl (600–1700), IgA<20 mg/dl (70–312), IgM<20 mg/dl (56–352)]. Specific antibody responses following immunization to protein antigens were normal [diphtheria 0.124 IU/mol (>0.099), tetanus 0.250 IU/mol (>0.15), and Haemophilius B diphtheria protein conjugate vaccine 9 IU/mol (>1)]. In contrast, specific antibody responses to the 23 multivalent pneumococcal vaccine were absent despite repeat immunization. Lymphocyte enumeration revealed normal numbers of B and T cells. Stool Alpha 1 antitrypsin levels were normal, excluding a protein losing enteropathy. CT scan of the chest, abdomen, and pelvis were normal. CT scan of the sinuses showed minimal right ethmoid sinus mucosal thickening. Pulmonary function tests were normal. Intravenous immunoglobulin (IVIG) was begun (400 mg/kg every 4 weeks) and the patient has done well without infection.
DISCUSSION: CVID is a primary immunodeficiency of unknown etiology characterized by low levels of serum IgG and a decreased ability to make specific antibodies in response to infection or vaccination. In most cases, serum levels of IgA and IgM are also reduced. The prevalence of CVID is estimated to be approximately 1 in 50,000. T cell abnormalities are common and likely contribute to the increased prevalence of gastric cancer and Non-Hodgkin's lymphomas in these patients. Interstitial lung disease (ILD) occurs in about 25% of patients with CVID and is a major

cause of morbidity and mortality. The onset of symptoms in patients with CVID can occur at anytime in life, with the mean age of diagnosis in the second decade of life. Nearly all patients with CVID present with frequent upper and/or lower respiratory tract infections. It is distinctly unusual to diagnose CVID in the absence of recurrent respiratory tract infections. Screening for CVID or other antibody deficiencies is indicated in patients with recurrent otitis media, recurrent or intractable sinusitis, more than one chest x-ray documented pneumonia or more than one gastrointestinal infection with Giardia. Quantitative immunoglobulin levels (IgG, IgA, IgM) are the primary screening test for all types of primary antibody immune deficiencies. IVIG is the primary mode of therapy in CVID and has dramatically reduced severe bacterial and viral infections. Unfortunately, IVIG does not reduce the frequency of ILD or cancer in patients with CVID. Respiratory tract infections should be treated with antimicrobials with a spectrum that includes common encapsulated and atypical bacterial pathogens (Mycoplasma sp). This case illustrates an asymptomatic individual with CVID. Therapy with IVIG is warranted in these instances as such patients are at high risk for serious infections including pneumonia, sepsis and meningitis.

SIXTY TO ZERO: RAPIDLY PROGRESSIVE PANCYTOPENIA IN THE HIV PATIENT N. Van Sickels[1]. [1]Tulane University, New Orleans, LA. *(Tracking ID # 190616)*

LEARNING OBJECTIVES: 1) Identify the differential diagnosis of pancytopenia, particularly in a patient with HIV 2) Recognize the presentation of B-cell lymphoma in patients with longstanding HIV disease 3) Understand the important of exercising thoroughness in assessing the rate of change of laboratory values in HIV patients

CASE: A 61 yo man with HIV presented with three weeks of worsening dyspnea, fevers, and night sweats. He noted no ill contacts, and had not been taking any medications for his HIV. He noted that he was recently admitted for Pneumocystis jiroveci pneumonia and had left against medical advice. He was treated with trimethoprim/sulfamethoxazole and prednisone, but was subsequently lost to follow-up. At presentation, his temperature was 102 ° F, and his heart rate was 112 bpm. He was alert, oriented, and anxious. His mucosa was pale, and he had several petichial lesions on his hard palate. His cardiac and pulmonary examinations were normal; He had no lymphadenopathy and the JVP was not elevated. The remainder of his physical examination was normal. His WBC count was 4,000 cells/mm3, the hemoglobin was 7.5 g/dL, and his platelet count was 12,000. The reticulocyte percentage at 0.3%.His AST was 156 U/L, the LDH was 587; the CD4 was 21. His G6PD level was normal. The remaining laboratory studies were normal. The CBC results were initially ascribed as being his baseline values, and he was treated with trimethoprim/sulfamethoxazole for presumptive Pneumocystis jiroveci pneumonia. A thorough review of his medical record, however revealed that his complete blood count had been normal upon discharge one month ago. Because of the acute change, a bone marrow biopsy was performed that revealed large B-cell lymphoma

DISCUSSION: Pancytopenia is a commonly encountered clinical dilemma for the general internist, and even more common in the HIV patient population. Our patient's dyspnea was initially ascribed to Pneumocystis jiroveci, but the normal oxygen saturation, the normal CXR, and the CBC suggested that it was the acute bone marrow failure that was responsible for his dyspnea and fatigue. The first step in evaluating pancytopenia is to determine whether the etiology is consumptive or failure to produce cells. Our patient had new-onset pancytopenia with a low reticulocyte count, suggesting a hypocellular marrow, which was confirmed by biopsy. In immunocompetent hosts, leukemia, lymphoma, and toxic exposures are the most common causes of bone marrow failure. In the immunosuppressed, infections such as mycobacterial disease, parvovirus B19, CMV, and other fungal infection should be considered. In addition, patients with HIV are commonly placed on myelosuppressive medications such as trimethoprim/sulfamethoxazole, anti-retrovirals and dapsone, that should also be considered. Finally, malignancies such as leukemia, lymphomas, Kaposi's sarcoma, cervical and anal Cancer are much more common in the patient with HIV. While people living with HIV are prone to abnormalities of the hematopoietic system, it is important for the general internist to exercise thoroughness in assessing the rate of change of the blood counts. Many of the symptoms that would alert the physician to the new abnormality are obscured by other symptoms common in the HIV patient, as was the case in our patient's dyspnea, fatigue, and fevers.

SMALL BOWEL OBSTRUCTION SECONDARY TO PERITONEAL TUBERCULOSIS A. Aravapalli[1]; B. Milapchand[1]; N. Yalamanchili[1]; R. Potluri[1]; A. Agnihotri[1]; K. Gujral[1]. [1]UND, Fargo, ND. *(Tracking ID # 190367)*

LEARNING OBJECTIVES: Small Bowel Obstruction secondary to peritoneal involvement is an uncommon manifestation of Tuberculosis. Recognition of this condition is important especially in recent immigrants and high-risk groups.

CASE: A 24-year-old Philippines woman presented to the ER with recurrent and progressively worsening abdominal pain associated with nausea and vomiting of six months duration. She was treated with omeprazole during the past visits with minimal relief She also had night sweats and lost fifteen pounds in six months. She recently moved to United States one year ago and has been exposed to her aunt who had active Tuberculosis in Philippines. She had mild epigastric tenderness and elevated amylase during the current and previous admissions. After a couple of admissions she underwent CT imaging of abdomen and pelvis which showed multiple dilated loops of small bowel consistent with high-grade small bowel obstruction. She was readmitted to the hospital and surgery was consulted. She underwent exploratory laparotomy and operative findings showed diffuse nodular peritoneal and omental implants along with adhesions. She had biopsy of implants, adhesiolysis, omentectomy and release of small-bowel obstruction. Postoperatively her symptoms have markedly improved. Histology showed the presence of caseating granulomatous disease. Tuberculin skin test placed at the time of admission has approximately 25 mm of induration. She has not had a previous tuberculin skin test. She does not know if she received BCG immunization as a child. Subsequently plain chest x-rays showed left supra hilar opacity. Multiple sputum specimens collected initially were acid-fast bacillus smear negative. Later a specimen from induced sputum has been reported to be growing Mycobacterium tuberculosis complex identified by DNA probe. Subsequently she has been started on antituberculous therapy including isoniazid 300 mg once per day, pyrazinamide 1000 mg once per day, rifampin 600 mg once per day, ethambutol 800 mg once per day, and pyridoxine 12.5 mg once per day. After 2 months ethambutol and pyrazinamide were discontinued. She was advised to continue rifampin, isoniazid, and vitamin B6 for 6 months. Mycobacterium tuberculosis cultured from sputum was reported to be susceptible to isoniazid, rifampin, and ethambutol.

DISCUSSION: Peritoneal tuberculosis present as nonspecific and vague symptoms. Chronic abdominal pain is the most common complaint. Anorexia, fatigue, fever, night sweats, weight loss, diarrhea, constipation, blood in the stool and acute abdominal pain may be present. Routine laboratory tests might reveal mild anemia and elevated sedimentation rate. Tuberculin skin test is positive in majority of patients but it does not differentiate between active disease and previous sensitization by contact or vaccination. CT is helpful to assess disease extent, intra and extra luminal pathology. A presumptive diagnosis can be made in the presence of known active pulmonary TB or positive chest X-ray along with clinical and radiologic findings in the bowel. Definitive diagnosis is histological findings of caseation necrosis and epithelioid histiocytes, Ziehl-Neelsen staining for acid-fast bacilli and culture. As a result of the above, diagnosis of peritoneal tuberculosis can be difficult and requires a high index of suspicion, especially in high-risk groups.

SMALL MASS, BIG PROBLEM: SEIZURE CAUSED BY CAVERNOUS HEMANGIOMA F. Zhang[1]; M. Cunnane[1]. [1]University of Pittsburgh, Pittsburgh, PA. *(Tracking ID # 190332)*

LEARNING OBJECTIVES: 1. State the differential diagnosis for transient loss of consciousness. 2. Outline the management of seizures caused by cavernous hemangioma.

CASE: A 38 year old male presented after two episodes of losing consciousness. The first episode occurred while shaving, and was unwitnessed; the patient reported that he was unconscious for about two hours. The second episode occurred while urinating; the patient's wife reported that he was unarousable for 20–30 minutes. She noted some jaw clenching and arm tremor but no obvious seizure activity. Neither episode was preceded by a prodrome. The patient's past medical history was significant for mitral valve regurgitation, nephrolithiasis and gastroesophageal reflux disorder. On presentation, the patient was awake and alert, and reported significant pain in his left arm. His neurologic, cardiovascular, and pulmonary exams were normal; the patient was not orthostatic. Electrolytes, complete blood count, blood glucose, and TSH were within normal limits. An electrocardiogram showed sinus tachycardia with a

heart rate of 114; no other abnormalities were noted. Radiographs of the left arm demonstrated a minimally comminuted fracture of the humerus. A transthoracic echocardiogram showed a nondilated left ventricle with an ejection fraction of 50–55%. Electroencephalography showed frequent epileptiform discharges in the left temporal region during sleep, suggestive of a seizure tendency. MRI revealed a 15-millimeter lesion at the anteromedial left temporal lobe suggestive of a cavernoma. The patient was started on lamotrigine, but continued to have seizures. He underwent surgical resection of the cavernoma.
DISCUSSION: In the differential diagnosis for loss of consciousness are syncope, seizure, hypoglycemia, and transient ischemic attack. Syncope is caused by an acute decrease in cerebral blood flow and a loss of postural tone. A thorough history and physical exam are essential for providing clues to diagnosis. Seizures may be associated with an aura; injury from falling is frequent because of loss of protective reflexes. Unconsciousness typically lasts longer after a seizure than syncope. Tonic-clonic movements and urinary incontinence are characteristic of seizure, rather than syncope. Testing should be based on provided history, common causes, and patient's risk factors. Diagnosis of seizure secondary to a space occupying mass is primarily dependent on EEG and MRI when history is not conclusive. Cavernomas can be familial or sporadic. They commonly present with seizures, hemorrhage, and progressive neurologic deficits in patients between 30 and 40 years of age, with no sex predilection. Characteristic findings on MRI including a "popcorn" or "mulberry" pattern usually yield the diagnosis. Cavernomas are highly epileptogenic and annual bleeding rates can be as high as 1.1 percent. Asymptomatic cavernomas are followed by observation regardless of location, and indications for resection include accessible location, neurologic deficits, intractable epilepsy, and recurrent hemorrhage. Surgical prognosis is generally good with age less than 30, mesiotemporal location, size smaller than 15 millimeters, and absence of secondarily generalized seizures as favorable indicators.

SMOKING: RESTRICTIVE OR OBSTRUCTIVE, BUT ALWAYS DESTRUCTIVE. A. Marwaha[1]; J. Kwiatt[1]. [1]Medical College of Wisconsin, Milwaukee, WI. *(Tracking ID # 190256)*

LEARNING OBJECTIVES: 1. Recognize that cigarette smoking can result in interstitial lung disease. 2. Discuss the diagnosis and treatment of desquamative interstitial pneumonitis and respiratory bronchiolitis-associated interstitial lung disease.
CASE: A 46-year-old woman with a presumed history of chronic obstructive pulmonary disease and a 35 pack-year smoking history presented with worsening dyspnea on exertion for one week, subjective fevers and cough productive of yellow sputum. At her baseline, she can walk one block without shortness of breath. On presentation she could only walk 15 feet before needing to rest. Prior to admission, she was seen by her primary care physician and was treated for sinusitis with levofloxacin without resolution of her symptoms. Physical exam on admission was significant for bibasilar crackles and course breath sounds. She was afebrile (99.5), tachycardic (103), hypertensive (156/90) and hypoxemic (75% on room air). Laboratory studies were significant for a white blood cell count of 12 K/uL with 84% neutrophils. Chest radiograph revealed right middle and lower lobe infiltrates. She was started on treatment for hospital acquired pneumonia with cefepime, ciprofloxacin and vancomycin. On review of prior records, she had a one-year history of progressive dyspnea and functional decline for which she underwent repeated CT scans that revealed waxing and waning ground glass opacities in her right lung. A transbronchial lung biopsy had been performed with inconclusive results. Another CT scan of the chest was obtained which showed an increase in ground glass opacities in the right lung. Given these results, an open lung biopsy was performed. Biopsy revealed diffuse intra-alveolar filling by an exudation of pigment laden macrophages consistent with desquamative interstitial pneumonitis. The final pathology did not show any evidence of infectious process. The patient did not smoke throughout her hospital stay which totaled two weeks. In that time, her dyspnea had markedly improved, and a repeat CT scan prior to discharge showed significant reduction in ground glass opacities.
DISCUSSION: Desquamative interstitial pneumonitis (DIP) and respiratory bronchiolitis-associated interstitial lung disease (RB-ILD) are two closely related interstitial lung diseases associated with cigarette smoking. The incidence of smoking in patients that carry either diagnosis exceeds 90%. Clinically, patients present with an insidious onset of dyspnea and cough over a course of weeks or months. Chest radiographs can range from being completely normal to nonspecific infiltrates that can be misinterpreted as an infectious process. Ground glass opacities are the predominant finding on CT scan for both patients with DIP and RB-ILD. Although clinical and radiographic diagnoses can be made, neither are specific. Histological specimens are necessary for diagnosing DIP and RB-ILD. These specimens characteristically show macrophage accumulation within the alveoli, with DIP being diffuse and RB-ILD being bronchiolocentric. Currently, the medical management of DIP and RB-ILD includes smoking cessation and corticosteroid therapy. Follow-up CT scans in these patients have shown partial resolution of ground glass opacities. Without either therapy, DIP is a persistent and progressive disease that can result in mortality. While cigarette smoking is most commonly associated with obstructive lung disease, physicians should not preclude the possibility of a restrictive process, such as DIP.

SOMETHING OLD, SOMETHING NEW, BUT NOT BORROWED AND NOT BLUE P. Essah[1]; A. Aggarwal[1]. [1]Virginic Commonwealth University, Richmond, VA. *(Tracking ID # 190821)*

LEARNING OBJECTIVES: 1. Recognize the presentation of nephrogenic systemic fibrosis, a new and emerging disorder that results after gadolinium exposure in patients with renal disease. 2. Recognize that patients with nephrogenic systemic fibrosis may develop levothyroxine resistance.
CASE: A 52 year old Caucasian male with a history of hypothyroidism, type 2 diabetes mellitus, hypertension, and chronic kidney disease presented with a 1-week history of anasarca and diarrhea. Two weeks prior to admission, he had been hospitalized with ischemic colitis and worsening chronic renal failure. He underwent a magnetic resonance angiogram and twice magnetic resonance imaging (MRI) with gadolinium to evaluate for thrombosis. Medications on present admission included levothyroxine, NPH insulin, metoprolol, and furosemide. Physical examination revealed a cachectic male looking older than his stated age with stable vital signs. Examination was significant for diffuse generalized edema with 3 + pitting bilateral lower extremity edema. Admission labs included a creatinine of 4.7 mg/dl (baseline of 3.8 mg/dl), and TSH of 12 mlU/L. Again a MRI with gadolinium was performed on admission, and the patient was treated for recurrent ischemic colitis. This hospital course ended with a complete resolution of his acute renal failure. Approximately two weeks after admission, the patient's hospital course was complicated by the development of hand contractures, worsening fatigue, and alopecia. Skin biopsy revealed nephrogenic fibrosing dermopathy. Thyroid studies revealed TSH of 117 mlU/L. Endocrinology consult was obtained, and the patient's levothyroxine dose was increased from 75 to 100 mcg. Four weeks later, his TSH remained elevated at 100 mlU/L. An oral liothyronine sodium challenge test to evaluate levothyroxine malabsorption revealed failure of T4 levels to rise. Intestinal malabsorption of levothyroxine was believed to be secondary to nephrogenic fibrosing dermopathy or nephrogenic systemic fibrosis. The patient was started on intravenous levothyroxine with improvement of TSH to normal range (2.3 mlU/L). He was discharged on simpler home administration of intramuscular levothyroxine.
DISCUSSION: Nephrogenic systemic fibrosis (NSF), also known as scleromyxedema-like illness of renal disease, is a new and emerging disorder that results after gadolinium exposure in patients with renal disease. First described by Cowper et al. in 2000, it is characterized by the acute onset of thickening and hardening of the skin in individuals with acute or chronic renal failure. Skin biopsy shows an increase in dermal fibroblast-like cells with collagen remodeling. Initially believed to be limited to the skin, recent autopsy reports have identified involvement of skeletal muscle, myocardium, lungs, and kidneys, indicating a systemic nature of this disease. To our knowledge, this case presentation is the first to describe a possible association of NSF to uncontrolled hypothyroidism. Upon presenting with nephrogenic fibrosis, the patient described above developed worsened hypothyroidism with resistance to oral levothyroxine but not other oral medications. His levothyroxine gastrointestinal malabsorption required the use of outpatient intramuscular levothyroxine. As general internists continue to care for more patients with chronic kidney disease and hypothyroidism, it is prudent that we recognize emerging disorders in these patients and recognize potential implications of NSF.

SORE THROAT – NOT ALWAYS THE USUAL SUSPECTS A. Dasari[1]; S. Malhotra[1]; C.L. Spagnoletti[1]. [1]University of Pittsburgh, Pittsburgh, PA. *(Tracking ID # 190818)*

LEARNING OBJECTIVES: 1) To outline the etiology and pathogenesis of thyroid abscess 2) To discuss the management of thyroid abscess

CASE: A 17-year-old female with history of adenoidectomy and tonsillectomy initially presented to her internist's office with a 3-day history of odynophagia, hoarseness of voice and left sided neck pain. She was started empirically on azithromycin for presumed strep pharyngitis. A heterophile antibody test and throat culture obtained at that time were subsequently negative. She continued to have progressive left sided neck pain, odynophagia and high fevers, which prompted a visit to the ER. Examination revealed a normal oropharynx, swelling and tenderness localized to the left lobe of the thyroid with erythema of the overlying skin. Laboratory data revealed a WBC count of 15,000 and normal thyroid function tests. Imaging of the thyroid with an ultrasound and CT neck revealed a 2.9×2.3×2.1 cm abscess in the left lobe of thyroid extending beyond the superior pole of the thyroid up to the left pyriform sinus concerning for a fistula. The patient was admitted to the hospital and was started on intravenous antibiotics. She also underwent percutaneous drainage of the abscess with significant symptomatic relief. Microscopy of the aspirate showed numerous inflammatory cells and cultures grew methicillin resistant Staphylococcus aureus. The patient was subsequently switched to IV vancomycin while in the hospital and discharged on a course of oral doxycycline, to which the isolate was sensitive. Given the concern for a possible pyriform sinus fistula, she was advised to follow up with an ENTsurgeon for further evaluation and possible fistulectomy.
DISCUSSION: The thyroid gland is particularly resistant to infection due to a number of protective factors including a rich arterial supply, extensive lymphatic drainage, high iodide content and a protective fibrous capsule. Thyroid abscesses are therefore rare and in adults, are usually secondary to direct trauma from fine needle aspiration or from a foreign body such as a fish bone. Hematogenous spread from other foci of infection may rarely be seen, especially in immunocompromised patients. Thyroid abscesses occur mostly in the adolescent population in the setting of embryological anomalies of the neck, most commonly a pyriform sinus fistula (PSF). PSF is thought to be a remnant of the third or fourth branchial cleft and runs between the pyriform sinus and the thyroid gland leading to abscesses predominantly in the left lobe for unclear reasons. The most common causative organisms are Staphylococci and Streptococci species. All cases of thyroid abscess should undergo fine needle aspiration for confirmation of diagnosis and to determine the causative organism(s). Imaging is useful to look for underlying anatomic defects especially in younger patients and those with recurrent episodes. Barium swallow done after the acute episode helps to delineate the fistula which then must be completely excised to prevent further recurrences. Given the rarity and non-specific pharyngitis like presentation, the diagnosis of thyroid abscess is often delayed. It is also frequently confused with subacute thyroiditis. However, unilateral symptoms, normal thyroid function tests and imaging help to differentiate thyroid abscess from thyroiditis. This is especially important since the treatment of subacute thyroiditis involves steroids, which are contraindicated in thyroid abscess given its suppurative nature.

STEROIDS: CRAZY WITHOUT, CRAZY WITHIN J. Bhutto[1]; C. Miller[1]. [1]Tulane University, New Orleans, LA. *(Tracking ID # 190577)*

LEARNING OBJECTIVES: 1. Recognize altered mental status as a presentation of systemic lupus erythematosus. 2. Identify the treatment for steroid-induced psychosis 3. Recognize the complications of treatment of steroid-induced psychosis.
CASE: A 42-year-old woman with no prior history of psychiatric disease presented with one day of aggressive and bizarre behavior. Her family discovered her uncharacteristically shouting vulgarities at her children. She was also exhibiting loose thought associations, hyper-religiosity, hyper-sexuality, and agitated behavior. Two weeks before presentation, she consulted an outside physician for "joint pains," and was given a preliminary diagnosis of fibromyalgia and started on prednisone. Her heart rate was 102 beats per minute. The remainder of her vital signs were normal. Her physical exam was normal, with no signs of trauma; her neurologic examination was normal. The joint swelling she had previously described was now absent. Her psychiatric examination was notable for non-linear thinking, irrational behavior, and several emotionally charged outbursts. Her white blood cell count was 3500/ul, the hemoglobin was 7.4 gm/dl, and the platelet count was 439,000/ul. A urinalysis revealed significant proteinuria and moderate hematuria. Electrolytes, liver function tests and urine toxicology were normal. A chest x-ray revealed a small left-sided pleural effusion. A head CT scan and the lumbar puncture were normal. An anti-nuclear antibody (ANA) test was positive (dilution 1:640) as well as an anti-double stranded DNA antibody test. She was diagnosed with systemic lupus erythematosus (SLE), for which steroids were indicated. Because her altered mental status was antecedent to the steroid administration, the diagnosis of steroid-induced psychosis had a higher pre-test probability than acute lupus cerebritis. The prednisone was discontinued, and her altered mental status resolved over the next two days.
DISCUSSION: Lupus is a common presenting complaint for the general internist. Recognizing lupus cerebritis as a cause of altered mental status is important, as over fifty percent of patients with lupus will have a neurologic complication during their lifetime. Recognizing steroid-induced psychosis is equally important, and the internist's careful history, especially regarding the timing of the altered mental status as it relates to the administration of steroids is the key to distinguishing between these two diagnoses. The internist must also recognize that relapses are common for patients who have had a previous episode of steroid-induced psychosis. In our patient, systemic complications of lupus such as glomerulonephritis remained, and prednisone alone was not an option for treatment. In this setting, immunosuppressive agents such as cyclophosphamide or mycophenolate mofetil are indicated. Attempts of using corticosteroid treatment with the addition of an antipsychotic has shown promise in a few, isolated studies. Our patient received cyclophosphamide which resulted in resolution of the acute glomerulonephritis.

STILL THE GREAT MASQUERADER: PULMONARY EMBOLUS S. Ram[1]. [1]University of Pittsburgh, Pittsburgh, PA. *(Tracking ID # 190468)*

LEARNING OBJECTIVES: 1. Recognize the difficulty of diagnosing pulmonary embolus (PE). 2. Diagnose PE using appropriate testing. 3. Recognize the use of echocardiography to aid in the diagnosis of PE.
CASE: An 85 year-old African-American male with a history of congestive heart failure (CHF), hypertension, asthma, and prostate cancer diagnosed 17 years ago presented to the emergency department with a complaint of "trouble breathing" for four days. He denied chest pain, orthopnea, fevers, dyspnea at rest, immobilization or recent surgery. One month ago, he could walk up 12 steps without dyspnea, but now gets dyspneic with three steps. He works as a barber and quit smoking 35 years ago (6 pack-year history). On exam, he was afebrile, BP was 124/78, pulse was 80, respirations were 16, and oxygen saturation was 96% on 4 L nasal cannula. There was no JVD, no cardiac murmurs or gallops, but he had crackles in the lower lung fields and bilateral lower extremity edema to his knees. Initial testing revealed a bicarbonate of 16, creatinine of 1.7, an anion gap of 16, BNP of 684, and a peak troponin of 0.38. Chest x-ray showed cardiomegaly and an EKG showed normal sinus rhythm with nonspecific ST-T wave abnormalities. He was treated for CHF exacerbation in the emergency department and a cardiologist was consulted. Because of the low bicarbonate, we ordered an arterial blood gas (ABG) to differentiate between metabolic acidosis and compensated respiratory alkalosis. The ABG revealed a pH=7.439, paCO2=25.7, paO2=82.8, indicating a compensated respiratory alkalosis and an A-a gradient was elevated at 27. An echocardiogram, ordered by cardiology, revealed an ejection fraction of 20–25% (down from 26% eight years ago), a right ventricular pressure of 80 mm Hg, and a dilated right ventricle, atrium and IVC. Because of the increased A-a gradient and lack of significant rales or S3 gallop arguing against CHF exacerbation, we ordered a CT-angiogram (CT-A) of his pulmonary vasculature to evaluate for PE. The CT-A showed extensive bilateral large pulmonary emboli with a large centrally-located right pulmonary embolus. Heparin and warfarin were started.
DISCUSSION: The diagnosis of PE can be very difficult when the only symptom is dyspnea on exertion. The most common signs and symptoms according to the Prospective Investigation of Pulmonary Embolism Diagnosis study are dyspnea (73%), pleuritic chest pain (66%), rales (51%), cough (37%), and tachycardia (30%). Unfortunately, these features can be seen in other conditions, including CHF exacerbation, COPD, MI, and pneumonia. PE is worrisome if the pretest probability is high, which can be established by the Wells' Criteria. Points are accrued for suspected deep venous thrombosis (DVT), tachycardia, immobilization or surgery in the last four weeks, previous DVT or PE, hemoptysis, malignancy or if an alternative diagnosis is less likely than PE. Suspicion should be raised for PE when an ABG shows hypoxemia, hypocapnia, and respiratory alkalosis, but the A-a gradient can be normal or increased. Echocardiography may show right ventricular dysfunction. This case illustrates that PE is still the great masquerader. Basic history, physical exam and laboratory values can provide important clues to the diagnosis of PE.

STRAINING AT A DIAGNOSIS: BICKERSTAFF'S ENCEPHALITIS A. Montero[1]; C. Miller[1]. [1]Tulane University, New Orleans, LA. *(Tracking ID # 190884)*

LEARNING OBJECTIVES: 1. Recognize the clinical presentation of Bickerstaff's encephalitis. 2. Identify the classic triad of the Miller-Fisher variant of Guillain-Barre syndrome. 3. Identify the differences between Guillain-Barre syndrome, Miller-Fisher syndrome and Bickerstaff's encephalitis.
CASE: A 19 year-old man presented with two weeks of consitpation, nausea and vomiting. Three months earlier, he noted the onset of dysphagia followed by a sixty-pound weight loss. Over the previous two weeks, he noted progressive horizontal binocular diplopia. He had no additional symptoms, and noted no environmental exposures or trauma. His vital signs were normal. His cardiac, pulmonary and abdominal examinations were normal. He had bilateral nystagmus on horizontal gaze. His reflexes were normal and symmetrical throughout. Gait was normal, as was his muscle tone and strength. A lumbar puncture was performed, and his spinal fluid had a protein content of 55 g/dL. All other laboratory studies were normal. He was treated with lactulose and the obstipation resolved. The following day, he became profoundly weak and fell. His condition worsened, delirium, absence of horizontal eye movements, and diminished ankle and patellar reflexes. He eventually deteriorated to absent leg movements, truncal instability, and severe respiratory distress requiring intubation. An MRI was performed, revealing significant demyelinization of the third ventricle, brainstem and midbrain. Electromyography revealed a severe sensory-motor axonal polyneuropathy with preserved motor unit action potentials. The diagnosis of an overlapping syndrome of Bickerstaff encephalitis and Guillain-Barre syndrome was made based upon his clinical signs and the MRI results. Antibodies against glycolipids including GQ1b were negative. He received two doses of intervenous immunoglobulin and recovered function of his limbs and respiratory muscles. He was extubated and eventually transferred to an inpatient rehabilitation facility.
DISCUSSION: Aside from alcohol and diabetes, Guillain-Barre is the most common peripheral neuropathy to be encountered by the general internist. The syndrome is typically an ascending flaccid paralysis associated with areflexia. The general internist must be aware of variants of Guillain-Barre, as the discordant presentation as it relates to classic Guillain-Barre may lead to a missed diagnosis. The Miller-Fisher syndrome is defined by the triad of ophthalmoplegia, areflexia, and ataxia. Bickerstaff's encephalitis includes drowsiness and extensor plantar response in addition to the Miller-Fisher triad. This syndrome has been reported to be associated with autonomic instability, as demonstrated in our patient's consitpation, and with demyelinization of the brainstem. The pathology of Guillain-Barre syndrome involves T cell activation and antibody formation to glycolipids of the peripheral nerve sheaths, slowing conduction through these nerves. Antibodies to GQ1b are most closely associated with the Miller-Fisher syndrome and Bickerstaff encephalitis early in the clinical course. Conduction through our patient's peripheral nerves, both sensory and motor, was significantly slowed; however, his antibody titer to GQ1b was negative. As was the case in our patient, the internist must recognize that while specific, the GQ1b antibody is less than 60% sensitive. The diagnosis is thus made on clinical suspicion, and failure to recognize the variant presentations of Guillain-Barre may result in death.

STRESSFUL YARDWORK B. Tully[1]; C. Liu[2]; A.L. Spencer[1]. [1]Allegheny General Hospital, Pittsburgh, PA; [2]Drexel University College of Medicine, Philadelphia, PA. *(Tracking ID # 189444)*

LEARNING OBJECTIVES: 1) To recognize the variable presentations of Vitamin B12 deficiency including exertional chest pain. 2) To describe current standards for the diagnosis of B12 deficiency and 3) To discuss key concepts in the pathophysiology of B12 deficiency.
CASE: A 45 year-old, non-smoking, Caucasian woman with a past medical history of hypertension, hypothyroidism, and mitral valve prolapse, presented to the ER after two episodes of exertional chest pain and shortness of breath while mowing her lawn. Symptoms were relieved with rest and she was pain free upon arrival in the ER. Review of systems revealed significant fatigue over the past six months with more severe symptoms in the past two months. Pertinent physical findings included pale conjunctiva, generalized pallor, and a 2/6 systolic ejection murmur at the base of the heart. Initial EKG revealed T wave inversions in the inferior leads. Cardiac enzymes were negative for myocardial infarction and initial lab workup revealed a Hemoglobin of 7.8 g/dL, Hematocrit of 22.6%, MCV of 113, Total Bilirubin of 1.7 mg/dL (Indirect 1.4), and an LDH of 1273 U/L. Hemolytic anemia was initially suspected. Peripheral blood smear revealed macrocytosis and spherocytes without hypersegmented neutrophils. In consideration of the etiologies of macrocytosis, a workup for Megaloblastic Anemia revealed a B12 level of 43 pg/mL and a positive Parietal Cell Antibody Titer of 160. The patient was transfused 2 units of packed-RBCs and her pallor, fatigue, and dyspnea promptly resolved. A diagnosis of pernicious anemia was made and the patient was started on Vitamin B12 injections while in the hospital.
DISCUSSION: Anemia may commonly be overlooked as a cause of exertional chest pain, especially when typical signs of Vitamin B12 deficiency such as stomatitis, glossitis, and neuropathy are absent. In this case, a decreased oxygen-carrying capacity in the setting of moderate physical exertion produced chest pain. The pathophysiology of Vitamin B12 (cobalamin) malabsorption is well known; dietary cobalamin normally binds to Intrinsic Factor (IF) secreted by gastric parietal cells leading to uptake by ileal IF-cobalamin receptors. Cobalamin malabsorption is most commonly caused by pernicious anemia (PA) where autoimmunity to either IF or the parietal cells leads to atrophy of the gastric mucosa and absence of IF. Other causes of Vitamin B12 deficiency include gastrectomy, alcoholism, Crohn's disease, ileal resection, and blind-loop syndrome. Classically, the Schilling test was used to diagnose PA, but antibody testing is more commonly used in practice today. About 90% of patients with PA will have anti-parietal cell antibodies and 60% will have anti-IF antibodies. Vitamin B12 is important both as a cofactor in the conversion of homocysteine to methionine and methylmalonyl CoA to succinyl CoA. When faced with a macrocytic anemia, it is important to distinguish between B12 deficiency and folate deficiency because if B12 deficiency is left untreated, irreversible neurological disease can result. Expected hematologic responses to B12 replacement include reticulocytosis, decline in LDH levels, and hypokalemia which may result from increased potassium utilization during hematopoiesis. We view this case as an important reminder of the diagnostic diversity of chest pain, a common presenting symptom in the ER.

STUCK ON "U": AN UNUSUAL CAUSE OF URETERAL OBSTRUCTION M.A. Mazepa[1]; K.M. Hla[1]. [1]University of Wisconsin School of Medicine and Public Health, Madison, WI. *(Tracking ID # 189799)*

LEARNING OBJECTIVES: 1. Recognize an unusual cause of ureteral obstruction 2. Describe an uncommon presentation of abdominal aneurysm
CASE: A 71-year-old gentleman with hypertension and dyslipidemia presented with a two-week history of fevers, chills, night sweats, intermittent left flank pain estimated weight loss of 9 pounds with mild anorexia and gastrointestinal upset. His flank pain was worst at night, only when lying on his left side, and resolved with repositioning. He had never had a colonoscopy and had no history of diverticulitis. He denied nausea, vomiting, urinary frequency, urgency and dysuria. On exam he was afebrile, hypertensive, and in no distress. There was facial flushing and diaphoresis. His abdomen was soft, obese but non-distended with fleeting tenderness in the right upper and lower quadrants, but non-reproducible pain. There was no guarding or rebound, no costovertebral or spinal tenderness. Laboratories showed a white blood cell count of 11600, with neutrophilia. His electrolytes, creatinine and urinalysis were normal. Peripheral blood cultures yielded no growth. CT scan of the abdomen and pelvis revealed aneurysmal dilatation to 3.9 cm of the left iliac artery, ureteral obstruction and hydronephrosis with inflammatory stranding concerning for pyonephrosis. A left ureteral stent was placed and the patient was discharged on a course of antibiotics. He then electively underwent repair of his inflammatory iliac aneurysm. Intraoperatively, the ureter was firmly adhered to the aneurysm, which was not mycotic. The ureter was easily dissected away without evidence of trauma and he did well postoperatively.
DISCUSSION: In most primary care evaluations of flank pain, the differential diagnosis is quite narrow, including the structures of the kidney, urinary collection tract, and musculoskeletal system. In most cases urinalysis is the most fruitful test, with hematuria narrowing the differential diagnosis to structural diseases, whereas infectious markers would suggest pyelonephritis. In this case, the urinalysis was not helpful, leading us to consider further testing. Given his clinical presentation and age we felt that an infectious etiology, such as diverticulitis with abscess formation was most likely. A CT of the abdomen was thus performed to rule out this as well as vascular or structural etiologies, and led to the diagnosis of an unsuspected inflammatory left iliac artery aneurysm.

Aortic aneurysms are often found incidentally on imaging exams of the abdomen. Risk factors for abdominal aneurysms include increased age, male sex, smoking, hypertension, atherosclerosis and family history. Inflammation plays a key role in development of all abdominal aneurysm, and leads to a subset of aneurysms called inflammatory aneurysm in about 5% of cases. They often present with back or flank pain, abdominal tenderness, weight loss, elevated inflammatory markers, and occasionally with ureteral obstruction, as it was in this case. CT scan is often the imaging modality of choice. In outpatient evaluation of flank pain, if routine tests such as urinalysis are unhelpful, CT of the abdomen and pelvis is crucial in identifying uncommon but potentially life-threatening and treatable diagnoses.

SUBACUTE ARM PAIN HAVING OEDEMA: SAPHO SYNDROME-TIME TO GET THE LETTERS RIGHT. H. Manyam[1]; J. Hadam[1]. [1]Allegheny General Hospital, Pittsburgh, PA. *(Tracking ID # 189804)*

LEARNING OBJECTIVES: 1) Distinguish SAPHO syndrome in the differential diagnosis of sclerotic skeletal lesions. 2) Recognize the clinical and radiographic findings that correlate with a diagnosis of SAPHO syndrome
CASE: A previously healthy 39 year-old white female presented to urgent care complaining of a sudden onset of neck and right arm pain of 2 days duration. She works as a cashier and the episode started as acute neck pain with radiation down her right arm and weakness in her hand causing her to drop a glass jar. She was originally seen in the ER and diagnosed with musculoskeletal strain and given NSAIDS with no improvement. She denied any recent trauma or other activity to explain the symptoms. Her exam was significant for mild swelling over the cervical spine, significant tenderness with palpation over the vertebrae, decreased grip strength on the right, and intact sensation. Cervical x-rays revealed abnormal bone lucency suspicious for a metastatic process or infection, warranting an MRI. The cervical MRI noted signal abnormalities in the bone marrow, prompting a workup for a metastatic cause. Upon return to the office she had developed significant burning and pain in her sternum along with painful pustular lesions on her hands and feet. She denied a history of weight loss or night sweats. Age appropriate cancer screening was obtained, all of which was negative. Lab work was negative for any signs of infection or inflammation. Her bone scan revealed abnormal uptake on the sternum only. Discussing the exam findings with a radiologist while reviewing her films, led to the diagnosis of SAPHO syndrome. She was started on high dose steroids with no improvement before switching to methotrexate. The skin lesions resolved and she had significant improvement in her neck and chest pain.
DISCUSSION: SAPHO is an acronym for synovitis, acne, pustulosis, hyperostosis, and osteitis, a chronic disorder involving the skin, joints and bones thought to be a type of seronegative spondyloarthropathty. The most common presentation in adults is anterior chest pain as the sternum and medial clavicle are the most common bones affected. The second most common bony site is the spine, as was in our patient. The hallmark of x-rays is hyperostosis, abnormal excessive bone growth, and osteitis, which is sterile if cultured. Awareness of this syndrome is essential as other more serious diseases such as osteomyelitis, lymphoma, or metastatic tumors can produce similar radiographic findings that require much different treatment. The typical palmoplantar pustular skin lesions may occur prior or even after the skeletal symptoms complicating the diagnosis. The key to diagnosing SAPHO syndrome is correlating the clinical signs and symptoms with radiographic findings Laboratory testing is of little value in the diagnosis, but an elevated CRP may indicate inflammation. A bone biopsy is reserved for atypical presentations but will yield a sterile culture with neutrophilic infiltration. The cause of SAPHO syndrome is poorly understood, but an immune process has been hypothesized. The prognosis is good but the course is variable with usually poor response to NSAIDS and variable response to steroids. Case reports have shown promising results with immune modulators such as methotrexate and infliximab and by calcium modulation with bisphosphonates.

SUDDEN CARDIAC DEATH IN MYOTONIC DYSTROPHY L.S. Lu[1]; M. S. Mcdonnell[1]; S. Wali[1]; G. Matheison[1]. [1]Olive View Medical Center - UCLA, Sylmar, CA. *(Tracking ID # 190391)*

LEARNING OBJECTIVES: 1) Recognize physical features of myotonic dystrophy. 2) Recognize that myotonic dystrophy is multisystemic and associated with dangerous arrhythmias and cardiomyopathies.

CASE: A 30 year old Hispanic male with no past medical history presented to the emergency room complaining of acute onset shortness of breath and cough for three days. Patient reported three pillow orthopnea and subjective fevers but denied chest pain. Social history was unremarkable. Family history significant for father having cardiac arrest at age 29. In the ER, patient's temperature 35.3°C, blood pressure 87/63, heart rate 101, respiratory rate 18 and O2 sat 85% on room air. The patient was started on a face mask and fluids. His HR subsequently increased to the 140's. Diltiazem was given for the tachycardia which dropped patient's BP to 50/20. Dopamine drip, IV antibiotics, IV fluid boluses were started and the patient was admitted to ICU with diagnosis of sepsis. Physical exam in the ICU revealed bibasilar crackles and elevated jugular venous pressure of 15 cm H2O. The patient had frontal balding, temporal wasting, long and atrophic facial features with high arched palate. Distal upper extremity weakness and myotonia were elicited. Chest x-ray showed right middle lobe consolidation and right pleural effusion diagnosed as pneumonia. The patient was continued on treatment for sepsis but remained afebrile and WBC was normal at 9.4 cells/μL. Therefore, CT angiogram was ordered for suspicion of pulmonary embolus. While awaiting test results, patient went into cardiac arrest with V-fib which fortunately resulted in successful resuscitation. CT angiogram revealed multiple filling defects in both lungs consistent with multiple pulmonary emboli. A TEE showed global hypokinesis, ejection fraction of 5–10% and bilateral atrial appendage thrombi. An ultrasound found no DVT and all tests for hypercoagulable disorders were normal. Cardiac angiogram revealed clean coronaries consistent with nonischemic dilated cardiomyopathy. Electromyography demonstrated diffuse myotonia restricted to distal muscle groups, suggestive of myotonic dystrophy type I.
DISCUSSION: Myotonic dystrophy (DM) is an autosomal dominant, degenerative disorder which is commonly classified as type I and type II. DM is unique in that it is a multisystem disorder often associated with cardiac conduction abnormalities, gastrointestinal problems, learning disabilities, infertility, insulin resistance and cataracts. Patients often present to primary care or other specialists before seeing a neurologist. Myotonic dystrophy type I (DM I) is the most common form in adults and results from a CTG trinucleotide expansion repeat. The size of the expansion correlates with an earlier age of disease onset and with a more severe course in subsequent generations. DM I is associated with very specific muscle weakness found in facial muscles, hand muscles, muscles of the forearm, and the ankle dorsiflexors. The specific muscle weakness contributes to distinct facial appearances – long and narrow face with a high arched palate, hollowed cheeks, ptosis and wasting of the sternomastoid muscles. The cardiac manifestations of DM I, specifically cardiomyopathies, conduction abnormalities and arrhythmias, are concerning for risk of sudden cardiac death. This patient had both a dilated cardiomyopathy and conduction abnormalities. It was his presence in the ICU which allowed for a rapid response that ultimately prevented his early demise.

SUPERIOR VENA CAVA SYNDROME AS A SEQUELA OF COCCIDIOIDOMYCOSIS A. Romero[1]; L. Hamidjaja[2]. [1]UCSF Fresno Division of Pulmonary & Critical Care, Fresno, CA; [2]UCSF Fresno Department of Internal Medicine, Fresno, CA. *(Tracking ID # 190777)*

LEARNING OBJECTIVES: 1. To describe non-malignant causes of SVC syndrome. 2. To discuss risk factors and varying forms of Coccidioidal infection.
CASE: A 39-year-old man presented to clinic with complaint of face and neck swelling for 2 days. He has known HIV/AIDS (CD4=154) and pulmonary coccidioidomycosis being treated with Fluconazole 800 mg po daily. Aside from occasional cough for 2 weeks, patient had no other symptoms. Significant findings on exam included facial plethora, neck edema and palpable cervical nodes. Chest radiograph showed widened mediastinum, confirmed by chest CT scan as anterior mediastinal adenopathy, particularly a 5.5×5.2×2.6 cm lymph node with surrounding tissue partially encasing the ascending aorta and a 3.4×1.8 cm node effacing and nearly occluding the superior vena cava, consistent with SVC syndrome. There was also left supraclavicular adenopathy and right middle lobe consolidation. A CT-guided percutaneous biopsy of the right lung was done which showed granuloma and fungal forms compatible with coccidioidomycosis. A week later, aspiration biopsy of the supraclavicular nodes was done which showed fibroadipose tissue with mature lymphocytes and plasma cells; no granulomata or carcinoma was seen.

Facial swelling had improved on continuous anti-fungal therapy, however there was still concern for possible lymphoma given the patient's HIV status. Repeat CT chest a month later showed no significant change. Patient underwent surgical biopsy of the mediastinal mass revealing chronic nonspecific inflammation and granulomatous disease with coccidioides spherules without evidence of lymphoma. Flow cytometry was also negative for monocolonal cells. The patient was continued on Fluconazole 1200 mg po daily and has been placed on HAART therapy. Patient is being followed as an outpatient in stable condition.
DISCUSSION: Superior vena cava (SVC) syndrome results from obstruction of blood flow through the SVC from luminal invasion, thrombosis or extrinsic compression of the SVC. Considered as an oncologic emergency, malignancy is responsible for 60–85% of cases. Nonmalignant causes are more insidious in onset, and are mostly due to infection or thrombosis from indwelling central venous devices. Historically, the most serious infectious causes are syphilitic aortic aneurysm and tuberculous mediastinitis, but are less seen due to effective treatment. About half of benign cases are due to fibrosing mediastinitis, usually from histoplasmosis. Other rare causes include aspergillosis, blastomycosis, mucormycosis and anaerobic bacteria. Remarkably, there is no previously reported case of SVC syndrome from coccidioidomycosis. Primary coccidioidal infection present with systemic symptoms and lung disease in the form of consolidation and opacities (75%), hilar/mediastinal adenopathy (20%) and pleural effusion (20%). Disseminated disease result from hematogenous spread to any part of the body but prefer skin, meninges or bone. Immunosuppression such as in our HIV patient carries a greater risk of severe and disseminated disease; however there is no known association with SVC syndrome. Surgical biopsy of the involved mediastinal nodes was indicated to confirm diagnosis and rule out lymphoma. The finding of this nonmalignant condition carries a good prognosis and responds well to medical therapy.

TAKAYASU ARTERITIS MIMICKING AN ACUTE AORTIC DISSECTION M. Lee[1]; D. Yick[2]. [1]UCLA - San Fernando Valley Program @ Olive View - UCLA Medical Center, Sylmar, CA; [2]University of California, Los Angeles - San Fernando Valley Program, Sylmar, CA. *(Tracking ID # 190893)*

LEARNING OBJECTIVES: Recognize the clinical features of Takayasu arteritis, an uncommon form of large vessel vasculitis
CASE: A 36 year old Hispanic female presented with 1 week of mild intermittent substernal chest pain. Since the morning of admission, pain became sharp, constant with radiation to the back. She was also dyspneic. Over the preceding 4 months, she had developed generalized malaise and diffuse joint pain. Seven days prior, she had transient left visual loss and her right arm felt weak with overhead reaching. On exam, right arm blood pressure was 144/46 mmHg and left 94/47 mmHg. Pulse was 110. She appeared mildly uncomfortable. Bruits were audible over left carotid artery. Heart exam revealed normal S1, decreased S2, 3/6 holosystolic apical murmur, and 3/4 diastolic murmur at left upper sternal border. Water hammer pulse was noted. The left hand was cool without detectable radial pulse. Blood counts and electrolytes were normal. Erythrocyte sedimentation rate was 52 mm/h. The electrocardiogram showed sinus tachycardia. Troponin was negative. Chest X ray showed a slightly widened mediastinum and chest CT showed stranding around the aortic arch, unable to rule out aortic dissection. The patient was admitted to the ICU and was treated emergently with nitroprusside and beta blockers. Magnetic resonance angiogram of the chest revealed circumferential mural thickening of the thoracic aorta including ascending, aortic arch, as well as proximal descending thoracic aorta consistent with proximal and descending aortic dissection. Additionally, 100% occlusion of proximal left subclavian and common carotid artery was noted. Though aortic dissection was high in the differential, given findings of severe vascular mural changes, elevated ESR, and clinical features, differential of large vessel vasculitis also needed to be pursued. Therefore, an emergent angiography was performed. It showed severe aortic insufficiency, but was negative for aortic dissection, The patient was diagnosed with Takayasu arteritis and treated with corticosteroids. She was transferred to Vascular/Cardiothoracic surgery service for left common carotid–subclavian artery bypass surgery and aortic valve replacement.
DISCUSSION: This case demonstrates a clinical and radiographic presentation of Takayasu arteritis mimicking acute aortic dissection. Takayasu arteritis is an uncommon form of large vessel vasculitis affecting 1 per million population in US. Initially, inflammation is localized to thoracic aorta, but as disease progresses, the common carotid and subclavian artery may be affected leading to subclavian steal syndrome. Unequal pulses, claudication of arm, amaurosis fugax, and aortic regurgitation are clinical manifestations of advanced cases. Though less invasive imaging techniques are preferred, arteriography is often necessary to provide clear outlines of the affected vessel lumens. The presence of neurologic impairment or limb-threatening ischemia, as in this case, warrants treatment with corticosteroid and close evaluation for surgical revascularization. Typical signs and symptoms as well as confirmatory imaging studies are usually sufficient to diagnose aortic dissection. However, if less invasive studies are equivocal, angiography may be necessary to make a definitive diagnosis. This case illustrates the reward of persistence in not accepting the typical diagnosis.

TAKING THE WRONG MATTER TO HEART: AMYLOIDOSIS PRESENTING AS A RESTRICTIVE CARDIOMYOPATHY T. Goldberg[1]; A. Paranjape[1]; B. Taqui[1]; L.D. Ward[1]. [1]Temple University, Philadelphia, PA. *(Tracking ID # 189493)*

LEARNING OBJECTIVES: 1. Recognize cardiac manifestations as a common first presentation of primary systemic amyloidosis. 2. Identify the diagnostic workup for primary systemic amyloidosis in patients with suspected cardiac involvement.
CASE: A 71 year old Hispanic male with history of hypertension presented with gradual onset shortness of breath for one week. His physical exam was remarkable for a thin, ill-appearing male with tachypnea, mild hypoxemia, periorbital darkening decreased breath sounds at the lung bases, and bilateral ankle edema. Patient's presenting labs; WBC 4.2, hemoglobin 11.2, CK 307 (peak 1687), troponin 1.37 (peak 5.1), creatinine 2.1, albumin 1.4, BNP 3167, and nephrotic-range proteinuria. EKG showed low voltage in the limb leads with nonspecific T wave abnormalities. A CXR revealed a right-sided pleural effusion. Transthoracic echocardiogram showed increased LV wall thickness with a speckled pattern, an ejection fraction of 25%, moderately reduced RV function, and decreased LV diastolic compliance. Results of a diagnostic thoracentesis were consistent with a transudative effusion. Coronary angiography was deferred in light of the patient's renal failure. His hospital course was complicated by atrial flutter, which was successfully ablated. UPEP immunofixation showed two free lambda chains and one free kappa chain. A buccal biopsy was positive for amyloid. Given our patient's poor prognosis, further invasive testing was deferred and he was sent home on hospice.
DISCUSSION: Amyloidosis is a rare disease of extracellular protein deposition principally affecting older adults. Primary amyloidosis (AL) is the most common type and results from the production of immunoglobulins by clonal plasma cells in the bone marrow- resulting in multi-organ system invovlement. Common initial manifestations include fatigue and weight loss, nephrotic-range proteinuria, congestive heart failure, arrhythmias, autonomic/ sensory neuropathies, easy bruisability, periorbital purpura, macroglossia, pleural effusions, and soft tissue deposition. Cardiac involvement- present in up to 90% of AL patients- is manifested by rapidly progressive heart failure, typically right-sided. However patients may present with arrhythmias, syncope, troponin elevation, and/or elevated BNP levels. While the most common EKG finding is low voltage in the limb leads (50%), other findings can include atrial fibrillation or flutter and AV block. Echocardiography is the noninvasive study of choice for the diagnosis of cardiac amyloid. Classically, the myocardium is thickened with a hyperechogenic, or "speckled" appearance. Diastolic dysfunction is a hallmark, and in advanced disease, increasing LV wall thickness results in a restrictive cardiomyopathy. The presence of increased LV mass coupled with a low voltage EKG has been shown to be specific for infiltrative cardiomyopathies (91%-100%), of which amyloidosis is the most common. With suspected cardiac amyloidosis, the diagnosis is established by the compilation of these clinical symptoms/signs and tissue biopsy with Congo-red stain. Endomyocardial biopsy should be pursued only if less invasive biopsy sites fail to establish the diagnosis (i.e. abdominal fat pad, rectal, buccal). Lastly, immunofixation electrophoresis is done to determine amyloid type. Our case highlights that amyloidosis- which commonly presents with cardiac mainfestations- is primarily a clinical diagnosis, relying on the recognition of multiple organ-specific signs and symptoms.

TB OR NOT TB: THAT IS THE QUESTION C. Barnes[1]; S.D. Sisson[2]. [1]Johns Hopkins University School of Medicine, Baltimore, MD; [2]Johns Hopkins University, Baltimore, MD. *(Tracking ID # 189793)*

LEARNING OBJECTIVES: 1) Diagnose Mycobacterium kansasii pulmonary infection 2) Describe how to treat M. kansasii pulmonary infection in immunocompetent individuals

CASE: A 60-year-old man presented with a several month history of progressive dyspnea, worse with exertion. Symptoms included a hacking cough with sputum production and an unquantified, significant weight loss. He denied hemoptysis, nausea/vomiting, or recent travel. He worked at a local grocery store and remembered that a co-worker was hospitalized with "bad pneumonia" several months ago. He had no significant past medical history, and took no medications. He lived with his brother and smoked occasionally. He drank two alcoholic beverages nightly, and denied illicit drug use. On physical exam, he was afebrile and had respiratory rate of 24. Room air oxygen saturation was 90%. He appeared cachectic. Dentition was poor. Breath sounds were decreased on the left, without dullness or egophony. There was no lymphadenopathy. Chest x-ray showed bilateral cavitary lesions with air-fluid levels on the left. The largest cavity was 11 cm. There was no pleural effusion or mediastinal lymphadenopathy. Induced sputum was AFB positive. Presumptive treatment for Mycobacterium tuberculosis (TB) with isoniazid, rifampin, pyrazinamide, ethambutol, and pyridoxine was begun. However, rRNA testing for TB was negative. AFB culture then grew M. kansasii. The patient was taken off of respiratory isolation and his medication regimen was changed to rifampin, ethambutol, isoniazid, and pyridoxine.
DISCUSSION: The differential diagnosis of cavitary lesions on CXR is recalled with the mnemonic "CAVITY": Carcinoma: squamous cell, melanoma, cervical, sarcoma metastasis; Autoimmune: Wegener's, rheumatoid lung; Vascular: septic emboli; Infection: TB, non-tuberculosis mycobacterium (NTM), fungal (Coccidiomycosis, Aspergillosis, Cryptosporidia, Nocardia), bacterial (staphylococcus, streptococcus); Trauma; Young: congenital lesions, (bronchogenic cyst). In our patient, age and lack of trauma narrowed the differential, as did the absence of symptoms suggesting an autoimmune or vascular disorder. Given the rapid progression of symptoms and the large extent of cavitary lesions, an infectious cause was suspected, especially TB. However, non-tuberculous mycobacteria (NTM) was the cause in this patient. As the incidence of TB has declined in the US, the incidence of NTM has increased. M. kansasii is more common in the Midwestern and Southwestern US, especially in urban areas, where it is commonly recovered from tap water. Based on clinical presentation, M. tuberculosis and M. kansasii are virtually indistinguishable. Both can present chronically, with cavitary lesion in the upper lungs. The absence of risk factors for TB may suggest NTM. Our patient did not have risk factors for TB, such as living or working in a prison, nursing home, or immigration facility. He had no known TB exposure; the coworker with pneumonia proved to be a red herring. The source of infection in our patient is unknown, but job duties included close proximity to aerosolized water. Patients with cavitary pneumonia should be treated for presumptive TB until a definitive diagnosis is made. AFB culture provides definitive diagnosis. Treatment of M. kansasii in immunocompetent individuals is rifampin (600 mg), ethambutol (25 mg/kg for 2 months, then 15 mg/kg), and isoniazid (300 mg) with pyridoxine (50 mg) daily for 18 months, with at least 12 months of negative sputum culture results.

THE ACHE OF A BEATING HEART: BRADYCARDIA IN A PATIENT WITH CEREBRAL VENOUS THROMBOSIS M.S. Mcdonnell[1]; A. El-Bialy[2]. [1]University of California, Los Angeles, Woodland Hills, CA; [2]UCLA San Fernando Valley Program, Sylmar, CA. *(Tracking ID # 190405)*

LEARNING OBJECTIVES: 1) To emphasize how clinical suspicion is essential for diagnosing cerebral venous thrombosis. 2) To illustrate that autonomic dysfunction is one possible manifestation of this disorder.
CASE: A 30 year old male with no past medical history presented to the emergency room with a 4 day history of sudden onset headache accompanied by nausea, vomiting, and photophobia. The headache was localized to the right occipital region, throbbing and constant in nature without modifying factors. The patient denied a family history of thrombophilic conditions or stroke, denied recent trauma, and the review of systems was otherwise negative. Vital signs were remarkable for sinus bradycardia with a rate ranging from the low 30s to 40s, and the neurologic and ophthalmologic exams were normal. Basic chemistries, thyroid function, urinalysis, liver function tests, complete blood count, coagulation studies, HIV testing, blood cultures, and urine toxicology were negative or normal. A lumbar puncture revealed a mildly elevated cerebral spinal fluid glucose level, but was otherwise normal with a normal opening pressure, and negative culture and gram stain. A CT and subsequent MRI of the brain displayed an occlusive thrombus extending from the sagittal sinus to the right internal jugular vein at the foramen. Unfractionated heparin was started and the patient was admitted for monitoring. He remained bradycardic as low as 29 beats per minute, but never displayed symptoms of cerebral hypoperfusion. The headache and vomiting resolved shortly after admission, and a complete thrombophilic workup was negative or within normal limits. Concern for malignancy resulted in a complete abdominal and scrotal ultrasound, as well as a peripheral blood smear, all of which were normal. An echocardiogram and exercise treadmill test were normal. The patient was discharged home on lovenox and coumadin, and a subsequent head CT twelve days later displayed decreased attenuation and increased patency of the previously noted venous thrombus. The patient's heart rate was noted to be 63 beats per minute at this time.
DISCUSSION: Cerebral venous thrombosis (CVT), unlike most other cerebrovascular disorders, most often affects young adults and children. The presentation and clinical course are highly variable, but a precipitating factor can be identified in approximately 85% of cases. Part of the confounding nature of this disorder can be attributed to variations in both the extent and distribution of the venous thrombus. The most frequent, but least specific symptom is severe headache, which typically lacks specific features but is commonly accompanied by other neurologic findings. Headache with nausea and vomiting as the only presenting signs is rare, and to the best of our knowledge, bradycardia has never been a documented complication of CVT. There is a well documented association between bradycardia and other intracranial pathologies, including stoke, seizures, and head trauma, with or without increased intracranial pressure. Derangements of autonomic function appear to underlie this phenomenon, with neural input from various regions of the cerebral cortex, the hypothalamus, and the brainstem being extensively interconnected. This case describes a 30 year old male with no past medical history, presenting with sudden onset headache, vomiting, and bradycardia, who was subsequently diagnosed with an extensive right-sided cerebral venous thrombosis.

THE BEST HIDING PLACE FOR LEUKEMIA J. Park[1]; V. Avula[1]. [1]University of California, San Francisco-Fresno, Fresno, CA. *(Tracking ID # 189619)*

LEARNING OBJECTIVES: Recognize the central nervous system (CNS) as a site of relapse of acute promyelocytic leukemia (APL)
CASE: A 29-year-old Hispanic man was diagnosed with acute promyelocytic leukemia [APL: acute myeloid leukemia (AML), type M3v] in 2005. He was treated sporadically with tretinoin alone. 2 yrs later, he presented to the ER with worsening headache, nausea, and vomiting for 4 weeks. In the ER, his temperature was 36.4°C, heart rate 77beats/min, blood pressure 131/81, respirations 20/min, and O2 saturation 97% on room air. In physical examination, the patient was alert, awake and oriented. His neck was stiff but Brudzinski's sign and Kernig's sign were negative. WBC was 3700, hemoglobin 14.1, hematocrit 40.4, platelet 138K. Cerebrospinal fluid (CSF) obtained by lumbar puncture revealed WBC 202 (myeloid blasts 90%), protein 64, and glucose 57; culture was negative. Ommaya reservoir was placed for the intrathecal methotrexate therapy. The MRI of the brain showed minimal FLAIR signal within the subarachnoid spaces at the convexity possibly reflecting an ongoing inflammatory/infectious process. Treatment was started on IV cytarabine, intrathecal methotrexate, tretinoin, and CNS radiation. Patient's headache, nausea and vomiting improved with treatments.
DISCUSSION: We report an unusual case of CNS leukemia as a relapse of APL. APL has two subtypes; hypergranular form and microgranular variant (M3v), which can cause disseminated intravascular coagulation (DIC) and CNS leukemia. Tretinoin and cytotoxic chemotherapy achieve 80–95% complete remission rates. Previously it has been published that the incidence of CNS leukemia is higher in AML M4 and M5 than any other types of AML. The incidence of CNS leukemia in patients with APL seems to be increasing at the time of systemic relapse possibly because of prolonged survival. The role CNS chemoprophylaxis and/or prophylactic CNS radiation in AML are controversial because of the low frequency of CNS involvement in patients with AML. High doses of IV cytarabine which penetrates CNS seems to decrease the incidence of CNS involvement. IV cytarabine itself however is not enough to prevent CNS leukemia. Further studies are needed to determine optimal CNS prophylaxis and whether periodic lumber puncture and CNS chemoprophylaxis and/ or CNS radiation improve mortality and morbidity in AML patients.

THE COURAGE OF SEVEN NIGHTS CAN MAKE YOU WEAK A. Carhill[1]; J. Huang[1]; A. Rao[1]. [1]Tulane University, New Orleans, LA. *(Tracking ID # 190591)*

LEARNING OBJECTIVES: 1. Recognize the clinical presentation of Thyrotoxic Hypokalemic Paralysis 2. Understand the mechanisms and subsequent treatment of Thyrotoxic Hypokalemic Paralysis
CASE: A 30 year-old man presented with ascending weakness involving all four extremities. He described a three-month history of bilateral thigh pain that began and persisted for two days following exercise. He noted that his usual exercise-induced thigh pain and weakness had progressed to the point that he could not rise from the sofa without full arm support. By the time of evaluation, his weakness had progressed to the point that he could not move any extremity, and was having difficulty breathing. He noted associated heat intolerance, palpitations, and a five-pound weight loss despite an increased appetite. He was concerned that his daily intake of a licorice Chinese herbal tea "chi yeh dan" (courage of seven nights) may have caused his symptoms. He was tachycardic without evidence of exopthalmos, thyroidomegaly or bruits. The remaining vital signs were normal. He had 2/5 strength in both upper and lower extremities. Sensation was intact, but his reflexes were absent. He had a potassium of 1.8 mEq/l. His negative-inspiratory force was 25 mm, with a low FVC of 1400 mL, suggesting pending respiratory failure. He was intubated, and a repeat potassium was to 1.0 mEq/l; potassium repletion was initiatied, and he had rapid, full recovery of motor strength and respiratory function. His TSH was 0.006. The diagnosis of thyrotoxic hypokalemic periodic paralysis was established, and he was started on tapazole and metoprolol.
DISCUSSION: While rare in most races, it is important for the general internist to recognize that thyrotoxic periodic paralysis (TPP) has a high incidence among Asians and Hispanics. TPP is a thyroid-related disorder manifested as recurrent hypokalemia and symmetrical muscle weakness. The usual precipitating factors are ingestion of high-carbohydrate meals and strenuous physical activity. The thyroid hormone is thought to accelerate influx of potassium into cells, especially during additional sympathetic activity, as beta-2 receptors govern the influx. High carbohydrate meals increase the serum glucose; the influx of glucose is also a co-factor in potassium influx. It is important to recognize the signs and symptoms of TPP early and initiate intervention. The internist must recognize TPP has a cell-shift disease, as over-correction of the hypokalemia with supplements can result in fatal hyperkalemia once the cell-shift resolves. Treatment should be centered on correction of thyroid dysfunction, and not over repletion of hypokalemia. After initiating definitive therapy for the thyrotoxicosis, patients should be advised to avoid precipitating factors while awaiting normalization of the thyrotoxic condition. Our patient's ingestion of chi yeh dan likely augmented his sympathetic tone, thereby worsening his condition. Like many herbal supplements, our patient's chi yeh dan may have additional thyroid hormone. The general internist must be aware of all herbal supplements a patient consumes, as product-to-product variability can result in life-threatening disease, especially if a genetic predisposition exists.

THE EVASIVELY DEADLY DIAGNOSIS J.D. Gonzalo[1]; A. Mostaghimi[1]. [1]Beth Israel Deaconess Medical Center, Boston, MA. *(Tracking ID # 190239)*

LEARNING OBJECTIVES: 1. Recognize the clinical signs, electrocardiographic changes, and chest roentogram abnormalities vary widely in acute pulmonary embolism. 2. Realize the difficulty in diagnosing pulmonary embolism in any clinical setting.
CASE: A 55-year old African-American male with history of hypertension and diabetes presented with chief complaint of "feeling lightheaded." On night of admission, patient reported episode of lightheadedness and diaphoresis without loss of consciousness immediately after urinating. Emergency medical services found the patient to be oriented, normotensive, and with a blood glucose of 540. Upon arrival to the emergency room, patient was afebrile, normotensive, tachycardic to 122, with oxygen saturations of 99% on room air and a respiratory rate of 24. Electrocardiogram (EKG) showed new deep T-wave inversions in leads II, III, aVF, V3-V4 and labs revealed a leukocytosis of 12 without bandemia. An hour after arrival, patient became hypotensive with a systolic blood pressure of sixty. A bedside echocardiogram revealed right ventricular overload. He received intravenous fluids, dopamine, and antibiotics for septic shock and admitted to the intensive care unit. A repeat EKG six hours later showed worsening t-wave inversions in V2-V4 leads and an S1Q3T3 pattern. Patient became progressively and went into asystolic arrest. The ACLS algorithm was initiated and given concern for acute pulmonary embolism, tissue plasminogen activator (tPA) was infused and hypothermic protocol was administered empirically. A computed axial tomography showed large pulmonary emboli involving all major segmental arteries, with segmental collapse of the apical right upper lobe. The patient's hemodynamics and EKG returned to normal within twenty-four hours after tPA administration. The patient had a full recover, and on hospital day twenty, patient walked out of the hospital.
DISCUSSION: Acute pulmonary embolism is a deadly disease, with a 33% mortality rate within the first 2.5 hours. In addition, since the presentation of acute PE varies broadly in symptoms, signs, EKG, and chest roentogram findings, the diagnosis often evades appropriate identification. In patients without a history of cardiopulmonary illness, the most common symptoms of acute PE are dyspnea (78%), pleuritic pain (59%), and cough (43%), while the most common clinical signs are tachypnea (73%), rales (51%), and tachycardia (30%). Less than 10% of patients will present with circulatory collapse (systolic blood pressure <80 mmHg) or syncope, as in this case. EKG findings are non-specific, with precordial T-wave changes occurring in 43%, and sinus tachycardia in 30%. Thirty percent of patients will have a normal tracing. The S1Q3T3 pattern, first documented in 1935, is found in only 22% of patients, with the cor pulmonale findings (right ventricular hypertrophy, right axis deviation, and right bundle branch block) occurring in <6% of patients. Chest roentogram abnormalities vary widely as well, with the most common being atelectasis (68%), pleural effusion (47%), and a pleural-based opacity (35%). Fourteen percent of patients have a normal chest roentogram and 7% have the classical Westermark's sign; a prominent central pulmonary artery and decreased pulmonary vascularity. The signs and symptoms of acute PE are non-specific and highly variable, necessitating the need for further diagnostic work-up when indicated.

THE JAUNDICED COLLEGE FRESHMAN: EPSTEIN BARR VIRUS AND ITS COMPLICATIONS M.F. Lippincott[1]. [1]Beth Israel Deaconess Medical Center, Boston, MA. *(Tracking ID # 190865)*

LEARNING OBJECTIVES: 1) Diagnose acute mononucleosis due to Epstein Barr virus 2) Manage complications of acute mononucleosis due to Epstein Barr virus
symmetricalCASE: An 18 year old healthy female presented to the emergency room with marked cervical lymphadenopathy, fever to 104 degrees Fahrenheit and rigors. She endorsed fatigue, decreased appetite, headache, and a non-productive cough; a diagnosis of acute mononucleosis was suspected and was confirmed with a reactive heterophile antibody test (Monospot). She was discharged with ibuprofen and over the next several days developed jaundice with icteric sclera. She presented to her primary care provider and was also noted to have continued fevers, fatigue, cough and an enlarged spleen. Laboratory testing revealed a cholestatic hepatitis with a total bilirubin of 20.2 mg/dl, direct bilirubin of 16.1 mg/dl, alkaline phosphatase of 226 IU/L, aspartate aminotransferase 210 IU/L, alanine aminotransferase 133 IU/L and an INR of 1.4. She also had a white blood cell count of 6 K/uL with a differential of 49% neutrophils, 1% bands, 32% lymphocytes, 16% monocytes and 3% atypical lymphocytes. She was hospitalized for further care. A diagnosis of Epstein Barr Virus (EBV) was confirmed when EBV Viral Capsid Antigen IgM was detected but, EBV Viral Capsid Antigen IgG and Nuclear Antigen IgG were undetectable. Her hospital course was complicated by an anti- C3, anti-i cold agglutinin hemolytic anemia requiring a red blood cell transfusion for a hemoglobin of 7.5 g/dL, a viral pneumonitis with coughing fits requiring oxygen, and pancytopenia. With supportive care the patient recovered.
DISCUSSION: The diagnosis of acute mononucleosis can be made with a positive Monospot; however, ten to twenty percent of patients will have a negative Monospot in the first two weeks of infection. In these cases, the diagnosis can be made by clinical suspicion as acute mononucleosis classically presents with cervical lymphadenopathy, splenomegaly, fevers, aches, fatigue, pharyngitis, monocytosis, and atypical lympho-

cytosis. Of note, pharyngitis is a less common presenting symptom in adults. Complications of acute mononucleosis include splenic rupture, acute hepatitis, autoimmune hemolytic anemia characterized by anti-i antibodies, viral pneumonitis, interstitial nephritis, and pancytopenia. Most cases of acute mononucleosis can be managed with supportive care including rest, ibuprofen, and avoidance of contact sports. Steroids are indicated for fulminant hepatic failure and transfusion dependent hemolytic anemia. Interstitial nephritis is treated with antivirals. Splenic rupture requires immediate surgery. When complications develop the diagnosis of EBV acute mononucleosis should be confirmed by serology to exclude infectious mononucleosis syndromes including cytomegalovirus, acute human immunodeficiency virus, and toxoplasmosis. In analyzing EBV serology, EBV Viral Capsid Antigen IgM is present only in the first three months of infection. In contrast, EBV Nuclear Antigen IgG appears three months after acute infection. The EBV Viral Capsid Antigen IgG, which rapidly appears after infection and remains for a lifetime, can be an indicator of recent acute EBV infection. This testing is often only useful in an EBV naïve patient. EBV infection is very common as approximately 90% of adults have a positive test for both EBV Viral Capsid Antigen IgG and Nuclear Antigen IgG.

THE KREBS CYCLE STRIKES BACK: OVERWHELMING FATIGUE IN A DIABETIC K. Checkett[1]. [1]University of California, San Francisco, San Francisco, CA. *(Tracking ID # 189992)*

LEARNING OBJECTIVES: To review metformin-related lactic acidosis in diabetics
CASE: A 57 year-old veteran with newly diagnosed type 2 diabetes presented with overwhelming fatigue for 6 weeks. At baseline, he was highly active. He reported sleeping often, missing work and not socializing with friends. He related a diffuse achy feeling without localizing symptoms. Of concern, he noted disinterest in crack, alcohol, and tobacco due to malaise. Medical history included hypertension, hyperlipidemia, coronary disease, PTSD, and splenectomy. He was HIV and hepatitis C negative with no known liver disease. Recent echo showed moderate LVH; exercise thallium test showed no ischemia. Medications were aspirin, simvastatin, amlodipine, and hydrochlorothiazide. Metformin had been added 8 weeks earlier. He used crack 3–5 times per week, smoked 1 pack per week, and drank in association with crack use. Exam revealed only a mildly overweight, fatigued man. Psychiatric review was negative. CBC, LDH, testosterone, chemistry panel, and thyroid function were within normal limits. Creatinine was 1.4. CPK was 294 with anion gap 13 and lactate 3.8. Two weeks after metformin cessation, the patient felt at baseline. Repeat lactate was 2.3, anion gap 5, and CPK 198.
DISCUSSION: Metformin is first-line for many physicians treating type 2 diabetes. Advantages include lower incidence of hypoglycemia, weight loss, lipid-lowering activity, cost, and established efficacy. Common side effects are gastrointestinal. Lactic acidosis is the most serious risk, with the legacy of phenformin and nearly 300 case reports of metformin-related lactic acidosis urging caution. Phenformin, now off the market, carries an incidence of lactic acidosis at 40–64 cases per 100,000 patient years.(1) However, two large, systematic reviews failed to show increased rates of lactic acidosis in diabetics taking metformin.(2,3) A 2006 Cochrane review calculated 6.3 cases per 100,000 patient years in the metformin group and at 7.8 cases per 100,000 patient years in the non-metformin group.(2) Serum lactates typically are <2 in patients taking metformin. Any condition predisposing to tissue hypoxia increases the risk for lactic acidosis with metformin use. These include heart failure, renal insufficiency (Cr>1.5), and liver disease, including alcohol use. Approximately 25% of patients on metformin have at least one contraindication to its use.(1) Known risk factors in this patient included diastolic dysfunction and drug-related alcohol abuse without known hepatic dysfunction. At diagnosis, further review revealed previously stated alcohol use had increased to one pint daily, predisposing to lactic acidosis. Other possible explanations include cocaine-induced ischemia, muscle injury, and diuretic-induced dehydration. A reminder of the reality of metformin-related lactic acidosis, this case also demonstrates the importance of an accurate medical history, particularly regarding "unacceptable" behaviors about which patients may be less forthcoming. 1. McCulloch D. Metformin in the treatment of diabetes mellitus. UpToDate, Rose BD (Ed), UpToDate, Waltham MA, 2007 2. Salpeter S, Greyber E, et al. Risk of fatal and nonfatal lactic acidosis with metformin use in type 2 diabetes mellitus. Cochrane Database of Systemic Reviews 2006, Issue 1:CD002967 3. Bolen S, Feldman L, et al. Systematic review: comparative effectiveness and safety of oral medications for type 2 diabetes mellitus. Annals of Internal Medicine 2007;147:386–399

THE SOLUTION IS THE PROBLEM D.C. Chan[1]; S. Russo[2]. [1]Brigham & Women's Hospital, Brighton, MA; [2]Brigham & Women's Hospital, Boston, MA. *(Tracking ID # 190850)*

LEARNING OBJECTIVES: To recognize the potential risk of acute renal failure with the use of oral sodium phosphate solution
CASE: Mr. P is a 55 year old man with a medical history of diabetes, hypertension, benign prostatic hypertrophy, and a history of adenomatous polyps of the colon who presented to urgent care clinic with knee pain consistent with ancerine bursitis. His prescribed medications included hydrochlorothiazide, lisinopril, and glyburide, although he reported that he was not taking lisinopril. Because Mr. P had not seen his PCP in over a year and needed prescription refills, a basic metabolic panel was checked which revealed a creatinine of 2.2 mg/dL, up from 1.0 mg/dL nineteen months prior. On subsequent review, Mr. P denied using any recent non-steroidal anti-inflammatory drugs or other over-the-counter or herbal medications. Reviewing his previous medical records, his hemoglobin A1c ranged from 7.0 to 8.0% and his blood pressures were consistent with Stage I hypertension during the preceding five years. Further evaluation included normal urinalysis and sediment, urine protein/creatinine ratio of 26/131, normal calcium and phosphate, normal hematocrit, and normal-sized kidneys without evidence of hydronephrosis on renal ultrasound. Anti-nuclear antibody, anti-neutrophilic cytoplasmic antibody, and hepatitis serologies were negative; complement levels were normal. The patient was referred to nephrology clinic and a renal biopsy was performed. Renal biopsy showed extensive tubular injury with widespread deposition of calcium phosphate, predominantly affecting the distal tubules. Of note, Mr. P had had four colonoscopies in the preceding decade, the most recent eighteen months prior to presentation with oral sodium phosphate solution (OSPS) preparation.
DISCUSSION: Acute phosphate nephropathy is a rare but serious condition that presents with acute renal failure with minimal proteinuria and a bland urine sediment in patients recently exposed to OSPS. Bowel cleansing with OSPS causes decreased intravascular volume and hyperphosphatemia. This combination leads to the deposition of calcium-phosphate crystals in the distal tubules and collecting ducts without other patterns of histological injury. In a case series of twenty-one patients with acute phosphate nephropathy, acute renal failure developed in a median of one month after colonoscopy [1]. When acute phosphate nephropathy occurs, renal impairment is often permanent and may require chronic dialysis. Individuals at increased risk include those of advanced age, those with decreased intravascular volume or kidney disease, and those using medications that affect renal perfusion or function, such as diuretics, angiotensin-converting-enzyme inhibitors, angiotensin-receptor blockers, and possibly non-steroidal anti-inflammatory drugs. Health care professionals should consider avoiding OSPS in patients with impaired renal function, dehydration, or electrolyte abnormalities. Baseline and post-procedure electrolytes and renal function should be assessed in patients who may be at increased risk for this adverse event, including those with vomiting and/or signs of dehydration. Patients should be encouraged to drink an adequate amount of fluid during bowel preparation. Frail patients who are unable to follow this recommendation may require hospitalization for intravenous hydration. 1. Markowitz et al. J Am Soc Nephrol 16: 3389–3396, 2005.

THE STORY OF AN ACHING STOMACH T.S. Shinde[1]; J. Lindner[1]; R. Agrawal[1]; M. Dhawan[1]. [1]Allegheny General Hospital, Pittsburgh, PA. *(Tracking ID # 189554)*

LEARNING OBJECTIVES: 1) To recognize a gastric duplication cyst (GDC) as an uncommon cause of recurrent abdominal pain. 2) To identify the presenting symptoms and complications of a GDC. 3) To outline the diagnosis and management of a GDC.
CASE: A 49-year old female presented with complaints of recurrent epigastric pain. Upper endoscopy revealed an ulcerated mass in the

antrum of her stomach. Computed tomography (CT) of the abdomen showed a cystic lesion of the antrum. Endoscopic ultrasound (EUS) examination revealed a submucosal cyst in the antrum with a central umbilication. Aspiration of the cyst revealed elevated amylase levels. Her symptoms subsided temporarily after cyst aspiration but recurred four months later. Repeat CT scan of the abdomen revealed a circumferential wall thickening of the antrum and proximal duodenum. Repeat EUS with cyst aspiration again showed high levels of amylase and lipase. No malignant cells were seen. An endoscopic retrograde pancreatography (ERP) demonstrated a second pancreatic duct system originating from the main pancreatic duct near the tail of the pancreas. It extended parallel to the main pancreatic duct before attaching to the antral cyst. The patient went for surgery during which the accessory pancreas, aberrant pancreatic duct, and cystic portion of the stomach antrum were resected. The surgical specimen showed a 5 cm round cyst which was attached to a 17 cm long accessory pancreas with an aberrant ductal system. The cyst was unilocular. Microscopically, the cyst wall was lined by gastric mucosa with focal ulceration and a well circumscribed smooth muscle layer. The patient's symptoms resolved after surgical resection.
DISCUSSION: Gastric duplications make up only 3.8% of all duplications of the alimentary tract. Gastric duplication cyst with an aberrant pancreatic duct and accessory pancreas is extremely rare and its diagnosis is often overlooked. Abnormal foregut development is believed to be responsible for this congenital anomaly. Several theories have been proposed, but two of them, "Bremer's theory of errors on recanalization" and "McLetchie's theory" are most widely accepted. McLetchie proposed a neuroenteric hypothesis, in which an embryonic entoectodermal adhesion gives rise to a "neuroenteric" band which may form traction diverticula leading to gut cyst formation. This theory explains the congenital anomaly in our patient with the traction on the pancreatic bud by a neuroenteric band causing both gastric and pancreatic abnormalities. The most common presenting symptom is recurrent abdominal pain. The viscous secretions from the cyst are thought to be a cause of pancreatic duct obstruction leading to pancreatitis. Vomiting can be caused by complete or partial obstruction of the stomach or pancreatitis. However, individuals may be completely asymptomatic. The complications include hemorrhage, pancreatitis, fistula formation, and malignant changes. Due to the rarity of this condition and its atypical presentation, it is not uncommon for patients with this developmental anomaly to undergo repeated surgical exploration before a definitive diagnosis is made. In our case, the diagnosis was made preoperatively by EUS and ERP. Surgical resection led to satisfactory outcome. This case provides an opportunity to explore embryogenesis of the alimentary tract. It also highlights that internists should consider GDC on the differential diagnosis of recurrent abdominal pain.

THE STORY UNFOLDS – A DELAYED DIAGNOSIS OF HYPERSENSITIVITY VASCULITIS PRESENTING AS WARFARIN-INDUCED SKIN NECROSIS
A. Patel[1]; G. Tabas[1]. [1]University of Pittsburgh, Pittsburgh, PA. *(Tracking ID # 190295)*

LEARNING OBJECTIVES: 1. Identify risk factors for the development of hypersensitivity vasculitis and review initial work-up and treatment. 2. List diagnostic criteria for warfarin-induced skin necrosis, including the time course and progression.
CASE: A 67 year old caucasian female with schizoaffective disorder and recent diagnosis of atrial fibrillation treated with warfarin presented with progressive bilateral lower extremity pain and rash. Warfarin was prescribed for atrial fibrillation approximately two weeks prior to the development of the skin lesions and leg pain. At presentation, warfarin therapy was discontinued because of presumed warfarin-induced skin necrosis. However, the skin lesions and pain did not improve with cessation of the warfarin and the patient was referred to our hospital. Physical examination revealed normal vital signs, an irregularly irregular heart rhythm, and extensive discrete purpuric lesions, hemorrhagic bullae and necrosis over both lower extremities from the thighs to the feet. The legs were tender to palpation. Laboratory testing revealed elevated CRP, mildly elevated ANA (1:40 in a speckled pattern), and normal CBC, BMP, PT/INR/PTT, ESR, rheumatoid factor, complement levels, urinalysis, cryoglobulins, and hepatitis serologies. A punch biopsy of a skin lesion revealed necrotic cutaneous leukocytoclastic vasculitis consistent with hypersensitivity vasculitis due to warfarin. Systemic steroids were prescribed and the skin lesions began to improve.
DISCUSSION: While warfarin-induced skin necrosis is a known potential complication of initiating warfarin therapy, hypersensitivity vasculitis due to warfarin is a less recognized phenomenon. A review of the literature reveals only a few other case reports of this association. Although our patient exhibits many characteristics of a typical case of warfarin-induced skin necrosis (obese middle-aged woman, recently started on warfarin, characteristic painful purpuric rash), a closer look at the time course argues against this diagnosis. Warfarin-induced skin necrosis typically appears within the first few days of warfarin therapy, whereas our patient developed skin lesions after two weeks of therapy. The definitive diagnosis was based upon the skin biopsy. Leukocytoclastic vasculitis is primarily a cutaneous small vessel vasculitis. Typical etiologies include infection (including hepatitis B or C), autoimmune disorders, malignancy, foods, or drugs (including warfarin). Treatment depends on the underlying etiology of the vasculitis. More severe cases may respond to systemic steroids. The prognosis is usually good with most cases resolving in weeks to months. This case demonstrates the importance of re-evaluating an initial diagnosis when important factors are inconsistent with this initial diagnosis and illustrates the differences between warfarin-induced skin necrosis and hypersensitivity vasculitis due to warfarin.

THE WORMS CRAWL IN, THE WORMS CRAWL OUT: A CASE OF ASTHMA AND COLITIS
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LEARNING OBJECTIVES: 1. To understand the clinical presentation of strongyloidiasis and when to include this diagnosis in the differential for chronic cough and colitis. 2. To recognize diagnostic difficulties and the possibility of treatment failures of strongyloides.
CASE: A 63-year old Puerto-Rican male with chronic kidney disease, asthma, and chronic eosinophilia for two-years presented to the hospital with four days of abdominal pain, vomiting, and bloody diarrhea. Patient also reported three-months of a non-productive cough and wheezing, not responsive to escalating doses of inhaled fluticasone and by-mouth montelukast. His exam demonstrated a temperature of 101 degrees Fahrenheit, expiratory wheezes, diffuse abdominal tenderness and guaiac positive stool. Initial studies showed a white count of 9.1 (21% eosinophils), hematocrit of 33.5%, and creatinine of 2.0. Liver function tests, rheumatologic assays, and chest xray were negative, but an abdominal CT scan showed pancolitis. Given the eosinophilia, pulmonary, and GI symptoms, parasitic infection was suspected. A colonoscopy revealed ulcerations, erythema, and petechiae. Strongyloides worms were identified in the stool and strongyloides serologies were six times the normal limit. The patient was treated with two doses of Ivermectin and discharged. One month later, patient returned with a leukocytosis of 12.2 (17% eosinophils). In retrospect, during the first admission, the patient should have been treated for hyperinfection syndrome given the GI bleed and visible worms in the stool. Patient was then given a five-day course of Ivermectin. Four months later, although his stool O&P was negative, the antibody titer was elevated at 1.06, prompting another course of Ivermectin. Six months later, patient's strongyloides titer was negative, his eosinophil count normalized, and he denied any GI or pulmonary complaints.
DISCUSSION: Strongyloides stercoralis infection is endemic in Europe, the Caribbean, Latin America, Africa, and Asia. In the U.S., infection rates are highest in Kentucky and Tennessee. In the acute phase, individuals may exhibit a serpiginous urticarial rash, dry cough and wheezing, nausea, vomiting, abdominal pain, and diarrhea from worm migration into the gastrointestinal tract. Chronic strongyloides infection is characterized by asymptomatic eosinophilia with or without the acute phase symptoms. Enterocolitis and GI bleeding may result from high worm burdens as seen in hyperinfection syndrome. Immunocompromised patients are at risk for developing hyperinfection syndrome, which is characterized by an increased larvae burden in stool and/or sputum with worsening symptoms. Our patient was only on inhaled fluticasone and montelukast for asthma. One study hypothesized that leukotrienes may play a role in strongyloides immunity. Definitive testing for strongyloides is varied, as antibody titers are sensitive but not specific. Since stool analysis for larvae depends upon worm burden, this method lacks adequate sensitivity. Infected patients will have three

negative stool examinations 25–50% of the time. Standard treatment for strongyloides is two doses of Ivermectin given two weeks apart. If hyperinfection is suspected, five to seven days of treatment is recommended. Repeat stool examinations, eosinophil counts, and antibody titers should be done to monitor treatment response. Persistent eosinophilia months after treatment may indicate treatment failure and should prompt testing for HTLV and HIV.

THE WRATH OF APOLLO E. Yalvac[1]; Z. Khan[1]; C. Miller[1]. [1]Tulane University, New Orleans, LA. *(Tracking ID # 190647)*

LEARNING OBJECTIVES: 1. Recognize the varied and often misleading presentation of tabes dorsalis. 2. Identify the differential diagnosis for lower extremity neuropathic pain.
CASE: A 63 year-old gentleman presented with four days of progressively worsening bilateral leg pain and weakness. Initially the pain was mild, intermittent aching that occurred mostly in the left leg. On the night of admission he awoke from sleep with pain involving both legs circumferentially. It possessed a sharp-stabbing quality localizing to the calves. He described feeling as if his knees were "buckling". He reported taking an oral antibiotic in his youth for an unknown STD and denied any unprotected sex. His physical exam was normal, aside from an abnormal lower extremity exam. He had decreased hip flexion bilaterally. Deep tendon reflexes at the knees and ankles were absent. There was no Babinski sign. Sensation to vibration was decreased and he had significant difficulty with proprioception. On standing, he demonstrated a wide-based, high-stepping gait. The cerebrospinal fluid studies revealed a glucose and protein level of 66 and 124.4 mg/dl respectively; the cell count was one red cell and zero white cells/mm3. Blood tests revealed a reactive RPR, titer 1:2 and a positive Treponema Pallidum Particle Agglutination (TPPA) test. He was diagnosed with Tabes Dorsalis and treatment was initiated with Aqueous Penicillin-G intravenously. An HIV test was negative. He improved quickly and was able to walk with few deficits upon discharge. Patellar and Achilles reflexes returned although remained somewhat diminished.
DISCUSSION: In high-risk patients with signs and symptoms suggestive of peripheral neuropathy, Tabes Dorsalis should be considered. Although our patient did not give a significant sexual history, the detailed physical exam guided our differential. The specific loss of vibratory sense and proprioception, without loss of light touch, directed us towards pathology in the dorsal columns. Other conditions we considered were Guillain-Barré, nutritional deficiencies, peripheral neuropathy due to alcohol or other toxins, compressions of the lumbar spinal cord, and autoimmune vasculitis, but none of these adequately explained his neurologic findings and ultimately did not account for his positive serology for syphilis. Known as the "great imitator," syphilis has been and continues to be a diagnostic challenge due to its mercurial manifestations. This is particularly true of neurosyphilis and tabes dorsalis. Tabes Dorsalis results from destruction of nerve cells and their myelin sheaths primarily in the dorsal root column of the spinal cord. Symptoms appear years, even decades after the initial infection and include weakness, diminished reflexes, unsteady gait, joint degeneration, loss of coordination, episodes of intense pain and altered sensation, to name a few. It is more frequent in men and is seeing resurgence in the HIV population. Because of the widespread epidemic of HIV, syphilis, in all stages, must always remain on the radar of the Internist. It is the Internist who is best equipped, through clinical reasoning and dedication to the physical exam, to decipher the frequently cryptic presentations of a patient with late-stage syphilis and make the diagnosis.

THINK BEYOND THE STROKE IN A HEMIPARETIC PATIENT: AN UNUSUAL CASE OF HYPERTENSIVE ENCEPHALOPATHY Y. Asaeda[1]; N. Kondo[1]; M. Kawai[1]; Y. Ito[1]. [1]Toyota Memorial Hospital, Toyota, Aichi. *(Tracking ID # 189943)*

LEARNING OBJECTIVES: 1) Describe a rare case of hypertensive encephalopathy 2) Highlight the importance of judicious blood pressure management in hypertensive emergencies
CASE: A 39-year-old woman with a past history of pregnancy induced hypertension and spontaneous abortions twice presented with a sudden onset of left hemiparesis and slurred speech. She developed the symptoms 30 minutes prior to her arrival to the Emergency Department by ambulance. She was conscious, somewhat confused with blood pressure 238/110 and heart rate 112. She denied having a headache, nausea or visual disturbances. Neurological examination revealed left hemiparesis including left facial palsy, tongue deviation to the left and positive left Babinski reflex. The remainder of the physical examination was unremarkable. Chest X ray showed cardiomegaly with pulmonary edema. Head CT showed diffuse low density and swelling in the brainstem. Diffusion-weighted imaging of the brain magnetic resonance (MR) showed diffusion restriction in the posterior limb of the right internal capsule and left basal ganglia. Signal hyperintensity was observed in the bilateral brainstem in the T2 weighted imaging. MR angiography revealed no stenosis or occlusion. Lab studies including CBC and chemistry were insignificant. Fundoscopic examination revealed flame-shaped hemorrhages and soft and hard exudates consistent with hypertensive retinopathy. She was treated with judicious antihypertensive therapies with diltiazem, benidipine, and nitroglycerin or nicardipine in the first couple of days until her unresponsive blood pressure was normalized. Follow-up MRI on hospitalization day 20 showed resolution of the brainstem abnormalities, suggesting the involved area as reversible vasogenic edema. The diagnosis of hypertensive brainstem encephalopathy was proposed on the basis of all the above findings and clinical course. The causes of poorly controlled hypertension during the acute phase remained unidentified after subsequent hormonal studies and imaging studies including renal angiography and scintigraphic studies. She was discharged to rehabilitation facilities with neurological sequelae of left hemiparesis and dysarthria after 33 days of hospitalization.
DISCUSSION: Hypertensive encephalopathy (HE) is a life-threatening condition in which severe and sudden rises in blood pressure results in failure of cerebral autoregulation, leading to disruption of blood brain barrier, causing vasogenic edema. It typically involves the white matter of the parieto-occipital lobes. The symptoms are non-specific, including altered mental status, headache, nausea or vomiting, and visual disturbances. Immediate reduction in blood pressure is essential since HE is usually rendered reversible when treated such. Differential diagnosis includes infarction, pontine glioma, central pontine myelinolysis, demyelinating disorders such as multiple sclerosis and acute disseminated encephalomyelitis. It might be difficult to distinguish between cerebral infarcts and HE, especially when focal neurologic deficits are present as seen in our case. Therefore, it is important for clinicians to recognize HE and accordingly initiate appropriate treatments. Hypertensive brainstem encephalopathy (HBE) is a variant of HE with predominant involvement of the brainstem without typical parieto-occipital lesions. This case illustrates HBE, an unusual case of HE, which is worth making a note of.

THIRD TIME'S A CHARM D. Acharya[1]; A.L. Kolpakchi[2]. [1]Baylor College of Medicine, Houston, TX; [2]Michael E Debakey VA Medical Center, Houston, TX. *(Tracking ID # 189594)*

LEARNING OBJECTIVES: Recognize that herpes simplex virus encephalitis (HSVE) is a life-threatening disease and early treatment reduces poor outcomes. Early diagnosis of HSVE requires MRI and/or PCR.
CASE: 77 y/o white gentleman with PMH of osteoarthritis presented to our ED with one week history of dry cough, fever up to 103 F and severe expressive aphasia. Patient denied headache, nausea and neck pain. He denied recent travel. Our hospital was the third one he visited during the week of illness. He visited the first ED two days after he became ill. Patient was diagnosed with upper respiratory infection and prescribed Z-pack. Two days later, in another ED, work up included a non contrast head CT which was negative. Patient was discharged home. Physical exam: older man in NAD. T101 F, BP 130/70 mm/Hg, P 80 bmp. Lungs: clear to auscultation. Heart: RRR, no murmur. Neurologic exam was significant for expressive aphasia only. Laboratory studies: WBC 10.2 (nl 3.5–10.0), 88% neutrophils, 6% lymphocytes, 5% monocytes. Abnormal chemistries included Sodium of 130 (nl 135–145) and BUN of 30 (nl 7–19). Blood cultures X 2 were negative. CT head without contrast was unremarkable. MRI of the brain showed cytotoxic edema with cortical and subcortical thickening involving the left anterior and medial temporal lobe with extension into the insular and subinsular cortex as well as the hippocampal temporal cortex, with associated punctuate hemorrhagic changes, findings suspicious for HSVE. Treatment with IV acyclovir was started. Lumbar puncture showed

120 nucleated cells (nl 0–5), 89% lymphocytes, 3% neutrophils, protein 83 mg/dl (nl 15–45) and glucose 43 mg/dl (nl 40–70). PCR was positive for HSV-1. Treatment with acyclovir was continued for 21 days. Patient was discharged home with mild residual expressive aphasia.
DISCUSSION: Herpes simplex encephalitis is usually caused by HSV-1. The annual incidence is estimated to be approximately 1 in 200,000 in the US. Half or more of all cases occur in patients over age of 50. Most cases are due to reactivation of latent HSV-1 infection. The pathophysiology is probably related to CNS invasion via cranial nerves or through viremia. The most common presenting symptoms are acute onset of headache, fever, altered mental status, abnormal speech, behavior, and hemiparesis. Less common presentation include manic or hypomanic states, amnesia, the Kluver-Bucy syndrome and increased sexual activity. Non contrast head CT is only 50% sensitive. Contrast CT and MRI show temporal lobe abnormalities, usually unilateral and associated mass effects in 86% of the patients. Polymerase chain reaction (PCR) has been established as the gold standard diagnostic method in acute stage of HSVE. CSF examination shows lymphocytic pleocytosis with elevated protein. Increased RBCs is seen in 84% of cases. Occasionally CSF examination can be normal. EEG shows periodic lateralized epileptiform discharges and/or focal temporal slowing in 90% of patients. Sensitivity of EEG decreases after 48 h. Mortality due to HSVE is 70%. Early treatment with IV acyclovir reduces mortality by 20–30%. Even with an early treatment, 50% of patients have moderate-severe residual neurologic deficits. In conclusion: A high index of suspicion for the diagnosis of HSVE should be maintained in a patient with fever and focal neurological symptoms. MRI, CT with contrast and PCR provide a rapid and accurate diagnosis of HSVE.

THIS CAUSE OF SHOCK: NO LESS SHOCKING ! N. Bhardwaj[1]; P. Cheriyath[2]. [1]PinnacleHealth System at Harrisburg Hospital, Hummelstown, PA; [2]PinnacleHealth System at Harrisburg Hospital, Hershey, PA. *(Tracking ID # 190805)*

LEARNING OBJECTIVES: 1) To identify deep vein thrombosis (DVT) as a rare cause of shock. 2) To recognize the increased risk of thrombotic complications with inferior vena cava (IVC) filter.
CASE: A 58-year-old white male presented to emergency department with one-day history of lower back pain and worsening shortness of breath. Past medical history was significant for myocardial infarction two years ago, complicated by pericardial effusion, and pulmonary embolism. An IVC filter was placed because a pericardial window precluded the use of anticoagulants. At current presentation vitals were BP 106/77 mmHg, RR 40/mt, pulse 90/mt, oxygen saturation 100% on non-rebreather mask. Systolic blood pressure later dropped into the 80s. Physical exam was notable for feeble pulses and mottling of bilateral lower extremities. CT scan of chest, abdomen and pelvis was negative for pulmonary embolism or aortic dissection. Bedside echocardiography was unremarkable. Lab evaluation revealed WBC count of 11,820 and lactic acid level of 3.0 mmol/dL. Doppler of lower extremities on admission showed right superficial femoral vein thrombosis. Aggressive fluid resuscitation and pressor support was started and patient was admitted to intensive care unit. Venous Doppler on the following day showed severe deep vein thrombosis in bilateral lower extremities. Inferior vena cava venogram showed extensive thrombus in the IVC filter. Emergency bilateral iliofemoral vein and inferior vena cava angioget thromobolysis was performed. Following thrombolysis, the patient's hemodynamic status improved and pressor support was withdrawn. Patient was started on IV heparin, warfarin and subsequently transferred out of the unit in stable condition.
DISCUSSION: A patient presenting in shock can prompt us to investigate for hypovolemic, cardiogenic, distributive, and neurogenic causes. Rarely, shock can occur due to poor venous return to right side of the heart because of extensive deep vein thrombosis. Thrombotic complications related to IVC filter are well recognized even with anticoagulation. This case illustrates severe DVT as a complication of vena caval filter resulting in profound shock. DVT should, therefore, be considered in differential diagnosis of a patient presenting in shock especially with pertinent past medical history. Moreover, inferior vena cava filter placement should be preceded by a careful assessment of the risks and benefits in each patient.

THYROTOXICOSIS MASQUERADING AS AN ACUTE INFECTIOUS PROCESS IN AN ELDERLY PATIENT D.M. Harris[1]; J. Ng[1]; H. Rao[1]. [1]University of Pittsburgh, Pittsburgh, PA. *(Tracking ID # 189639)*

LEARNING OBJECTIVES: 1. State the pathophysiology of Graves' disease 2. Recognize the atypical presentations of thyrotixicosis, including apathetic thyrotoxicosis 3. List the urgent and long term therapies for thyrotoxicosis.
CASE: A 65-year-old African-American man with a past medical history of Graves' disease, hypogonadism and essential tremor presented to the Emergency Department complaining of profound fatigue and worsening headache over the preceding twenty-four hours, accompanied by fever to 100.3F, weakness, lethargy, confusion and non-bloody diarrhea. He denied nausea, vomiting, cough, sore throat, angina, dyspnea, dysuria, melena, rash or myalgias. Physical examination was significant for lethargy, diaphoresis, tachycardia, hypertension, a 25 gram goiter, exophthalmos, and a resting tremor in the hands. The EKG showed T wave inversion in the inferior and lateral leads, but the rest of the workup was normal (WBC count 8.0, UA, lytes and LFTs normal, clear chest x-ray). The patient was admitted for a suspicion of an undeclared infectious process. Upon subsequent questioning, the patient reported discontinuing a "thyroid medication" approximately one-year earlier. Given the patient's negative infectious work-up and history of medical noncompliance, thyrotoxicosis was suspected, despite the atypical presentation, and treatment with propranolol and propylthiouracil was started. The diagnosis was confirmed by an undetectable TSH (<0.018 uIU/ml), a free T4 of 1.56 ng/dl (NR 0.73–1.84 ng/dL) and total T3 of 2.49 ng/ml (NR 0.6–1.84 ng/mL). Over the next two days, the patient's symptoms improved and he was discharged with endocrine follow-up.
DISCUSSION: Graves' disease is the most common cause of hyperthyroidism at all ages. In Graves' disease, thyrotropin (TSH) receptor antibodies stimulate the receptor, causing glandular hypertrophy and increased thyroid hormone synthesis and release, resulting in metabolic hyperactivity. The classic hyperkinetic hyperthyroid patient presents with weight loss, tachycardia, hypertension, palpitations, anxiety, goiter, heat intolerance and ophthalmopathy. However, an atypical presentation, termed Apathetic Thyrotoxicosis (AT) by Lahey in 1931, may also occur. It remains under-diagnosed in the elderly population because the predominant features, consisting of mental apathy, depression, fatigue, muscle weakness, atrial fibrillation, heart failure, non-palpable goiter and mild tachycardia, are not immediately evocative of hyperthyroidism. Left undiagnosed, it can lead to severe prostration, coma and death. Treatment of Graves' disease, regardless of presentation, is with beta-blockers to decrease the patient's sympathetic overdrive and a thionamide to decrease hormone production and conversion of T4 to T3. In severe cases, presenting with coma or failure of one or more organ systems (thyroid storm), additional treatment with potassium iodide or iodinated contrast agents to reduce thyroid hormone release, and adjunctive treatment with glucocorticoids, lithium, cholestyramine, carnitine and rituximab, may be considered. In refractory patients, definitive therapy with radioactive iodine ablation of the thyroid gland provides long-term cure. Thyroidectomy is generally reserved for patients with obstructive goiter, pregnant women who are allergic to anti-thyroid medications and those who refuse other treatments. Through prompt clinical recognition and rapid initiation of therapy, the morbidity and mortality associated with AT may be reduced.

TO WHOM IT MAY CONCERN: INTERPRETING HEPATITIS C SCREENING TESTS M.L. Dallapiazza[1]. [1]University of Pennsylvania, Philadelphia, PA. *(Tracking ID # 190381)*

LEARNING OBJECTIVES: 1) List the prevalence of hepatitis C (HCV) infection in the US and the indications for screening for the disease. 2) Outline the characteristics, utility and interpretation of the tests used to screen and to diagnose Hepatitis C infection.
CASE: A 36 year-old female with a history of colon cancer presented to an outpatient primary care clinic to establish care. She was diagnosed 5 years earlier and had a partial colectomy at that time with clear margins. Recently, after presenting to an emergency room with chest pain, she was diagnosed with metastatic cancer to the right lower lobe of the lung and a lobectomy was performed. After her hospital stay, she received a letter from the hospital stating she tested positive for hepatitis C. Extensive review of her medical, surgical and social history

revealed no symptoms of HCV, normal liver injury tests, and no risk factors for HCV infection. Repeat testing showed: ELISA for HCV antibody: Low Reactive HCV PCR: Negative HCV Quant: Undetectable HCV by RIBA: Positive
DISCUSSION: According to the CDC, approximately 4.1 million (1.6%) Americans have been infected with hepatitis C virus, 3.2 million of whom are chronically infected. Each year, there are approximately 25,000 new cases. Screening for HCV is currently limited to targeted patients at high risk for contracting the disease, most notably intravenous drug users. Most patients infected with HCV will develop chronic HCV (75–85%), with a median time to development of cirrhosis without treatment of 30 years. The remaining of those infected clear the virus but remain HCV antibody positive. The most commonly used screening test is enzyme immunoassay (ELISA). This assay detects antibodies to the recombinant antigens form the core and nonstructural regions of the HCV. Overall, the ELISA test allows for detection of anti-HCV with a sensitivity of 97%. As a result of an abundance of false-positive results in low-prevalence populations (up to 50%), however, a positive ELISA should be accompanied by a confirmatory test such as recombinant immunoblot assay (RIBA) or HCV reverse transcriptase polymerase chain reaction (RT-PCR). RIBA contains the same HCV antigens as the ELISA in an immunoblot format; while it provides no increase in sensitivity, it is more specific. Neither anti-HCV test can distinguish between acute, chronic or resolved infection. Unlike the antibody tests, RT-PCR directly measures for the presence of HCV and can detect HCV RNA as low as 100–1000 copies per mL. This test can be positive very rapidly after initial infection. False negatives, however, are common; and a single negative test is not conclusive. In this case, the initial result of a low reactive ELISA in this low-risk, asymptomatic patient is suggestive of a false positive result. The positive confirmatory RIBA result, however, confirmed that the patient had been infected with HCV. She most likely falls into the 15–25% of patients who cleared HCV infection, as her viral PCR is negative. Follow-up repeated RT-PCR tests should be performed. If they remain negative, this patient most clearly has resolved HCV infection.

TO WHOM MUCH IS GIVEN, MUCH CAN BE RECEIVED: THE HYPERHEMOLYSIS SYNDROME L. Wasson[1]; E. Howe[1]. [1]Tulane University, New Orleans, LA. *(Tracking ID # 190608)*

LEARNING OBJECTIVES: • To recognize the sign/symptoms of Hyperhemolysis Syndrome • To understand theories concerning pathophysiology of Hyperhemolysis Syndrome • To understand the clinical implications and treatment strategies concerning Hyperhemolysis Syndrome
CASE: A 24 year-old woman with sickle cell anemia presented with menorrhagia.. One week earlier, she had stopped her Depo-Provera injections because of break-through bleeding, and she noted the menometorrhagia shortly thereafter. She was evaluated in the clinic and received a blood transfusion to correct her hematocrit to 21%. At the time of admission, she presented with chest pain, left leg pain, and dark urine. Her heart rate was 120 bpm, the blood pressure was 90/50 mmHg, and her temperature was 38°C. She appeared diaphoretic and somnolent, with a hyperdynamic precordium and diffusely tender abdomen. Her lungs were clear, and aside from appearing pale, her extremity examination was normal. Laboratory tests revealed hyperkalemia, acute renal failure, and an elevated white blood cell count, liver enzymes, troponins, lactate dehydrogenase, D-dimer, and haptoglobin levels. Her hematocrit rapidly declined to a nadir of 12% from her baseline hematocrit of 28%. Suspecting a transfusion reaction, her blood was analyzed for the presence of antigens and antibodies, both of which were present. She was treated with a transfusion of donor-matched red blood cells that had been washed, filtered, and premedicated with IVIG. She also received FFP and cryoprecipitate. Supportive care was initiated with hemodialysis and elective intubation. Her condition improved. A review of her medical record revealed that she had been in another intensive care unit three years earlier where she had been treated for acute renal failure following a blood transfusion.
DISCUSSION: Hyperhemolysis syndrome is a potentially life-threatening condition characterized by brisk hemolysis following a transfusion. Major histocompatability reactions are rare outside of outright medical errors in failing to cross-match the blood to A and B antigens. The general internist must be aware, however, that "minor" histocompatability reactions due to the surface "i" antigens can induce a serious hemolytic reaction, as was the case in our patient. Severe complications may include acute chest syndrome, congestive heart failure, acute renal failure, and pancreatitis. Signs of this condition include dark urine, decreased hematocrit, hemolysis, and a positive Coomb's test. The reappearance of similar symptoms with additional transfusions is suggestive of the diagnosis. Patients with sickle cell disease are especially prone to this complication, as repeated transfusions over time result in accumulation of antibodies to the "i" antigens after sensitizing transfusions. In addition to the lysis of the transfused cells, the host cells may also be lysed, and the mechanism by which this occurs is not fully understood. The most important step therapeutic step in the Hyperhemolysis Syndrome is to quickly recognize the signs and symptoms of this disease, and begin intravenous immunoglobulin (IVIG) to sequester the antibodies responsible for the hemolysis. This case illustrates the important of careful vigilance following transfusions, as significant transfusion reactions can occur distant to the time of the transfusion. Those with multiple transfusions in the past are especially prone to this syndrome, and should be observed with extra vigilance.

TUBERCULOSIS IS NOT IN THE HISTORY BOOKS; IT'S IN THE HISTORY S. Nguyen[1]; C. Miller[1]. [1]Tulane University, New Orleans, LA. *(Tracking ID # 190890)*

LEARNING OBJECTIVES: 1. Recognize an atypical presentation of tuberculosis. 2. Understand the diagnostic utility of peritoneal adenosine deaminase.
CASE: An 80-year old woman presented with one month of increasing abdominal girth. Other than mild dyspnea, she had no associated symptoms or further complaints. She had no significant past medical history and had been in good health. She had no risk factors for hepatitis or liver disease. Her vitals were normal. She had a diffusely distended, tense abdomen with shifting dullness. A hardened ridge of subcutaneous tissue could be palpated above the umbilicus, but there were no discrete masses. She had no evidence of cirrhosis or chronic liver disease. Peritoneal fluid revealed a white blood cell count of 125 cells/mm3; 80% lymphocytes. The peritoneal protein was 3.9 g/dl, and the serum ascites albumin gradient (SAAG) was calculated at 0.7 g/dL. Based upon the peritoneal fluid studies, ovarian carcinoma was initially suspected, but cytology of the peritoneal fluid was negative and a CT scan of the abdomen showed no ovarian masses, but did show small 3–5 mm masses in the anterior peritoneum and omentum. Tuberculosis was also considered despite her adamant denial of risk factors. She refused a peritoneal biopsy. The next day a family member explained that a nephew was treated for tuberculosis more than 25 years ago. Our patient and her nephew lived in the same house at that time. The results of her PPD were 17 mm of induration. She was empirically treated for TB, and the peritoneal fluid sent for adenosine deaminase returned positive one week later.
DISCUSSION: Tuberculous peritonitis should be considered in all patients with new onset ascites, lymphocytic ascites, serum-ascites albumin gradient of less than 1.1 g/dL and ascitic fluid protein content of greater than 3.0 g/dL. Adenosine deaminase activity of ascitic fluid has a sensitivity and specificity of 100 and 97 percent for the diagnosis of TB peritonitis when the level is greater than 45 U/L. The gold standard for the diagnosis of TB peritonitis is culture growth of Mycobacterium or a peritoneal biopsy under direct visualization. This is one of many unusual presentations of tuberculosis, but the general internist must keep this disease on his or her radar as it still plagues many of our patients today, especially in poor urban areas. A PPD is positive in 70 percent of TB patients, however a negative result does not exclude the disease. Adenosine deaminase is a useful diagnostic test when the clinical pre-test probability suggests peritoneal tuberculosis.

TUBULOINTERSTITIAL NEPHRITIS AND UVEITIS SYNDROME IN AN ADULT S. Chandrashekaran[1]; G. Chemiti[1]. [1]Meritcare Hospital, Fargo, ND. *(Tracking ID # 189277)*

LEARNING OBJECTIVES: 1. To recognize tubulointerstitial nephritis and uveitis syndrome (TINU syndrome) in adults since delay in treatment can lead to chronic renal insufficiency or end-stage kidney disease. 2. Renal biopsy aids in diagnosis. 3. Uveitis is independent of

the kidney disease and can precede, develop concurrently or follow the nephritis.
CASE: A 67-year-old Caucasian man presented with a two-month history of anorexia, nausea and generalized weakness. His past medical history was significant for anterior uveitis about five months prior to this presentation for which he was treated with topical steroids. Physical examination was unrevealing. Hemoglobin was 8.4 g/dl, creatinine 9.0 mg/dl, BUN 108 mg/dl, calcium 8.2 mg/dl. ESR was 30 mm/hour. His creatinine was 1.2 mg/dl a year ago. Urinalysis revealed 1 + protein, 2 + glucose. Chest x-ray and ultrasound of kidneys were normal. Complement levels, ASO titer, ANA, double stranded DNA were normal. ANCA, Anti GBM, rheumatoid factor, RPR, angiotensin converting enzyme levels, lyme antibody screen, HLA-B27 typing, Hepatitis B and C, HIV were negative. Serum protein electrophoresis demonstrated a small monoclonal spike of 0.09 g/dl in the gamma region. Serum immunofixation confirmed monoclonal spike of IgG kappa. Renal biopsy demonstrated chronic interstitial inflammation consisting of mononuclear cells, consistent with interstitial nephritis. There was no evidence of immune complex mediated glomerulitis or myeloma. There was no history of exposure to medications known to cause acute interstitial nephritis. Hemodialysis was initiated. Oral prednisone was started at a dose of 80 mg daily. Renal function improved gradually and the creatinine level plateaued around 3.0 mg/dl. Dialysis was discontinued after four months. Prednisone was tapered over six months. One year after the initial presentation, significant renal dysfunction persists, with creatinine at 3.0 mg/dl and GFR of 22 ml/min. Nine months after the initial diagnosis of TINU syndrome there was a relapse of anterior non-granulomatous uveitis in the left eye, which was treated with topical steroids.
DISCUSSION: The association of tubulointerstitial nephritis with uveitis of undetermined etiology is recognized as tubulointerstitial nephritis and uveitis syndrome. In order to make a diagnosis of TINU syndrome, acute interstitial nephritis and uveitis have to be identified in the absence of systemic or infectious diseases that can cause either condition. The pathogenesis is not clear. Clinical features of TINU syndrome include fever, weight loss, fatigue, malaise, anorexia, arthralgias, myalgias and abdominal pain. IgG levels are elevated in most patients. Anterior uveitis is the most common ocular manifestation. It may precede or follow the nephritis and may recur or becomes chronic. Uveitis responds to topical steroids. The renal insufficiency may respond to steroids in most cases and may also resolve spontaneously. There is a higher incidence of this syndrome in childhood and adolescence. In this population, prognosis of the renal dysfunction is good with spontaneous and complete recovery in majority of the cases. However, in adults the outcome may not be as favorable. When a patient presents with idiopathic interstitial nephritis it is prudent to consider a slit lamp examination, as uveitis may be asymptomatic. Likewise, urinalysis and serum creatinine should be obtained in patients with uveitis.

UNCOMMON ETIOLOGY OF LOWER GASTROINTESTINAL BLEED S. K. Subbarayn[1]; S. Chandrashekaran[1]. [1]University of North Dakota, Fargo, ND. *(Tracking ID # 189515)*

LEARNING OBJECTIVES: Recognize that cytomegalovirus colitis can present exclusively as profuse lower gastrointestinal bleed and can mimic malignancy on colonoscopy.
CASE: A 65 year-old woman was admitted to our hospital for management of gastrointestinal hemorrhage. She had three episodes of profuse, painless rectal bleeding which was not preceded by diarrhea. She did not have any other complaints. Medical history was significant for membranoproliferative glomerulonephritis for which she had been taking prednisone for a month. Other problems included hypertension, diabetes mellitus, and rheumatoid arthritis. She had been taking aspirin 81 mg as part of her medication regimen and had been using ibuprofen for pain relief a week earlier. There was no recent history of antibiotic use. On examination, BP was 141/81, pulse 115, respiratory rate 16, temperature 98.6. Abdomen was soft with no tenderness and normal bowel sounds. Rest of the exam was unremarkable. Her hemoglobin had dropped to 9.5 g/dl from a baseline of 12.5 g/dl. PT and PTT were not elevated.Supportive treatment was given and a gastroenterology consultation was obtained. Diverticular bleed or bleeding from an AV malformation were considered likely etiologies. Colonoscopy revealed an infiltrating hemi-circumferential nonobstructing polypoid mass at the hepatic flexure highly suspicious for malignancy. Two polyps in the right colon and one polyp in the mid transverse colon were noted as well. The patient underwent right hemicolectomy for excision of this lesion. Frozen section of this suspicious lesion showed a large ulcer, 10 X 7 cm, with signs of chronic inflammation and no evidence of malignancy. Cytomegalovirus inclusion bodies were subsequently identified in the ulcerative lesion. The polyps were identified as tubulovillous adenoma with low-grade dysplasia. The patient did well following the surgery and had no further bleeding during her hospital stay. Ulceration from CMV was likely a sequel to the treatment of glomerulonephritis with steroids. IgG for CMV was positive, IgM was negative. Testing for CMV DNA by rapid PCR revealed around 2500 copies/ml. Test for HIV was negative. The patient was eventually treated with Ganciclovir.
DISCUSSION: CMV colitis occurs commonly in severely immunosuppressed hosts, especially in patients with AIDS. In these patients, it presents with abdominal pain, fever, watery diarrhea and very rarely with hematochezia. Colonoscopy in CMV colitis reveals diffuse or localized ulcerations. Rarely mucosal friability, erosions, hemorrhages and plaque-like pseudomembranes may be seen. CMV colonic lesions resembling colorectal carcinoma have been reported. Our patient did not have any obvious cause of immunosuppression other than the use of prednisone (40 mg daily for one month) and the presence of endstage kidney disease on dialysis. She tested negative for HIV. The presence of IgG and the absence of IgM to CMV indicates reactivation of the virus as the cause of colitis. It is likely that steroid use was the inciting factor for the reactivation of the virus. There are only a few cases of CMV colitis presenting as hematochezia without prodromal diarrhea in the literature. Very rarely CMV colitis can also mimic ischemic colitis.

UNDER PRESSURE: COMPARTMENTALIZING RENAL FAILURE K. Widmer[1]; M. Cash[1]. [1]Tulane University, New Orleans, LA. *(Tracking ID # 190544)*

LEARNING OBJECTIVES: 1. Understand the pathology behind acute renal failure. 2. Differentiate the causes of acute renal failure. 3. Examine the pathophysiology of abdominal compartment syndrome.
CASE: A 69-year-old man was brought to the hospital by his landlord for altered mental status. He reported not having eaten anything or having had anything to drink for 4 days. He also reportedly had not urinated for several days and complained of difficulty breathing. His vital signs were normal, as was his head and neck, cardiac, and pulmonary examinations. He had a global depression of mental status, but was able to recognize his name. His abdomen was distended and tight, but not tender, and his liver was not palpable. An ultrasound of his abdomen revealed distended loops of bowel, but no fluid. Flat and erect radiography of the abdomen showed no air-fluid levels and no ruptured viscus or free air in the peritoneum. His blood urea nitrogen was 294 mg/dL and his creatinine was 12.2 mg/dL. His serum potassium was 7.8 mEq/L and the calculated fractional excretion of sodium was 0.3%. A foley catheter was placed and 200 cc of urine immediately returned. A nasogastric tube was inserted to aid in abdominal decompression and feculent material was immediately returned. He was aggressively volume resuscitated with intravenous fluids and taken to the operating room with a small bowel obstruction. Once his abdominal cavity was decompressed, his renal function returned to normal.
DISCUSSION: Acute renal failure is commonly encountered by the general internist. Pre-renal acute kidney injury develops because of volume depletion, decreased cardiac output, systemic vasodilation, afferent arteriolar vasoconstriction, or efferent arteriolar vasodilation. Compression of the renal vasculature due to abdominal compartment syndrome is frequently omitted from the internist's differential diagnosis of pre-renal failure, but is an important etiology to consider early, as life-saving interventions predicate upon early detection. Abdominal compartment syndrome is a surgical emergency and its prompt recognition is essential to avoid life-threatening outcomes. The pathophysiology of abdominal compartment syndrome is marked by a rise in intraabdominal pressure beyond 20 mmHg. This can be a consequence of intraperitoneal changes such as bowel distention, hemorrhage, ascites, or mesenteric venous obstruction, or of retroperitoneal volume changes from aortic surgery and pancreatitis. Short-term treatment of abdominal compartment syndrome with concomitant renal failure involves aggressive fluid resuscitation, bowel decompression, and

possibly hemodialysis, but ultimately urgent surgical intervention is required.

UNEXPECTED MANIFESTATION OF RHEUMATOID ARTHRITIS S. Dikkala[1]; A.L. Spencer[1]; J. Lewis[1]. [1]Allegheny General Hospital, Pittsburgh, PA. *(Tracking ID # 189615)*

LEARNING OBJECTIVES: 1. To describe the clinical manifestations of pericarditis. 2. To outline treatment options in patients with rheumatoid pericarditis.
CASE: A 42-year-old woman with a history of asthma and type 2 diabetes was admitted with abdominal pain, abdominal distention, shortness of breath and lower extremity edema. She denied chest pain, paroxysmal nocturnal dyspnea, orthopnea, joint pains, and morning stiffness. Cardiac examination revealed jugular venous distention. Abdominal examination revealed MODERATE distention, right upper quadrant tenderness, hepatomegaly, and shifting dullness. Examination of the extremities revealed 1 + pitting edema. Liver function tests were normal. Rheumatologic workup revealed a strongly positive rheumatoid factor, cyclic citrullinated peptide (CCP) IgG antibody and antinuclear antibodies (ANA). C3 & C4 were normal. Abdominal ultrasound revealed ascites and portal hypertension. Liver biopsy was suggestive of venous outflow obstruction with no evidence of cirrhosis. Chest X-ray showed a right pleural effusion. The patient underwent a diagnostic paracentesis and thoracentesis which were unrevealing. EKG showed no specific changes. Echocardiogram revealed an ejection fraction of 60% and a small to moderate pericardial effusion. Right heart catheterization showed a normal PA pressure of 32/20, slight elevation of the right atrial pressure, right ventricular diastolic pressure of 18, and normal left sided pressures consistent with volume overload. Cardiac MRI showed severe constrictive pericarditis. Given the increased levels of ANA and the strongly positive anti-CCP and rheumatoid factor, the diagnosis of rheumatoid arthritis was made. The patient was started on lasix, spirinolactone, prednisone and plaquenil with subsequent improvement of her symptoms.
DISCUSSION: Clinical rheumatoid pericarditis is uncommon and seen in less than 3% of patients with rheumatoid arthritis. Severe rheumatoid heart disease usually occurs in patients with higher titer rheumatoid factor, ANA, and extraarticular disease, especially systemic vasculitis. It most commonly affects patients in their 6th & 7th decades, after they have had arthritis for approximately one decade. In this case, the patient presented with constrictive pericarditis as the initial manifestation of rheumatoid arthritis in her forties. The clinical manifestations of pericarditis vary greatly and depend upon the severity of constriction and the presence of an effusion or tamponade. Dyspnea or orthopnea, pericardial pain, and peripheral edema were the most frequent presenting cardiac symptoms. Treatment is with nonsteroidal anti-inflammatory drugs, corticosteroids and/or other immunosuppressive drugs and in severe cases, pericardiectomy is warranted. Prognosis depends on the age and cardiac status of the patient. This case illustrates a rare initial presentation of rheumatoid arthritis in the absence of joint involvement in a young woman.

UNILATERAL SPINAL CORD INFARCTION IN A PATIENT WITH ATHEROSCLEROSIS AND A MURAL THROMBUS OF THE AORTA: A DIAGNOSTIC CHALLENGE S. Sirop[1]; R. Kakarala[1]; M. Kojaian[1]. [1]Mclaren Regional Medical Center-Michigan State University, Flint, MI. *(Tracking ID # 190436)*

LEARNING OBJECTIVES: Spinal cord (SC) infarction is a rare entity and should be included in the differential diagnosis of bilateral or unilateral lower extremity (LE) weakness. Diagnosis is often challenging since magnetic resonance imaging (MR)I is usually normal during the first 24 hours. SC infarction could be associated with atherosclerotic disease of the aorta.
CASE: An 83-year-old Caucasian male presented to our emergency room with sudden onset of bilateral LE weakness associated with tingling sensation from the toes up to the lower abdomen. No complaints of fever, respiratory tract infection, diarrhea, back pain, urinary retention, headache or visual changes. His past medical history was significant for hypertension, borderline diabetes and prostate cancer. He underwent a prostatectomy 18 years ago; although he has been in remission since then, he was left with urinary incontinence. Pertinent physical exam findings included paraplegia, absent sensations bilaterally up to the level of the lower abdomen and absent reflexes in the LEs. The results of the MRIs of the lumbar, thoracic and cervical spine were all normal on admission. Computed tomography (CT) scan of the head and cerebrospinal fluid analysis were unremarkable. CT scan of the abdomen with intravenous contrast showed ectasia of the infrarenal abdominal aorta with a mural thrombus. On day 4, the exam was significant for a 0/5 power, absent sensations with exaggerated reflexes on the left side, and a 4/5 power, normal reflexes with impaired pain and temperature sensation on the right side. A repeat MRI of the thoracic spine on day 5 revealed a left-sided increase T-2 signal at the T10-T11 level, consistent with cord ischemia.
DISCUSSION: The blood supply of the SC is derived from a series of segmental arteries that arise from the anterior spinal artery (SpAr). Proximally, it supplies the cervical SC through branches from the subclavian arteries and distally the thoracic and lumbar SC through branches from the internal iliac arteries. Infarction of the SC is reported in association with arteritis involving the anterior SpAr, dissecting aneurysm and embolism from atherosclerotic aorta following surgical procedures. MRI of the spine is usually normal within the first 24 hours; however after a few days, there will be obvious changes on the T2 image sequences, which was seen in our patient. Our patient presented initially with paraplegia secondary to the neural shock but shortly thereafter recovered the motor functions on the right side. It is likely that the SC infarction was embolic in nature and related to the mural thrombus in his abdominal aorta.

UNUSUAL DIAGNOSIS OF A PATIENT WITH PRE-SYNCOPE C. Schneider[1]; B. Gakhar[2]; J. Hadam[2]. [1]Drexel School of Medicine, Philadelphia, PA; [2]Allegheny General Hospital, Pittsburgh, PA. *(Tracking ID # 190234)*

LEARNING OBJECTIVES: 1) Recognize an unusual diagnosis of patient with presyncope and list differential diagnosis of hypokalemia. 2) Review the treatment options for hypercortisolism.
CASE: A 62 year old Caucasian male presented to the emergency room after a near syncopal episode while walking in his kitchen. As he bent over he became light headed and fell, but did not lose consciousness. His medical history included coronary artery disease, emphysema, a 160 pack year history of smoking, pulmonary nodule, and diabetes. Review of systems was negative for any other symptoms. He denied recent diuretic use or diarrhea. In the week preceding his presentation he noted unusually elevated blood glucose levels and severe fatigue. Physical exam was normal except for a blood pressure of 180/90 mmHg. Laboratory data revealed potassium of 1.8 mmol/L and bicarbonate of 45 mmol/L. The patient's pre-syncope was attributed to a hypokalemia related arrhythmia. Records showed a potassium level of 5.2 mmol/L a month ago. Chest x-ray was suspicious for a lung mass and CT scan of the chest revealed a right hilar pulmonary neoplasm. Mineralocorticoid excess was suspected. A random serum cortisol level was 124 mg/dL and was not suppressed by low and high dose overnight dexamethasone suppression tests, suggesting ectopic Cushing's syndrome. Plasma aldosterone and renin levels were within normal range. ACTH was 10 times the normal value and a 24 hour urine cortisol level was very high (15633 mcg). Cytology on a bronchoscopic specimen revealed small cell lung carcinoma (SCLC). The patient was diagnosed with ectopic ACTH producing SCLC responsible for a secondary Cushing's syndrome. Potassium was aggressively replaced and Ketoconazole was initiated for adrenal suppression. The patient received his first cycle of Carboplatin and Etoposide. Two weeks after admission the patient was discharged with normal potassium levels. One week after discharge the patient returned to the emergency room with signs and symptoms of adrenal insufficiency including hypoglycemia, hypotension and hyperkalemia.
DISCUSSION: Cushing's syndrome (CS) is associated with SCLC in less than 5% of cases and portends a poor prognosis. Due to the rapid development of symptoms, the typical stigmata of CS such as buffalo hump, abdominal striae and hirsutism, are usually absent. Instead secondary CS presents with symptoms of profound weakness and arrhythmias related to low potassium. Hypokalemic alkalosis is the most notable laboratory manifestation. Patients often experience either a new onset or worsening of hypertension and hyperglycemia. In this case the patient's SCLC presented as a near syncopal episode attributed to hypokalemia. In the work up for severe hypokalemia one must also

consider hyperaldosteronism, hyperreninemia, severe diarrhea, and diuretic use. The severe hypokalemia seen in SCLC related CS can be life threatening and necessitates liberal potassium replacement. Agents such as Ketoconazole, Fluconazole, and Mitotane can be used to suppress the adrenal production of cortisol. Pharmacologic adrenal suppression has not been shown to decrease mortality but can reduce morbidity by decreasing opportunistic infections. Chemotherapy for SCLC plays a more definitive treatment for the excessive ACTH production. Care must be taken during adrenal suppression to avoid adrenal insufficiency and to appropriately adjust the patient's diabetic and hypertensive regimens as the CS resolves.

UNUSUAL PRESENTATION OF GIANT CELL ARTERITIS E. Shahira[1]; M. Sanaullah[2]; S. Chandrashekaran[2]; S.K. Subbarayn[3]. [1]American College of Physicians, fargo, ND; [2]UND, fargo, ND; [3]University of North Dakota, West Fargo, ND. *(Tracking ID # 189581)*

LEARNING OBJECTIVES: 1. Recognize atypical presentation of giant cell arteritis with liver granuloma, elevated liver enzymes and fever. 2. Temporal arteritis should be considered in the evaluation of fever of unknown origin in the older patients.
CASE: 71-year-old-native American woman presented to our hospital for evaluation of fever of two months duration. Her medical history included diabetes mellitus, end-stage kidney disease on hemodialysis. Patient had extensive workup for evaluation of fever. Serologies for Q fever, syphilis, brucella, HIV were negative. Fungal serologies were negative. Angiotensin converting enzyme levels were normal. Her PPD was positive, CXR was negative. AST was 60 U/L; ALT was 38 U/L; alkaline phosphatase (ALP) was elevated at 334 U/L. Liver biopsy demonstrated granulomas. Cultures and AFB from the granulomas were negative. As there was a possible history of exposure to tuberculosis and a positive PPD, she was started on an antituberculous drug regimen. The fever did not abate after several months of treatment and the regimen was discontinued. She did, however, complete nine months of treatment of INH. She was started on oral steroids by her local physician for granulomatous hepatitis, with resolution of fever. Steroids were continued for several months. The patient presented a year later with similar complaints of low grade fever for several weeks. In addition, she also had pain in the jaw while chewing solid food. In fact she was on a liquid diet for several weeks. Examination revealed a temperature of 100.3oF. There was no tenderness over the temporal arteries. Mild tenderness over the right upper quadrant was noted. WBC count was elevated at 16,000 cells/mm3. ALP was 309 U/L. AST and ALT were normal. ANA, rheumatoid factor, hepatitis A, B, C serologies were negative. Serologies for autoimmune liver diseases were negative. CT of the chest, abdomen and pelvis was negative. CRP was elevated at 16 mg/dl, ESR at 88 mm/hr. Temporal artery biopsy was consistent with giant cell arteritis (GCA). Prednisone was started at a dose of 40 mg daily, following which fever and jaw claudication resolved. ESR four weeks later dropped to 22 mm/hr. Prednisone was gradually tapered. Alkaline phosphatase normalized five months after initiation of steroids.
DISCUSSION: GCA is necrotizing vasculitis which affects large and medium sized vessels commonly seen in elderly. Elevated ALP of hepatic origin may be seen in nearly one third of the patients with temporal arteritis. In retrospect, the granulomatous hepatitis diagnosed previously with prompt response to steroids was probably a manifestation of GCA. There are only a few case reports of biopsy proven temporal arteritis presenting with liver granuloma in the literature. Early recognition of this condition avoids delay in treatment and unnecessary expensive tests. Although liver involvement has little prognostic implication, timely initiation of steroids could prevent devastating complications of temporal arteritis like permanent blindness. In the older population presenting with fever of unknown origin, it is important to consider giant cell arteritis in the differential diagnosis.

VITAMIN SAVE LIVES: EASILY TREATABLE HEART FAILURE N. Misumida[1]; S. Sugino[1]; H. Umeda[1]; M. Kawai[1]; M. Iwase[1]. [1]Toyota Memorial Hospital, Toyota, Aichi. *(Tracking ID # 189990)*

LEARNING OBJECTIVES: 1. Identify thiamine deficiency as a possible cause of heart failure, especially in patients treated with long-term furosemide therapy. 2. Recognize the typical clinical course of beriberi heart.

CASE: A 61 year-old man with a history of chronic heart failure, presented to the emergency room with dyspnea lasting for 2 weeks. He had been taking furosemide 40 mg/day for 6 months. He denied any recent alcohol consumption or inappropriate diet. On admission, he was in acute distress, sitting in orthopneic position and could not speak in full sentences. He had a heart rate of 92, a respiratory rate of 30, and oxygen saturation of 98% on room air. His blood pressure was 103/52 mmHg, which was lower than his usual blood pressure of 140/90 mmHg. Physical examination showed jugular venous distention and bilateral pitting edema in the lower extremities. The laboratory tests revealed severe acidosis with decreased HCO_3^- of 7.7 /L and elevated lactate of 8.6 mmol/L; pH was maintained by hyperventilation resulting in pCO2 of 12.8 mmHg. Chest X-ray revealed mild cardiomegaly and pulmonary congestion. ECG revealed sinus tachycardia and inverted T waves in leads V4–6. Echocardiography revealed no local asynergy and an ejection fraction of 58%. His condition did not improve with the administration of a substantial amount of catecholamine and diuretic. Hemodynamic measurements with Swan-Ganz catheter revealed cardiac index of 8.0 L/min/m^2, pulmonary artery pressure of 50/17 mmHg, pulmonary capillary wedge pressure of 27 mmHg, and systemic vascular resistance of 459 dyne-sec'cm^{-5} (700–1600 dyne-sec·cm^{-5}). Repeated careful neurological examination revealed horizontal nystagmus and hyporeflexia of the bilateral lower extremities. Thiamine was administered because of high suspicion of thiamine deficiency and the patient's symptoms resolved dramatically within 6 hours, with improved blood pressure and urine output. The diagnosis of beriberi heart was confirmed by a low plasma thiamine concentration of 11 mg/dl (20–50 mg/dl). Typical causes of thiamine deficiency were investigated but were not identified. '
DISCUSSION: Beriberi heart is caused by thiamine deficiency and is characterized by high-output heart failure with low peripheral vascular resistance. In developed countries, thiamine deficiency is mainly associated with alcoholism. Malnutrition, chronic renal dialysis, and total parenteral nutrition are also common precipitants. A number of studies have suggested that patients receiving long-term furosemide therapy easily develop thiamine deficiency due to increased urinary thiamine excretion and should be treated with 50 to 200 mg of thiamine per day. However, this remains controversial because of assay validity and a lack of control trials. In a recent cross-sectional observational study in patients hospitalized with a diagnosis of chronic heart failure, the prevalence of thiamine deficiency, including subclinical thiamine deficiency, was 33%. Typical causes of thiamine deficiency were not found from this patient's history or examinations. Long-term furosemide therapy might have played a key role in causing thiamine deficiency in this case. Heart failure caused by thiamine deficiency is easily treatable with thiamine administration and remarkable improvement can be expected within 12 hours. Identifying thiamine deficiency as a possible cause of heart failure will allow internists to provide appropriate care to patients with this treatable heart failure.

WATCH OUT FOR THAT PET! T.K. Su[1]; S. Donovan[1]. [1]Olive View-UCLA Medical Center, Sylmar, CA. *(Tracking ID # 190404)*

LEARNING OBJECTIVES: (1) Recognize that minor traumatic injuries from animals may result in serious infections in immunocompromised patients. (2) Recognize the importance of asking patients about pet ownership and pet-keeping habits in determining the cause of an infection.
CASE: A 32-year-old man with HIV (CD4 376 cells/mm3) and Hepatitis C presented to our emergency department with fever, chills, nausea, and vomiting for three days. The patient reported that his common green iguana had bitten his right finger two days prior to the onset of symptoms. He was febrile and diaphoretic on presentation, and examination revealed a small superficial, healing laceration on the ventral aspect of the distal index finger without signs of cellulitis or decreased range of motion. Gentamicin and levofloxacin were initiated after both sets of cultures grew gram negative bacilli, and changed to ampicillin-sulbactam when the isolates were identified as Pasteurella multocida. The patient had complete resolution of his symptoms and bacteremia after a 2-week course of ampicillin-sulbactam. An isolate of P. multocida recovered from the oropharyngeal areas of his pet iguana had a biochemical profile that was identical to that recovered from the patient's blood cultures. He was discharged in stable condition and was strongly advised to find another home for his pet.

DISCUSSION: There are few published cases on iguana bite injuries, with most injuries resolving without serious infections. While P. multocida infections are commonly associated with bite wound injuries from cats or dogs, pasteurella organisms recovered from various reptiles have not been linked to any well-known clinical diseases in humans. We report a case of P. multocida bacteremia resulting from an iguana bite in an HIV-infected patient. Our case illustrates that pasteurellosis can be transmitted from reptiles to humans and can cause a serious health threat to immunocompromised patients following a minor bite injury. While salmonellosis remains the most likely infectious complication following exposures to reptiles, pasteurella organisms should also be considered in ill patients from contacts with reptiles, particularly if the patients are immunocompromised. As reptiles become increasingly more popular as household pets, reptile-associated salmonellosis and other reptile-related medical problems may become more prevalent. When eliciting a history from patients presenting with unusual sources of infection, physicians should ask about ownership of all types of pets, pet-keeping habits, and injuries of any degree caused by their pets or other animals. Physicians should strongly encourage their immunocompromised patients to minimize or avoid reptile contact.

WET AND WEAK: AN UNUSUAL PRESENTATION OF LEGIONELLA PNEUMONIA O.J. Blackstock[1]; I.M. Muo[1]; J.P. Deluca[1]. [1]Montefiore Medical Center/Albert Einstein College of Medicine, Bronx, NY.
(Tracking ID # 189267)

LEARNING OBJECTIVES: 1. Recognize that ***Legionella pneumophila*** pneumonia can present with focal neurological symptoms 2. Recognize that tumor necrosis factor-alpha (TNF-) antagonists may be associated with an increased susceptibility to ***Legionella pneumophila*** pneumonia
CASE: A 47-year old man was admitted with subjective fever, progressive bilateral lower extremity weakness and urinary incontinence for three days. He reported an occasional, nonproductive cough. He reported no headache, leg or back pain, or recent upper respiratory or gastrointestinal infection. He had a thirty-year history of Crohn's Disease for which he was taking sulfasalazine, 6-mercaptopurine, and adalimumab, a TNF- monoclonal antibody. On admission, his temperature was 101.1°F and there was dullness to percussion and decreased breath sounds of lower right lung field. Bilateral lower extremity strength was 3/5 with hyporeflexia and intact sensation. There was no dysmetria. Rapid alternating movements were slow but showed no dysdiadochokinesia. Lab data were notable for WBC 10×10^3/L with 94% neutrophils, Na 129 mEq/L, ALT 64 U/L, AST 42 U/L, and CPK 341 IU/L. CXR showed a right lower lobe consolidation. Lumbar puncture demonstrated glucose 76 mg/dL, protein 33 g/dL, and WBC 2/L. The remaining CSF studies including gram stain and bacterial culture were negative. CT of the head showed no intracranial bleed or mass. MRI of the entire spine demonstrated no spinal cord compression or lesions. Initially, Piperacillin/Tazobactam and Azithromycin were started for community acquired pneumonia. Adalimumab and 6MP were held. On the second hospital day, urine Legionella antigen was found to be positive. Subsequently, the antibiotics were switched to Moxifloxacin and Rifampin. After ten days of antibiotic treatment, the patient was continent of urine and his lower extremity weakness had almost completely resolved. He was discharged home to complete his antibiotic course.
DISCUSSION: Legionella pneumonia has been recognized for its protean clinical manifestations. It can present with nonspecific symptoms such as fever, malaise, and lethargy. Respiratory symptoms such as a dry cough may not immediately be present but usually develop with progression of the infection. Among neurological symptoms, headache, confusion, cerebellar ataxia and stupor tend to be most commonly seen while focal neurological deficits such as bilateral lower extremity weakness and urinary incontinence are rare. This patient's neurological symptoms improved with treatment of the pneumonia suggesting a direct relationship between the respiratory infection and his neurological findings. The presence of a new neurological deficit in the setting of pneumonia should prompt an investigation for ***Legionella pneumophila***. TNF-, a cytokine, is known to play a key role in the immune system's defense against intracellular microorganisms such as ***Legionella pneumophila***. Of note, the patient was taking a TNF- antagonist for Crohn's Disease. TNF- antagonists have been associated with an increased risk of infection with tuberculosis as well as other intracellular pathogens such as ***Listeria monocytogenes***. Recent studies suggest that the use of TNF- antagonists may also be associated with an increased susceptibility to Legionella pneumonia. Physicians should be aware of the potential increased risk of infections associated with taking TNF- antagonists.

WET BERIBERI: A REVERSIBLE CAUSE OF SYSTOLIC DYSFUNCTION E.L. Lum[1]. [1]University of California, Los Angeles, Los Angeles, CA.
(Tracking ID # 189800)

LEARNING OBJECTIVES: 1. Recognize the signs and symptoms of thiamine deficiency in patients with HIV 2. Manage systolic dysfunction from wet beriberi
CASE: A 46-year-old woman with AIDS presented to clinic with six months of diarrhea, decreased oral intake and a twenty-five pound weight loss. Physical examination was remarkable for dry mucus membranes, resting tachycardia, and orthostatic hypotension. Blood tests were remarkable for a CD4 count of 8. The patient was admitted for dehydration and evaluation of her diarrhea. Endoscopy was remarkable for villous blunting consistent with HIV enteropathy. Stool studies and serum CMV were negative. During fluid resuscitation, she developed acute respiratory distress with inspiratory rales, an S3 gallop, and elevated jugular venous pressure. Initial studies included a normal EKG, thyrotropin, and troponins as well as an elevated serum BNP. An echocardiogram revealed the new onset of systolic heart failure with a left ventricular ejection fraction of 35–40% and multiple wall motion abnormalities. An adenosine cardiac stress test revealed no perfusion defects. Considering her nutritional status and negative stress test, wet beriberi was considered and she received multiple doses of thiamine. She had prompt improvement of her cardiac symptoms and on repeat echocardiogram five days later, her systolic dysfunction and regional wall motion abnormalities had resolved.
DISCUSSION: Wet beriberi is caused by thiamine deficiency, which in this patient was the result of malnutrition from HIV enteropathy. Other known causes include alcoholism, post-bariatric surgery, hyperthyroidism, and chronic dialysis. Thiamine is a B vitamin required to generate thiamine pyrophosphate, an essential cofactor in glucose metabolism. When thiamine stores are depleted, tissues must resort to less efficient alternative methods for energy production, causing the symptoms of beriberi. Wet beriberi manifests with cardiovascular dysfunction while dry beriberi is primarily a neurological disorder. Initially, peripheral vasodilation occurs, resulting in a high output cardiac state. As the condition progresses, myocardial injury results in systolic dysfunction. The diagnosis of beriberi is usually made on the basis of response to vitamin replacement. Avaliable laboratory studies for measuring thiamine stores and metabolism are prone to error. However, clinical improvement in wet beriberi can be witnessed within 12 hours of treatment. Cardiac function returns to baseline in 1 to 2 days. This case illustrates an important principle of general internal medicine: vitamin deficiencies can cause critical illnesses. Recognition of nutritional deficiencies will lead to early diagnosis and treatment, which can often cure the underlying disease.

WHAT LIES BENEATH: CHRONIC INVASIVE ASPERGILLUS SINUSITIS PRESENTING AS ORBITAL APEX SYNDROME E. Labuz[1]; P. Helgerson[2]. [1]Stanford University School of Medicine, Stanford, CA; [2]VA Palo Alto Health Care System, Palo Alto, CA. *(Tracking ID # 190879)*

LEARNING OBJECTIVES: 1) Recognize orbital apex syndrome and generate an appropriate differential diagnosis. 2) Differentiate between acute and chronic invasive fungal sinusitis with regard to typical presentation, etiologies, predisposing factors, and treatment.
CASE: An 83 year old man with history of diabetes mellitus presented with a three month history of left eye and facial pain and 50 lb. weight loss. He underwent a tooth extraction for a presumed dental source and was treated with two courses of antibiotics for sinusitis, but symptoms progressively worsened. Two weeks prior to admission, he went on to develop monocular left visual loss, prompting evaluation at which both superior and lateral rectus ophthalmoplegia of the left eye were evident on exam. On admission this evolved to sudden complete visual loss with loss of pain sensation. MRI revealed a mass in the left pterygopalatine fossa with extension to the left orbital apex. The patient was transferred to our institution for biopsy, which subsequently revealed necrosis and a population of lambda restricted CD5 and CD10 negative monoclonal

B cells, concerning for lymphoma. Radiation and dexamethasone treatment were initiated empirically. Peripheral flow cytometry showed a weak clonality of the B cell population, and pathology went on to reveal fungal elements subsequently diagnosed as *Aspergillus fumigatus*. Radiation treatment was stopped and Voriconazole initiated. Endoscopic skull based debridement and resection of the lesion was ultimately undertaken, which confirmed invasive Aspergillosis extending from the sphenoid sinus into the orbital apex. Since surgical debridement, the patient has been progressively gaining weight and has full extraocular muscle function bilaterally, though vision has not returned to his left eye.
DISCUSSION: Orbital apex syndrome (OAS) is manifested by multiple cranial nerve palsies with optic nerve involvement. Optic neuropathy may not occur until months after disease onset, so OAS should be suspected when a patient presents with multiple cranial nerve palsies alone. The differential diagnosis of OAS is wide, including inflammatory, vascular, neoplastic, infectious and traumatic processes. Neoplasms are high on the differential and most commonly are solid tumor metastases or lymphoma. The most common infectious etiology is bacterial infection from paranasal sinusitis or contiguous spread from facial cellulitis, but fungal infection should be suspected in immunocompromised patients. Neuroimaging is essential and biopsy often necessary to determine the exact etiology and extent of invasiveness. Invasive fungal sinusitis presents in both acute and chronic forms. Acute invasive fungal sinusitis is rapidly progressive over days, causes up to 50% mortality, and typically affects immunosuppressed patients. Patients can present with fever, chemosis, proptosis, orbital pain, orbital cellulitis, periorbital edema, nasal congestion, mental status changes, and headache. The Zygomycetes and fulminant aspergillus are the most common etiologies. Chronic invasive fungal sinusitis is less aggressive, with symptoms of chronic sinusitis progressing over months to proptosis and OAS. Caused chiefly by *Aspergillus fumigatus*, it is characteristically seen in patients with type 2 diabetes. Management of both acute and chronic invasive fungal sinusitis consists of prompt and aggressive surgical treatment as well as systemic and often life-long antifungal therapy with newer generation Azoles or Amphotericin B.

WHAT'S IN THOSE SUPPLEMENTS? A. Seager[1]; S.J. Carr[1]; J.J. Reilly[1]. [1]Allegheny General Hospital, Pittsburgh, PA. *(Tracking ID # 189893)*

LEARNING OBJECTIVES: 1. Recognize the side effects of Creatine supplementation. 2. Identify abnormal lab values seen in Rhabdomyolysis.
CASE: A 22-year-old male with no significant past medical history presented with a chief complaint of severe muscle cramping. He was a former college football player who was trying to return to collegiate athletics and had started two new dietary supplements (N.O. Explode and Cell-Tech, which contains 10 g of creatine per serving) four days prior to admission. His last workout was 3 days prior to admission which was not more strenuous than usual (1.5 hour/day). His muscle cramps began 2 days prior to admission and progressively worsened up to the day of admission. On the evening of his presentation, he became anxious concerning the severity of his cramping and decided to seek medical attention. He stated he was not taking any more than the recommended serving size of the supplements. He denied any muscle weakness, rashes, fevers, or chills. He did admit to smoking marijuana on the day of admission, but denied cocaine or amphetamine use. He was not taking any other medications or supplements and denied any allergies. On physical exam his vital signs were normal, he was muscularly well developed, and had no rashes. He had full range of motion, 5/5 strength, and was non-tender to palpation in all extremities. His CK level was 38,800 on admission and trended down to 15,447 on discharge. His Cr was 1.3 on admission and 1.1 on discharge. His K + was 3.0 on admission and 3.7 on discharge. His UDS was + for cannabinoids and – for cocaine and amphetamines. He was diagnosed with rhabdomyolysis and aggressively hydrated with normal saline. We replaced his potassium, and followed his CK levels, K + levels and Cr. His muscle cramps had completely resolved and he was discharged home with instructions to discontinue his dietary supplements, to resume his workout routine slowly in one week, and to follow up as an outpatient with a repeat CK in one week.
DISCUSSION: Creatine supplementation has been documented as being associated with weight gain, GI distress, hepatic dysfunction, renal dysfunction (both interstitial nephritis and focal glomerular sclerosis have been reported), and muscle cramps. It has also been associated with an increased risk of developing rhabdomyolysis and even compartment syndrome when coupled with strenuous exercise. Other factors that can increase the risk of developing rhabdomyolysis pertinent to this case include dehydration and hypokalemia. Abnormal lab findings seen in rhabdomyolysis include: Elevated CK, Cr, urea, K + , phosphate, aminotransferases, aldolase, LDH, and hydroxybutyrate dehydrogenase. Also seen is myoglobinuria without urine RBCs, hypocalcemia, hypoalbuminemia, anemia, hypovolemia, DIC, fever, leukocytosis, and anemia. Hypercalcemia may be seen late in the process as well. Hyperkalemia and hyperphosphatemia result from the release of potassium and phosphorus from the damaged muscle cells. Hypocalcemia occurs because of deposition of calcium salts in damaged muscle and decreased bone responsiveness to parathyroid hormone. During the recovery phase, serum calcium levels return to normal and may rebound to significantly high levels due to both the release of calcium from injured muscle and elevated 1,25-dihydroxyvitamin D levels. This case underscores the importance of taking a thorough medication history including supplements and herbals.

WHEN DOES MULTIPLICATION LEAD TO ULCERATION? C. Chakraborti[1]. [1]George Washington University, Washington, DC. *(Tracking ID # 189459)*

LEARNING OBJECTIVES: 1. Be able to recognize the clinical situations that predispose a patient for calciphylaxis. 2. Describe the treatment of calciphylaxis.
CASE: A 62 year-old man with type-2 diabetes mellitus, coronary artery disease, peripheral artery disease, hypertension, and end-stage renal disease on peritoneal dialysis presented to the emergency room with a non-healing left-lower extremity ulcer. The patient had been seen at his vascular surgery clinic one-week prior to admission for increased left lower extremity pain. Treatment with oral ciprofloxacin for presumed cellulitis was unsuccessful. The wound appeared as a 3 cm by 5 cm lesion on the lateral portion of the distal left lower extremity surrounded by mild erythema. Black eschar was visible around the borders of the wound. Lab values were notable for serum calcium of 8.1 mg/dL, serum phosphate of 8.7 mg/dL, and intact-PTH 308 pg/mL (normal 10–65 pg/mL). Magnetic resonance imaging of the left leg showed soft tissue involvement but was negative for osteomyelitis. A recent angiogram of the left extremity prior to admission showed moderate vascular compromise and diffuse distal disease unsuitable for bypass. Wound and blood cultures were negative; treatment with broad-spectrum antibiotics and local wound care showed no improvement. Surgical debridement provided a pathological specimen, which revealed dermal and vascular changes consistent with calciphylaxis. Despite treatment with sodium thiosulfate, cinacalcet, and aggressive phosphate binding, the patient developed new ulcers on the right lower extremity and on the penis. The family elected to take the patient home with hospice services.
DISCUSSION: Non-healing lower extremity wounds are common in contemporary medicine, and given the risk factors of diabetes, peripheral artery disease, and chronic kidney disease, polymicrobial infections are often common causes. However, this case demonstrates that vigilance is required for even the most common of diagnoses. While the pathogenesis of calcific uremic arteriolopathy is unclear, calciphylaxis has been shown to have a prevalence of 4% in hemodialysis patients and a mortality as high as 80%. Given the common clinical situations in which it occurs, making the diagnosis requires a high index of suspicion. We noted, however, that our patient's calcium-phosphorus product was greater than 45, thus raising the concern for calciphylaxis. The renal team verified adequate dialysis and suggested more aggressive phosphate binding with sevelamer, however definitive diagnosis requires obtaining a specimen for pathological examination. The early initiation of treatments such as parathyroidectomy, sodium thiosulfate, and cinacalcet, has shown improvement in calciphylaxis cases. Cinacalcet increases the sensitivity of calcium-sensing receptors. The action of sodium thiosulfate is presumed to be by the formation and elimination of highly soluble calcium thiosulfate. Unfortunately, our patient did not have the clinical resolution previously reported in the literature, which may be due to the severe, intractable nausea that was temporally associated with the thiosulfate treatments and which resulted in discontinuation after less than 1 month of the therapy.

WHEN PARALYSIS MYSTERIOUSLY RESOLVES:A CASE OF THYROTOXIC HYPOKALEMIC PERIODIC PARALYSIS N.J. Bernard[1]. [1]Emory University, Atlanta, GA. *(Tracking ID # 190560)*

LEARNING OBJECTIVES 1. Identify an important cause of muscle weakness/paralysis 2. Outline the management of patients with thyrotoxic hypokalemic periodic paralysis

CASE: A 33 y/o Asian male with a history of hypertension presented to the emergency department (ED) with a complaint of muscle weakness involving the upper and lower extremities. His symptoms were present upon awakening and began as muscle weakness progressing to total paralysis within minutes. He noted having bilateral leg pain with movement prior to symptom development. His symptoms began to improve en route to the ED. The patient had experienced a similar episode about 6 months prior to admission at which time his paralysis spontaneously resolved. Review of systems was positive for heat intolerance. His current medications included a multivitamin. There was no family history of similar symptoms. He reported rare consumption of alcohol and denied tobacco and illicit drug use. Upon arrival to the ED, his blood pressure was 160/90; other vital signs were normal. The neurologic exam revealed 4/5 strength in all muscle groups. The remainder of the physical exam was normal except for a hyperpigmented, macular rash involving the chest. Laboratory values revealed a potassium level of 2.3. The EKG showed a prolonged QT interval. The patient received 80 mEq of oral potassium replacement and his potassium on repeat was 4.3. The patient's rapid potassium correction prompted further work-up and he was found to be hyperthyroid with TSH-0.13, free T4–3.6, and T3–277. The patient was started on propranolol and given a follow-up appointment with his primary care physician.

DISCUSSION: Thyrotoxic hypokalemic periodic paralysis is a condition characterized by muscle weakness/paralysis and hypokalemia. It most commonly affects males of Asian descent but also occurs in non-Asian populations. It is distinguished from familial hypokalemic periodic paralysis in that it occurs sporadically, is marked by hyperthyroidism, and occurs in an older population (20–40 yrs of age). The clinical presentation consists of recurrent episodes of transient muscle weakness ranging from mild weakness to complete paralysis. The proximal muscles are affected more severely than the distal muscles and the lower extremities are usually involved prior to involvement of the girdle muscles and upper extremities. Sensory function remains intact. Common precipitants include ingestion of a carbohydrate meal, alcohol, and strenuous exercise. The attacks do not occur during physical activity but during the resting period. Furthermore, the attacks may be aborted by resumption of physical activity. The episodes of muscle weakness/paralysis are caused by hypokalemia, which is due to an intracellular shift of potassium. Thyrotoxicosis causes this intracellular shift of potassium by increasing the number and activity of the Na/K-ATPase pump. It leads to an increase in Na/K-ATPase activity by causing an increase in the beta-adrenergic response and insulin release. Treatment during an acute attack consists of potassium replacement, which must be done with caution as excessive replacement can lead to rebound hyperkalemia. In addition, propranolol has been shown to reverse paralysis and prevent recurrence of paralytic attacks. The only definitive treatment is correction of the hyperthyroid state.

WHEN SORE THROAT CAUSES SWOLLEN FEET L. Wang[1]; A.P. Burger[2]; J. Schwartzman[3]; S. Doorley[2]. [1]Albert Einstein College of Medicine, Bronx, NY; [2]Montefiore Medical Center, Bronx, NY; [3]Jacobi Medical Center, Bronx, NY. *(Tracking ID # 190199)*

LEARNING OBJECTIVES: 1. Recognize the occurrence of PSGN in the adult population 2. Distinguish PSGN from other causes of pulmonary renal syndrome

CASE: A 66-year-old female with controlled HTN presented to the ED with an acute onset of exertional dyspnea while running to the bus. Her symptoms began 10 days ago with a sore throat. She was diagnosed with streptococcal pharyngitis via rapid antigen test 7 days prior to admission and was treated with amoxicillin. She subsequently noted a new onset of swollen feet and complained of a persistent productive cough with blood-tinged sputum. She had no orthopnea or PND. Physical exam: BP 187/71, pulse 77, afebrile, O2 sat of 97% on room air. She had crackles in the left lower lobe, a Grade II/VI holosysytolic murmur, and 1 + pitting edema bilaterally. She had guiaic positive stools. The PE was otherwise normal. Chest x-ray showed cardiomegaly and pulmonary congestion. Labs were significant for hemoglobin 8.4 g/dl, MCV 79.4, RDW 20, creatinine 1.6 mg/dl, and BUN 48 mg/dl. Urinalysis was positive for large blood, trace protein, small leukocyte esterase, and RBC and WBC casts. Serum C3 was less than 30 mg/d, C4 was 13.8 mg/d, ESR was 110 mm/h, and the eosinophil smear was negative. The anti-streptolysin (ASLO) titer was initially 200 IU/ml that increased to 800 IU/ml in 4 days. Anti-GBM antibody, p-ANCA, c-ANCA and ANA-ENA panel were negative. The patient clinically improved without further episodes of dyspnea. Her serum creatinine and BUN returned to normal five days after admission. Endoscopy revealed antral erosions and chronic gastritis.

DISCUSSION: We describe a case of Post-Streptococcal Glomerulonephritis (PSGN) presenting as CHF and hematuria in an adult. PSGN is a rare cause of acute renal failure in adults with an estimated incidence of 3,000 cases per year in developed countries. Furthermore, less than 10% of all PSGN cases occur in adults over the age of 40. CHF occurs in 45% of elderly patients vs. 5% of pediatric patients. PSGN is characterized by the abrupt onset of hematuria, peripheral edema, and hypertension 1–3 weeks following a throat infection or 3–6 weeks following a skin infection with a nephritogenic strain. Hematuria may be gross blood or microscopic. RBC casts are a classic finding of glomerulonephritis (GN) but may be absent. It is important to distinguish PSGN from other causes of hematuria after an URI, such as other post-infectious GN, IgA nephropathy, HSP, and non-specific mesangioproliferative GN. Etiologies of pulmonary-renal syndrome include connective tissue diseases, Goodpasture's syndrome, renal diseases, systemic vasculitis, medications, and heart failure. To differentiate PSGN from other etiologies, supportive labs include an increase in ASLO titers, a decrease in C3 and CH50, and an elevated serum IgG. Timing also differs. In PSGN, serum creatinine usually returns to baseline in four weeks while C3 levels return to normal in approximately two months. Hematuria resolves in six months, but proteinuria can last for several years. IgA nephropathy typically occurs 1–3 days after infection and is characterized by persistent microscopic hematuria or recurrent episodes of gross hematuria. Membranoproliferative GN should be suspected with persistent hypocomplementemia. This case highlights the occurrence of PSGN in the adult population. If diagnosed early, prompt treatment of PSGN may result in improved morbidity and mortality.

WHEN THE THYROID HURTS SANITY! F.T. Sy[1]; M. Suchy[1]; J. Patel[1]; V. Balasubramanian[1]. [1]UCSF - Fresno, Fresno, CA. *(Tracking ID # 189744)*

LEARNING OBJECTIVES: Recognize the neuropsychiatric manifestations and physical signs of severe hypothyroidism towards a clinical diagnosis of myxedema madness.

CASE: Hypothyroidism is a medical condition commonly encountered in clinical practice. The clinical presentations are protean, complicated and often overlooked. These abnormalities may range from global developmental delay to acute metabolic derangements. Neuropsychiatric manifestations associated with hypothyroidism have been well-described in literature although less common. We describe a 54 year old caucasian male who presented with acute psychosis associated with hypercapneic respiratory failure. Findings on physical exam were remarkable for dry skin, hair loss, facial puffiness and delayed relaxation phase of deep tendon reflexes. His psychiatric manifestations on presentation included impaired memory, emotional lability and outbursts, confusion, paranoia, and visual and auditory hallucinations. TSH was markedly elevated at 74.7 uIU/mL associated with very low free thyroxine and triiodothyronine constituting the syndrome of "Myxedema Madness." Prompt recognition and early institution of parenteral hormone replacement therapy resulted in improvement of his mental status.

DISCUSSION: It is important to remember that many patients who present with psychiatric disorders may have alterations in endocrine function. Since psychiatric complaints may be one of the earliest findings of hypothyroidism, they are often misdiagnosed as functional psychiatric disorders. This confusion leads to delayed treatment and a high likelihood of increased morbidity. This case highlights the importance of endocrinopathies presenting as neuropsychiatric syndromes. The combination of physical signs and neuropsychiatric manifestations helped the clinician to clinch the diagnosis of Myxedema Madness.

WORRIED TO DEATH: DIRE CONSEQUENCES OF THE APICAL BALOONING SYNDROME S. Singh[1]; T.J. Beckman[1]. [1]Mayo Foundation for Medical Education and Research, Rochester, MN. *(Tracking ID # 190725)*

LEARNING OBJECTIVES: 1) Recognize that extreme anxiety has been associated with ischemic EKG changes, elevated cardiac biomarkers and left ventricular dysfunction in the setting of normal coronary arteries. 2) Manage patients with Apical Ballooning Syndrome.
CASE: A 78-year-old woman was admitted to the hospital with a painful, cool and pulseless right foot. Imaging studies confirmed critical limb ischemia. This diagnosis caused the patient excessive worry. Although the patient had no prior psychiatric history, she was persistently anxious and often expressed the belief that she would die before leaving the hospital. When the surgeons attempted an angioplasty, the patient experienced a panic attack and the procedure was aborted. Within an hour of this procedure the patient complained of severe chest heaviness and dyspnea. A bedside examination was remarkable for rapid respirations, bilateral pulmonary crackles, and elevated jugular venous distension. An EKG revealed new ST-T segment changes, T wave inversions in anterolateral leads, and QT interval prolongation. Serum troponins were elevated at 0.31 ng/ml (in the setting of normal renal function). A portable chest radiograph demonstrated new, bilateral pulmonary edema. The patient was provisionally diagnosed with and treated for an Acute Coronary Syndrome. A repeat EKG showed worsened ischemic changes and repeat troponins rose to 0.42 ng/ml, so the patient proceeded to coronary angiography with left ventriculogram. This study showed no flow-limiting coronary atherosclerotic lesions; however, generalized left ventricular hypokinesis and apical akinesis were seen. Within 24 hours the patient's EKG changes and elevated biomarkers resolved. The consulting cardiologists rendered the diagnosis of Apical Ballooning Syndrome (ABS). The patient was treated with beta-receptor blockers, diuretics and angiotensin converting enzyme inhibitors (ACEI). Her anxiety was managed with education on cognitive techniques to interrupt anxious thoughts and as-needed benzodiazepine medications. The patient's anxiety significantly improved and she experienced no further episodes of chest discomfort. Ultimately, she underwent a successful lower extremity angioplasty and was discharged from the hospital.
DISCUSSION: Transient left ventricular Apical Ballooning Syndrome (ABS), also called "Tako-Tsubo cardiomyopathy," is increasingly recognized as a masquerader of Acute Coronary Syndromes. Indeed, it is estimated that about 2 percent of acute coronary syndromes in the United States actually represent ABS. Approximately 90% of patients with ABS are post-menopausal women experiencing stressful life events. Although "apical ballooning" was the first description, other anatomic variants including generalized ventricular hypokinesia have been reported. The diagnosis is usually made in the setting of anginal chest pain, ischemic EKG changes, elevated cardiac biomarkers, normal coronary angiogram, and characteristic apical ballooning on imaging studies such as echocardiogram. Treatment is usually involves medications for left ventricular dysfunction, such as beta-receptor blockers and ACEI. While most patients experience good outcomes with normalization of left ventricular function, a minority of patients suffer the following serious outcomes: cardiogenic shock (6.5%), congestive heart failure (3.8%), ventricular tachycardia (1.6%) and death (3.2%). Worse outcomes have been linked to physical stress as a precipitating factor and T-wave inversions on EKG.

Innovations in Medical Education

"TEACHING AS A COMPETENCY" FOR MEDICAL EDUCATORS: RESULTS OF A MULTIDISCIPLINARY MEDICAL EDUCATOR CONFERENCE M. Srinivasan[1]; D.M. Hilty[1]; D.D. Pratt[2]; J. Collins[2]; C.H. Braddock[3]; K.M. Skeff[3]; D.C. West[1]; R.E. Hales[1]; F.J. Meyers[1]. [1]University of California, Davis, Sacramento, CA; [2]University of British Columbia, Vancouver, British Columbia; [3]Stanford University, Palo Alto, CA. *(Tracking ID # 190773)*

STATEMENT OF PROBLEM OR QUESTION (PREFERABLY ONE SENTENCE): Most medical faculty receive little or no training about how to teach their learners effectively, even when assuming major programmatic roles. Recent calls to redesign internal medicine training programs have shed light on the fact that faculty development programs reach just a fraction of academic faculty, without a unifying framework across institutions.
OBJECTIVES OF PROGRAM/INTERVENTION: We sought to create a unifying, flexible comprehensive framework for developing and assessing educator's skills to further educator effectiveness, and help prioritize institutional resources.
DESCRIPTION OF PROGRAM/INTERVENTION: We convened a two-day conference with 20 medical and non-medical educators from the United States and Canada. Participants represented perspectives from 10 major medical organizations. An extensive literature search, frameworks for physician competencies (ACGME) and roles (CanMeds), and educator experience informed the conference. Participants discussed tensions within teaching in medical settings, critical factors for educators, standard setting, and skills necessary for different roles. Participants took part in exercises that shaped final skills development framework. Core and advanced competencies were identified for core and advanced educator roles.
FINDINGS TO DATE: Participants identified four critical factors as central to educator skills development: learner engagement, learner centeredness (analogous to patient centeredness), adaptability, and self-reflection. Based on the conference, a framework was developed using a Delphi process, which identified 10 core and advanced competencies for medical educators, based on the American ACGME framework. The six core competencies included: 1) medical (or content) knowledge, 2) learner centeredness; 3) interpersonal skills and communication; 4) professionalism and role modeling, 5) practice-based reflection and improvement, and 6) systems-based practice. Four advanced competencies for those with additional programmatic roles included: 1) program design and implementation, 2) evaluation and scholarship, 3) leadership, 4) mentorship. Each competency was considered to have specific underlying knowledge, skills and attitudes. Competencies were cross-referenced with educator roles, drawing from the Canadian CanMeds, to make explicit the continuum of educator skills development. These roles included core functions of most medical educators (clinical, individual, small or large group teaching) and more advanced programmatic roles for a smaller number of educators (program administrator, technology developer, educational researcher, institutional administrator, educational policy and finance). Advantages and limitations of this framework were explored.
KEY LESSONS LEARNED: This conference points out opportunties to define, research, prioritize and improve faculty teaching competencies, at a time when faculty time is limited and responsibilities for student and resident learners continues to increase. The "Teaching as a Competency" framework provides a template for understanding skills development amongst medical educators, and opens a door for conversation between educators, program administrators and institutions about how to create a culture of learning.

A LONGITUDINAL PRIMARY CARE INTERNAL MEDICINE RESIDENCY CURRICULUM DESIGNED TO TRAIN GENERALISTS TO PROVIDE COMPREHENSIVE CARE TO PATIENTS WITH HIV J.E. Adams[1]; E. Stenehjem[2]; S.L. Brandenburg[2]; K. Chacko[2]. [1]Denver Health and the University of Colorado, Denver, CO; [2]University of Colorado, Aurora, CO. *(Tracking ID # 190650)*

STATEMENT OF PROBLEM OR QUESTION (PREFERABLY ONE SENTENCE): Since the advent of combination antiretroviral therapy, rates of AIDS-related morbidity and mortality have decreased dramatically. Broader services at HIV clinical sites, including enhanced screening for cancer and heart disease, and management of chronic disease unrelated to HIV infection are critically needed. Training general internists to care for patients with chronic HIV infection in primary care practices may allow us to better meet the growing chronic health care needs of this population.
OBJECTIVES OF PROGRAM/INTERVENTION: (1) Train primary care internal medicine residents to be comprehensive providers for patients with HIV (2) Advance resident understanding of common co-morbid medical conditions encountered in patients with HIV (3) Demonstrate that this model of training can be translated easily to other primary care training programs
DESCRIPTION OF PROGRAM/INTERVENTION: Four UCHSC primary care residents underwent a four-week elective in HIV medicine. Residents rotated at diverse HIV clinical sites during this elective month working with both general internists specializing in HIV care and infectious disease specialists. Residents also participated in a comprehensive didactic curriculum highlighting both HIV management and

the incorporation of HIV care into a chronic disease management model. Residents directed a journal club and case discussion facilitated by course faculty. At completion of the rotation, three residents opted to continue in the primary care HIV program. These residents will have one continuity clinic per week during outpatient months (approximately five months per year) at one of the HIV training sites. All track residents will sit for the American Academy of HIV Medicine certification exam at the end of residency to document expertise in caring for patients with HIV.
FINDINGS TO DATE: Initial data from our pilot of the curriculum demonstrated that residents feel knowledge of ambulatory HIV care is important and relevant to their clinical practice. When asked to rank the different components of the curriculum, residents rated the didactics and clinical rotations as the most useful to their professional development. Overall, the residents indicated they were unsure about plans to incorporate HIV care into future primary care practices. The residents strongly agreed that general internists should play a primary role in caring for patients with HIV. However, residents uniformly felt their training prior to program participation had not prepared them to provide this type of care. Residents reported that all of their prior training in HIV care had occurred with hospitalized patients. For the upcoming year, we plan to develop a pre and post evaluation survey to assess residents' knowledge base and attitudes which will be administered during the HIV elective month and annually for residents continuing in the longitudinal HIV program.
KEY LESSONS LEARNED: Primary care internal medicine residents are eager to learn the skills needed to provide comprehensive care to patients with HIV. Allowing residents to elect an HIV clinical site as an additional continuity clinic allows exposure to HIV specialty care while reinforcing primary care training and maintaining compliance with the ACGME requirements for continuity clinics. This model is easily exportable to other programs around the country since it would not require development of new clinical sites or strategies, relying instead on merely developing new teaching models and longitudinal curricular changes.

A NOVEL SIMULATION-BASED EVALUATION OF A 4TH YEAR MEDICAL SCHOOL SUBINTERNSHIP CURRICULUM C. Chakraborti[1]. [1]George Washington University, Washington, DC. *(Tracking ID # 189564)*

STATEMENT OF PROBLEM OR QUESTION (PREFERABLY ONE SENTENCE): While the literature suggests that existing subinternship rotations lack well-described curricular objectives, we designed a 4-week inpatient subinternship internal medicine curriculum for 4th year medical students appropriate to an intern-level experience, and implemented a simulation-based evaluation.
OBJECTIVES OF PROGRAM/INTERVENTION: 1. To improve learners' knowledge of the fundamental intern duties of evaluating, admitting, and managing a patient from the emergency room by formulating a plan of care up to and including discharge. 2. To describe a novel summative evaluation of procedural, bedside skills, and clinical reasoning using a patient simulator.
DESCRIPTION OF PROGRAM/INTERVENTION: Twenty-one 4th year medical students participated in this rotation between August 2007 and November, 2007. The learners in our curriculum carry between 3–5 patients and most of these are admitted from the emergency room. The students are required to formulate and present comprehensive plans of care that demonstrate clinical reasoning. This includes participation in daily multidisciplinary discharge planning rounds, and requires learners become aware of various systems of care. They are assisted throughout the rotation through didactic sessions (3 sessions/week, morning reports dedicated to interns only (2 sessions/week), and simulator exercises (1 session/week), in addition to daily noon conferences. Learners are evaluated by both formative (feedback) and summative (knowledge assessments, online evaluations). Course evaluations include formal debriefing sessions and a course survey. Patient simulations provide a standardized end-of-course skill assessment. Learners are presented a case and are evaluated on performing the appropriate physical exams on a manikin that is able to simulate a variety of conditions. They expected to interpret basic labs and formulate a differential and plan of care. Finally the learner's are asked to elucidate and justify their clinical reasoning by submitting an assessment and plan and writing admission orders including subsequent appropriate labs and studies.
FINDINGS TO DATE: Students rated the rotation very highly (mean 4.3, 1=would not recommend, 5=outstanding). Students reported that the rotation improved their ability to formulate a plan (mean 3.8, 1=no improvement, 5=significantly improved), their clinical reasoning (4.0), and their ability to manage complex patients (4.3). The simulation experiences significantly improved the participants' confidence in placing central lines or performing lumbar punctures. The learners reported that the residents and attendings acknowledged their plans to a significant degree (4.6) and provided them with significant autonomy (4.0). Finally, 85% of the learners reported that they are moderately or significantly more prepared for their intern year.
KEY LESSONS LEARNED: Using the simulator as an end-of-course summative skill evaluation has been enthusiastically received (through qualitative reports), however, we still are in the process of developing objective outcome measures. The standardized patient portion of the curriculum is also still in development. Our experience suggests that with an appropriately designed curriculum, a patient simulator can be used effectively as both a teaching tool and for evaluative purposes.

A RESIDENT-DRIVEN, PATIENT-CENTERED QUALITY IMPROVEMENT PROJECT AT AN UNDERSERVED COMMUNITY CLINIC R. Gregory[1]; S. Harper[1]; K. Jenkins[1]; P. Ladisa[1]; M. Sreenivasan[1]; C. Stockham[1]; A. Barbour[1]. [1]George Washington University, Washington, DC. *(Tracking ID # 190034)*

STATEMENT OF PROBLEM OR QUESTION (PREFERABLY ONE SENTENCE): Competency in systems-based practice and quality improvement are challenging learning objectives for residents and participatory approaches in clinical settings are needed.
OBJECTIVES OF PROGRAM/INTERVENTION: 1) Facilitate residents' self-education in patient-centered quality improvement including use tools such as Plan-Do-Study-Act cycles, finding and applying appropriate assessment tools, collecting and analyzing data from a focused patient population, and applying significant results to improve selected clinical processes and outcomes. 2) Encourage critical thinking about problems encountered for underserved patients with chronic diseases and equip residents with systems-based approaches applicable to daily practice as general internists.
DESCRIPTION OF PROGRAM/INTERVENTION: Internal medicine residents at George Washington University were required to create a group project with faculty assistance. The residents chose to study diabetes control at a clinic in a medically underserved community (Bread for the City) of Washington, D.C. Applying their experience at this clinic, residents identified potential barriers to high quality diabetes care and then designed and implemented an assessment tool based on patient-centered factors such as health literacy, understanding of diabetes, disease management, lifestyle factors, perceived health status, and provider discrimination or disrespect. Residents collected data over 6 months while fulfilling their patient-care duties at this clinic and analyzed their initial cohort of thirty patients. These data were analyzed to detect trends correlating with lower or higher hemoglobin A1c values. Patient outcomes were grouped according to disease control as determined by A1c values obtained within 90 days of survey administration: tight control defined as A1c<7.0, intermediate control for A1c 7.0–10.0, and poor control for A1c>10.0.
FINDINGS TO DATE: Demographic factors such as gender, race, distance from clinic, and age did not correlate with trends in lower or higher hemoglobin A1c values. Patient-centered variables such as adequate health literacy, frequent intake of healthy foods, and knowledge of appropriate fasting glucose appear to trend with better control but were not statistically significant. Similarly, provider-centered variables such as patient perception of disrespect, patient perception of unfair treatment due to race/ethnicity, and patient perception that providers did not listen to their concerns appear to trend with worse control but were also not statistically significant. Statistically significant predictors of poor control (A1c>10) were Medicaid status (50% poor control had Medicaid vs. 13% with tight control, $p<0.05$), never checking blood sugar (60% reporting never checking vs 13% reporting at least once daily checks, $p<0.02$), and having questions they did not ask their provider (83% poor control had unanswered questions vs. 39% with better control, $p<0.02$).
KEY LESSONS LEARNED: Residents can effectively design, implement, and analyze a patient-centered quality improvement project to study their continuity patients with diabetes. While faculty guidance is an

essential component of this project (particularly at the beginning), residents have demonstrated ability to apply concepts of quality-improvement to their clinical practice which is an effective way to demonstrate competency in systems based practice tools.

A SIMULATION-BASED ORIENTATION CURRICULUM TO TEACH RESIDENCY PROGRAM VALUES AND PREPARE INTERNS FOR DAY ONE A.W. Dow[1]; M. Mahata[1]; S.A. Call[1]. [1]Virginia Commonwealth University, Richmond, VA. *(Tracking ID # 190499)*

STATEMENT OF PROBLEM OR QUESTION (PREFERABLY ONE SENTENCE): New intern orientation is a unique and important opportunity to introduce the culture and values of a residency program. It is also an opportunity to prepare incoming interns for their first clinical experiences as physicians. However, orientation sessions usually focus on dissemination of logistical information and coverage of human resource-related topics rather than the ideals of the residency program and the practice of medicine. In addition, the didactic nature of these sessions does not promote the active learning climate important for adult learners.
OBJECTIVES OF PROGRAM/INTERVENTION: To design a simulation-based orientation curriculum with the following goals: to prepare interns for common patient care scenarios to educate interns about the concept and composition of a health care team to underscore residency program values to create an active learning experience To measure the effect of this curriculum on the knowledge, skills, and attitudes of new housestaff
DESCRIPTION OF PROGRAM/INTERVENTION: We designed a 6 station simulation-based curriculum grounded in potential clinical scenarios. The stations were comprised of an 8 minute simulated clinical encounter and 2 minutes of feedback and review by a facilitator of the educational objectives of that station. Stations included the evaluation of hypoglycemic syncope, the evaluation of chest pain, interdisciplinary rounds, calling a consult, breaking bad news, and discovery of a medical error. For each station, the clinical scenario was linked to patient care and residency values goals as well as overarching core competencies. For example, the evaluation of hypoglycemic syncope station underscored the role of nursing and pharmacy in evaluating a patient with an acute status change as a way to demonstrate the core competencies of systems-based practice and professionalism. 53 new interns participated in the scenarios in groups of two or three. Before the session, each intern filled out a twenty-item Likert scale survey self-assessment survey regarding their knowledge, skills, and attitudes related to each of the scenarios' values. In addition, they were then given a brief overview of the session's goals. After the scenarios, they completed an identical twenty-item survey and engaged in a short debriefing discussion.
FINDINGS TO DATE: The sessions were well-received by the new housestaff. 100% of participants completed the pre and post surveys. Data from the Likert scale surveys was entered into an excel spreadsheet and analyzed using SPSS. In a pairwise comparison, we found a significant improvement in the scores on our post-session survey as compared to our pre-session surveys ($p < .01$). The greatest improvements were noted in scoring of the stations on medical error reporting ($p = .017$), breaking bad news ($p = .017$), and interdisciplinary rounds ($p = .04$). The p values for the comparisons for the other stations did not reach statistical significance.
KEY LESSONS LEARNED: Simulation-based cases during intern orientation are a novel and potentially effective way to educate new trainees about programmatic values and expectations. Cases focused more on systems of care, professionalism issues and interpersonal communication skills rather than direct clinical care issues may be more valuable to new housestaff members. The impact of this type of training on effectiveness in the clinical arena and the duration of any benefit should be assessed with further study.

A TRANSITIONAL CARE EXPERIENCE FOR THIRD YEAR MEDICAL STUDENTS H. Nye[1]; M. Shnedermann[1]; K.E. Hauer[1]; B. Johnston[1]; C. J. Lai[1]. [1]University of California, San Francisco, San Francisco, CA. *(Tracking ID # 190748)*

STATEMENT OF PROBLEM OR QUESTION (PREFERABLY ONE SENTENCE): Care transitions are high risk times for patients due to medication errors and miscommunication, but most training programs provide very little explicit training in transitional carean an important component of systems based practice. The current structure of residency training–including disconnected inpatient and outpatient rotations, reduced housestaff duty hours, and the trend toward "shift work"– results in a high number of patient care transitions and handoffs.
OBJECTIVES OF PROGRAM/INTERVENTION: 1. To explore the feasibility of implementing a transtional care curriculum; 2. To improve students awareness of an acute hospitalization as part of a patient's life; 3. To increase students'awareness of problems patients face when they transition from one site of care to another.
DESCRIPTION OF PROGRAM/INTERVENTION: A transitional care curriculum was implemented into the third year medicine rotation at the three primary training sites at UC San Francisco (UCSF Medical Center, SF General Hospital, and SF VAMC). Students attended an orientation session, performed a home visit on a recently discharged patient whom they followed in the hospital, and attended a debriefing session. After the home visit, students performed a medication reconciliation, wrote a letter to the primary MD (SFGH, UCSF) or a note into the electronic medical record (VAMC). Changes in students' perceived comfort level with discharge planning aspects, including medication reconciliation, communication with primary health care provider, and home safety evaluation, was assessed using a 5-point Likert scale questionnaire. Further, students wrote an essay reflecting on any discrepancy between their expectations and actual impressions of the home visit, and how this experience changed their approach to future discharge planning.
FINDINGS TO DATE: Results Students' (n=15) comfort level in discharge planning increased significantly in 7 out of 8 questions ($p < .01$). Essays demonstrated students' increased awareness of the importance to assess patients' understanding of their care plan prior to discharge and to discharge patients with uncomplicated medication regimens as well as a have follow-up plan. Some students experienced that patients' behavior in the hospital was not a predictor of patients' home situation. Some typical reflections included: "I learned the important lesson not to assume that a person who has and lives at home (vs. homeless) will have a smooth transition of care. The question of adherence to any blood pressure and diabetes medications flies out the window when feeding oneself is a daily struggle. Working with patients like Ms. A. helped me realize that I want to serve this population in need, both medically and socially." "I discovered that the pt really did not have any idea what his medications were for. Hewould take the meds, but it was unclear whether he was taking them appropriately at the right dosing, etc. The post-DC visit helped me realize that many patients don't have a strong understanding of what they're supposed to do, even if we think we've explained everything appropriately. "
KEY LESSONS LEARNED: Implementation of a transitional care curriculum was feasible. The curriculum increased students' perceptions of their discharge planning skills and awareness of aspects that are critical to successful patient transitions.

ACCURACY AND IMPROVEMENT IN EKG INTERPRETATION BY INTERNAL MEDICINE HOUSESTAFF: A CLASSROOM-BASED APPROACH FOR TEACHING EKG INTERPRETATION. N.A. Appelle[1]; R.L. Shunk[2]; J.R. Kohlwes[3]. [1]University of California, San Francisco, San Francisco, CA; [2]UCSF/VAMC, San Francisco, CA; [3]UCSF/San Francisco VA Medical Center, San Francisco, CA. *(Tracking ID # 190839)*

STATEMENT OF PROBLEM OR QUESTION (PREFERABLY ONE SENTENCE): EKG interpretation is an essential skill which must be acquired during housestaff training; however little research is available on the effectiveness of various teaching methods
OBJECTIVES OF PROGRAM/INTERVENTION: The objectives of this course were to evaluate baseline EKG interpretation skills of internal medicine housestaff, provide a structured learning environment outside of the patient-care setting for the focused study of EKG interpretation, and improve the accuracy of EKG interpretation by internal medicine housestaff.
DESCRIPTION OF PROGRAM/INTERVENTION: An eight-week, classroom-based EKG course was designed to improve EKG interpretation in the 63 internal medicine housestaff who participated. In small groups lead by internal medicine and cardiology faculty, internal medicine residents discussed basic principles of EKG interpretation and evaluated 115 EKGs at an university-based residency program from October

2004 to November 2007. The ability to interpret EKGs before and after this course was assessed by an evaluation tool requiring recognition of 25 clinically important attributes in 11 EKGs.
FINDINGS TO DATE: Before taking the course, internal medicine housestaff were most adept at recognizing ischemia with 88% correctly identifying a NSTEMI and hyperkalemia with 75% recognizing QRS prolongation. Housestaff were less adept, before the course, at interpretation of common arrhythmias and aberrancy with 40% failing to recognize second and third degree atrioventricular block and 60% failing to recognize left bundle branch block. Residents were able to significantly improve their accuracy of EKG interpretation in comparison to expert opinion from a mean score of 54% before the course to mean score of 70% after the course with a p-value of less than 0.001. Although housestaff accuracy of interpretation improved, confidence in interpretation of difficult EKGs did not improve substantially during the course. Housestaff were eager for further training in outpatient cardiology. Initially, 80% of participants felt that their outpatient cardiology experience had been too limited and by the end of the course 65% still felt that further training was warranted.
KEY LESSONS LEARNED: This evaluation demonstrated the need for increased attention to teaching EKG interpretation and that a classroom-based approach taught by both internists and cardiologists is an effective means of teaching EKG interpretation to housestaff. More research is needed to evaluate the various methods of teaching EKG interpretation to determine the most efficacious means of improving EKG competency in internal medicine residents.

ADOLESCENT MEDICINE CURRICULUM FOCUSED ON CHILDHOOD-ONSET CHRONIC MEDICAL CONDITIONS FOR INTERNAL MEDICINE RESIDENTS M.E. Brown[1]; A.R. Gonzaga[1]; M.A. Mcneil[1]; J.B. Mcgee[1]. [1]University of Pittsburgh, Pittsburgh, PA. *(Tracking ID # 190909)*

STATEMENT OF PROBLEM OR QUESTION (PREFERABLY ONE SENTENCE): As adolescents with chronic medical conditions transition to adult-oriented health care, it is increasingly important for adult providers to be educated and comfortable to care for this population. Based on a local educational needs assessment at the University of Pittsburgh, general internists do not feel well prepared to care for these adults and feel they should have more education on childhood-onset chronic medical conditions.
OBJECTIVES OF PROGRAM/INTERVENTION: The objectives of this curriculum intervention is to teach internal medicine resident trainees (PGY-2s and -3s) at the University of Pittsburgh about 2 specific childhood-onset chronic medical conditions (ADHD and Down syndrome) as part of their adolescent medicine curriulum in order to: 1) increase residents' knowledge of these topics, 2) increase residents' preparedness to deliver care to patients with ADHD or Down syndrome, and 3) improve residents' attitudes towards these topics and this patient population
DESCRIPTION OF PROGRAM/INTERVENTION: This curriculum is a result of collaboration between pediatrics and internal medicine faculty. The curriculum consists of 2 web-based modules to adress the topics of 1) ADHD in Adolescents and Adults, and 2) Primary Care for Adults with Down Syndrome. The modules are available on the pre-clinic module web system which is already in use by the internal medicine residency. Each module presents didactic information in bulleted form, with links to relevant tables, articles, and websites, and provides several self-assessment quizzes throughout the module. Residents will complete a paper questionnaire which assesses their perceived importance of learning about these topics, their preparedness to provide care for patients with these conditions, and their attitudes towards patients with these conditions prior to implementation of the modules. When accessing the modules, the residents will complete a randomly generated pre-test and post-test consisting of 10 questions each will assess change in knowledge about each of the module topics. The modules will be available on the pre-clinic module system for 4 months, after which residents will again complete the paper questionnaire in order to assess changes in perceived importance, preparedness and attitudes.
FINDINGS TO DATE: Currently we are administering the pre-intervention paper questionnaire, with a response rate to date of 58% (N=57). The 2 modules will be available to residents from February 1, 2008 through May 31, 2008, after which time, the post-intervention questionnaires will be administered, with evaluation data collection completed by June 30, 2008.
KEY LESSONS LEARNED: The collaboration between pediatrics and internal medicine has been valuable in identifying potential barriers to implementing education about childhood-onset chronic medical conditions for internal medicine trainees, such as variations in terminology used in pediatrics versus adult medicine, as well as in targeting specific areas of educational need for adult generalists regarding childhood-onset chronic medical illnesses.

AN INTERACTIVE CASE-BASED APPROACH TO SUBINTERN MEDICAL EDUCATION *A.P. Burger*[1]; W. Southern[1]; S.J. Parish[1]. [1]Montefiore Medical Center/Albert Einstein College of Medicine, Bronx, NY. *(Tracking ID # 190298)*

STATEMENT OF PROBLEM OR QUESTION (PREFERABLY ONE SENTENCE): Subinternship in Internal Medicine is a period of increased clinical responsibility and independence, yet few institutions have a standardized approach to directed subintern education. Current subintern education generally relies upon teaching rounds and resident focused educational activities. Little has been published addressing the specific educational needs of the medical subintern.
OBJECTIVES OF PROGRAM/INTERVENTION: 1. Create cases for subintern conferences. 2. Provide teaching through a subintern level specific conference 3. Measure change in comfort and competence with commonly encountered inpatient clinical problems.
DESCRIPTION OF PROGRAM/INTERVENTION: During the eight-week subinternship, we held 4 one-hour case-based teaching sessions. Topics were selected from 16 core training topics put forth by the CDIM Subinternship Curriculum Task Force. Clinical scenarios were composites of real patient encounters. Cases involved a complaint and clinical entity: abdominal pain/acute pancreatitis, weakness/hyponatremia, hyperglycemia/DKA, shortness of breath (SOB)/heart failure. Based on the history and physical, a differential diagnosis, diagnostic studies, disease entity and treatment were discussed. Students were anonymously surveyed. Comments on previous experiences were gathered at the beginning and on positive or negative aspects of the course at the end. To analyze the impact, students rated their comfort and competence with the case-content on a 5 point scale, 1-Fair to 5–Excellent, prior to the first session and after the fourth. A paired t-test was used to compare the pre and post-session scores for each student. Scores were compared only for sessions attended.
FINDINGS TO DATE: Twenty-one students participated. Eleven students missed one session. No student missed more than one. The overall attendance rate was 87%. In 3 of the 4 cases there were statistically significant gains in both comfort and competence. In the weakness case, the mean comfort score improved from 3.06±.68 to 3.81 ±.54 ($p=.006$), while the average competence score increased from 2.87±.81 to 3.87±.34 ($p<.001$). In SOB comfort and competence increased from 3.68±1.06 to 4.16±.60 ($p<.05$) and from 3.53±.96 to 4.21±.54 ($p=.005$). The largest gains were seen in hyperglycemia: comfort rose from 3.28±.83 to 4.22±.81 ($p<.001$) and competence from 3.06±.73 to 4.11±.83 ($p<.001$). The abdominal pain case had moderate but not statistically significant gains, comfort 3.95±.74 to 4.05±.59 ($p=.58$) and competence 3.76±.77 to 4.14±.57 ($p=.07$). Two thirds of students commented that the most important aspect of the course was formulating a differential diagnosis around common problems. Half stated they appreciated a level specific conference.
KEY LESSONS LEARNED: Students who participated in this 4-session course in addition to the usual subinternship experience had significant gains in self assessed comfort and competence in 3 of the 4 topics. The students appreciated a specific session directed to their level. The lack of statistically significant findings in the abdominal case may reflect high pre-session comfort and competence ratings, possibly due to prior exposure in surgical, OB/GYN and medicine clerkships. The other three topics are more medicine specific, and the students likely had less prior experience. Future plans include surveying a control group and possibly changing to another more medicine centered topic. This data suggests that case based sessions geared towards the subinternship training level improve their educational experience.

AN UNFOLDING LONG CASE OR CASE VIGNETTES: A COMPARISON OF 2 INSTRUCTIONAL METHODS IN INPATIENT GERIATRICS FOR MEDICAL STUDENTS N.A. Rughwani[1]; P. Gliatto[2]; R. Karani[1]. [1]Mount Sinai School of Medicine, New York, NY; [2]Mount Sinai School of Medicine, Jersey City, NJ. *(Tracking ID # 190208)*

STATEMENT OF PROBLEM OR QUESTION (PREFERABLY ONE SENTENCE): To assess the impact of 2 instructional methods (Long Case (LC) vs. Case vignettes (CV)) in inpatient geriatrics on the knowledge & application skills of 3rd year medical students.
OBJECTIVES OF PROGRAM/INTERVENTION: 1. Assess the impact of teaching inpatient geriatric medicine to 3rd year medical students 2. Comparing the impact on 2 instructional methods (LC vs. CV) on the knowledge and application skills of 3rd year medical students in inpatient geriatrics
DESCRIPTION OF PROGRAM/INTERVENTION: The rise in elderly patients with hospitalizations notable for functional decline & high symptom burden creates a critical need for training interventions.3rd year medical students(MS3) encounter older adults yet have inadequate opportunities to learn about their specific needs. Case based learning incorporates active learning using relevant clinical problems. A single unfolding long case(LC) has been shown to improve knowledge & skills of residents without evidence that these transfer across cases. Working through multiple cases may result in enduring knowledge & better case transfer. Our aim is to assess the impact of 2 instructional methods (LC vs. case vignettes (CV)) in inpatient geriatrics on the knowledge & application skills of MS3. Method: IRB exemption was obtained.5 topics (delirium, perioperative assessment, venous thromboses, pressure ulcers & functional assessment) were chosen based on a needs asssessment and from the literature. Learning objectives, LC, CVs & an evaluation tool were developed. All MS3 on their medicine clerkship were assigned to either LC or CVs based on their rotation month. For LC sessions, students worked through an unfolding LC which provided relevance & detail of the patient in a sequential manner. For CV sessions, students worked together on a short case & then broke into groups to solve 2 other cases based on the topic of the day. A 60 item computer-based MCQ test administered immediately pre, post & 1 year post course assessed achievement. Exam questions assessed higher order cognitive skills such as knowledge application & patient management.
FINDINGS TO DATE: The course was conducted 12 times, each method six. 127 students completed the course - 55% female, mean age 26. Average pre-course scores increased 18.5% from 62% to 80.5% immediately post-course (18.7% & 18.2% in CV & LC groups respectively).1 year post-course exam data collection is ongoing (current response rate 57%). 93% of the students found the course relevant and realistic. Between the 2 groups, 71% of students in the CVs vs. 44% in the LCs found they could apply concepts learnt to different scenarios.
KEY LESSONS LEARNED: There was significant improvement in the knowledge & application skills of MS3 in geriatric inpatient medicine topics with little difference between the two methods immediately following the curriculum. Students in the CV group felt that they could apply the concepts learnt to different scenarios significantly more than those in the ULC group. Data collection is ongoing to compare the impact of the 2 methods on knowledge retention at 1 year. The course was very well received and over 75% of students would recommend it to their peers.

AREA OF CONCENTRATION IN COMMUNITY HEALTH AND SOCIAL ADVOCACY CHANGES STUDENT ATTITUDES ABOUT COMMUNITY HEALTH S. Jain[1]; N. Wortis[1]. [1]University of California, San Francisco, San Francisco, CA. *(Tracking ID #190041)*

STATEMENT OF PROBLEM OR QUESTION (PREFERABLY ONE SENTENCE): This study was designed to determine (1) if the Area of Concentration (AoC) in Community Health and Social Advocacy changed student attitudes about understanding communities, community partnerships, and designing and evaluating programs and (2) if students who participated in this curriculum felt better prepared to engage in scholarly projects working directly with communities.
OBJECTIVES OF PROGRAM/INTERVENTION: The AoC in Community Health and Social Advocacy provides structure, support, and mentorship for medical students interested in community health and advocacy to participate in scholarly projects in partnership with community based organizations. Students are required to take a core skills course, to identify academic and community mentors to assist them with their projects, and to create a legacy at the end of the year that would be useful for community partners to further their program goals.
DESCRIPTION OF PROGRAM/INTERVENTION: The AoC in Community Health and Social Advocacy was started four years ago. Medical students who enroll in this AoC begin their fourth year with a two week core skills course in which they learn about social determinants of health, community assessment, community partnership, advocacy skills, leadership skills, and community based participatory research. After the course, students undertake their projects over a 2–3 month period, working closely with their mentors; they are required to develop a legacy and to present their work at a symposium prior to graduation. Recent projects have included designing programs to promote breastfeeding at the county hospital, developing a peer health education program for incarcerated patients, improving breast cancer screening rates at a community health center, and advocating for legislative changes to support HIV discordant couples interested in participating in reproductive technologies. Course satisfaction surveys were conducted at the end of the core skills course. Attitude surveys were conducted before the start of the course, at the end of the course, and at the time of the symposium, with comparisons made between time points.
FINDINGS TO DATE: Course surveys showed that students rated the core skills course highly, with an overall score of 4.85 on a five-point scale; they uniformly felt better prepared to carry out their AoC projects by the end of the course. Attitude surveys showed that, by the end of the course, students felt significantly better prepared to work with underserved communities, to conduct community health assessments, to form community partnerships, to evaluate their projects, and to advocate for their patients and communities. Students also felt better prepared to obtain grant funding for their work and to understand the concept of community-based participatory research. The improvements in attitude scores generally persisted during the period in which students were working on their projects.
KEY LESSONS LEARNED: The AoC in Community Health and Social Advocacy was well-received by the students who participated and resulted in significant improvements in student attitudes about community health and advocacy in several different domains; students felt more comfortable partnering with community based organizations. Further study is needed to see if participation in this AoC affects their residency and career choices and whether the improved attitude scores persist over time.

ASSESSMENT OF A BRIEF INTERVENTION ON THE ACQUISITION AND RETENTION OF CARDIAC EXAM SKILLS AMONG FIRST YEAR INTERNAL MEDICINE RESIDENTS E.S. Spatz[1]; D. Behin[1]; D. Lefrancois[1]; R.J. Ostfeld[1]. [1]Albert Einstein College of Medicine, Bronx, NY. *(Tracking ID # 189679)*

STATEMENT OF PROBLEM OR QUESTION (PREFERABLY ONE SENTENCE): The ability to recognize cardiac auscultatory findings remains a challenge for physicians regardless of level of experience.
OBJECTIVES OF PROGRAM/INTERVENTION: (1) To evaluate the effectiveness of a cardiac exam skills teaching session in improving the cardiac auscultatory skills of first-year internal medicine residents; (2) To evaluate whether these skills are retained 6 months after the skills session intervention.
DESCRIPTION OF PROGRAM/INTERVENTION: All categorical interns rotating through the Ambulatory Care Rotation participated in the cardiac exam skills teaching sessions. The sessions were co-developed by the chief resident and an academic clinical cardiologist, and were standardized for each intern group. The chief resident led the two sessions. Session 1 started with a didactic overview of cardiac heart sounds (1 hour) and concluded with a practical session using Blaufuss Medical Multimedia cardiac simulations (1 hour). Session 2, conducted one week later, consisted of further practice with cardiac simulations (1 hour) and bedside teaching around pre-screened cardiac patients with physical exam findings (1 hour). To study the effects of this intervention on the acquisition of cardiac exam skills, interns were administered a computer-based cardiac simulation test consisting of 5 heart sounds and 5 heart murmurs at 3 time-points: prior to the intervention (pre-test), 2 weeks post intervention (recall), and 3–6 months post intervention (retention). At each time-point the same cardiac sounds and murmurs were tested, however in unique order. Mean scores from each time-point are reported and compared using paired t-tests.
FINDINGS TO DATE: During the 2006 and 2007 academic years, all categorical interns (n=45) participated in the cardiac exam teaching session and completed the pre-test. 39 completed the recall exam (2-weeks post), and 24 interns completed the retention exam (mean=4.3 months post). Preliminary analysis is included in this report.

Mean scores were as follows: pre-test=56.4%, recall=62.8%, and retention=68.3%. Comparing baseline scores with those at recall and retention, significant improvement was achieved only at retention (p= 0.07 and p=0.008, respectively). Interns rated the sessions very positively on course evaluations.
KEY LESSONS LEARNED: The teaching of cardiac exam skills remains a challenge at both the medical school and residency levels. As supported by the literature, physicians at all levels perform poorly on cardiac exam testing. Our intervention was modestly successful in improving scores on a simulation cardiac exam, with non-significant improvements 2 weeks post intervention and significant improvements 4 months post intervention. Whether this improvement is a reflection of the intervention or of further residency training is difficult to assess without a control group and with a small subject number. Future plans include the addition of a control group and further expansion of the intervention in order to better study the quality of its content and effectiveness of its duration in improving cardiac exam skills.

BRIDGING THE GAP BETWEEN QUALITY OF EDUCATION AND QUALITY OF CARE: IMPLICATIONS OF AAIM TASK FORCE RESIDENCY REDESIGN FOR EDUCATIONAL LEADERS, ACCREDITATION AGENCIES AND INSTITUTIONS M. Srinivasan[1]; D.E. Steward[2]; C.P. Clayton[3]; F.J. Meyers[1]. [1]University of California, Davis, Sacramento, CA; [2]Southern Illinois University, Springfield, IL; [3]Alliance for Academic Internal Medicine, Washington, DC. *(Tracking ID # 190814)*

STATEMENT OF PROBLEM OR QUESTION (PREFERABLY ONE SENTENCE): In 2005, the Academic Alliance for Internal Medicine convened a coalition Task Force (representing ABIM, ACP, and AAIM) to recommend changes to redesign internal medicine residency training programs, to better meet patient and societal demands. In 2007, the AAIM Task Force released its consensus document, enumerating 6 consensus recommendations for redesign, and recommending creation of integrated narrowed set of core training competencies.
OBJECTIVES OF PROGRAM/INTERVENTION: Here, we explore the implications of the redesign recommendations for medical educators, accreditation/certification agencies, and health care institutions.
DESCRIPTION OF PROGRAM/INTERVENTION: The AAIM Redesign consensus statement involved over 100 physicians, institutions, and national organization, working collectively over 2 years. Over the past year, AAIM Task Force Chairs (FJM, CPC) and other AAIM involved faculty (DS, MS) also met with educators around the country to discuss changes necessary to sustain redesign efforts. Four core themes drove the redesign effort: 1) focusing on core training; 2) increasing training relevance; 3) increasing flexibility for learners and programs to customize their learning and 4) integration of competencies across core training to reinforce learning. Here, learners would become familiar with, but not competent in, sub-subspecialty topics, and ACGME competencies (from knowledge to PBLI) would be reinforced at all learning encounters.
FINDINGS TO DATE: The redesign proposal has 4 major implications. First, the additional flexibility would leave programs and educators better able to adapt to market forces and regional population needs. Second, national standard setting agencies would need to change their standards, while still promoting clinical care excellence. The ACGME-RRC would need to narrow its medical content accreditation standards, a discussion currently underway. Similarly, the ABIM would test only the training core for all internists, using supplemental examinations for different specialty groups (from general internal medicine to organ or disease subspecialists). Recognition of systems based practice competencies might encourage the ABIM to develop non-clinical boards on topics necessary for leading in complex medical environments, including leadership, management, education, medical informatics, quality improvement, or health services research. Third, educators and institutions must commit to bridging the gap between quality of education and quality of care. While adjusting appropriately for learner/patient/system characteristics, quality of care must be considered an outcome of training. Finally, institutional competencies should be aligned with physician and educator competencies, to allow systems to create the environment conducive to great care and great education. We propose and elaborate upon 6 health care institutional competencies, using the ACGME framework.
KEY LESSONS LEARNED: The AAIM Task Force redesign recommendations have the potential to dramatically reshape internal medicine training, and later, the practice of medicine Importantly, the gap between quality of education and quality of care needs to be bridged, by careful assessment and feedback. However, alignment of educator, certification, accreditation and institutional goals is necessary to create and sustain change to improve the quality of internal medicine residency education, and thereby, improve the health of our patients.

BUILDING THE EVIDENCE FOR MEDICAL EDUCATION: DATABASE FOR RESEARCH ON MEDICAL EDUCATION IN ACADEMIC MEDICINE (DREAM) C. Gillespie[1]; S. Zabar[1]; A. Truncali[1]; S. Paik[1]; J. Lee[1]; M. Jay[1]; T.K. Ark[2]; J. Hyland Bruno[1]; A.L. Kalet[1]. [1]New York University, New York, NY; [2]New York University, New York City, NY. *(Tracking ID # 190632)*

STATEMENT OF PROBLEM OR QUESTION (PREFERABLY ONE SENTENCE): While great strides have been made in identifying, assessing and focusing curricular interventions on core competencies in medical education, establishing the evidence base for such efforts is hampered by the inability to link these educational interventions to ultimate outcomes – those that affect patient care.
OBJECTIVES OF PROGRAM/INTERVENTION: We are working to establish DREAM as a "Framingham Heath Study-style" longitudinal cohort study of medical education outcomes. Through the DREAM infrastructure we will align diverse institutional assessments of trainees over time and link these to physician behaviors in clinical settings and, ultimately, to patient outcomes. In the first phase of this work we are linking educational outcomes across training levels for the 20–30% of NYU SOM graduates who go on to participate in NYU residency training. NYU has made extensive use of OSCEs and therefore has access to a wealth of reliably collected performance-based data.
DESCRIPTION OF PROGRAM/INTERVENTION: Building DREAM is proceeding as follows: 1. Obtained IRB approval to create a Resident "Registry" of educational outcomes data where residents consent annually to having data compiled and linked through DREAM. 2. Inventoried available data on educational outcomes, making preliminary quality determinations. 3. Provide technical assistance and support to standardize and improve assessments across programs. 4. Map out the core domains of knowledge and competence assessed. 5. Explore the causal processes that produce relevant patient outcomes, working backwards to identify "educationally sensitive" outcomes. 6. Collect relevant data on patient outcomes through information systems, chart abstractions, and exit interviews. 7. Compile the educational and patient outcomes data into a useable, queryable, anonymized database. 8. Explore links between educational and outcomes data across educational experiences at NYU.
FINDINGS TO DATE: Available educational data varies in quality and comprehensiveness. Program Directors are enthusiastic about the Resident Registry and the opportunities it provides for obtaining more immediate feedback on program effectiveness and eliminating the need for multiple, separate IRB consent procedures. Residents appear to understand and accept the need for and utility of such a Registry (80–90% consent rates). We are currently piloting an in-depth exploration of the impact of obesity prevention and treatment training on patient outcomes by comparing the results of patient exit interviews, unannounced standardized patients, chart abstractions, and information system queries among two groups of residents: pre- and post- obesity curriculum exposure. Preliminary analyses of the longitudinal data linked thus far indicate broad patterns of relationships among core competencies across resident cohorts and program years, as well as variation among individual residents and, at the program level, in apparent response to curricular changes.
KEY LESSONS LEARNED: The need for longitudinal databases like DREAM is widely accepted but the practical steps for creating such databases may appear overwhelming. Obtaining the necessary buy-in and support is challenging but not impossible. Developing a clear understanding of the causal processes linking educational competencies to patient outcomes and then creating the infrastructure to collect and link data on these processes are essential for establishing the evidence base for medical education.

CARDIOVASCULAR DISEASE RISK ASESSMENT IN AN AMBULATORY CLERKSHIP K.J. White[1]; B.T. Jortberg[1]; D.L. Gaspar[1]. [1]University of Colorado, Aurora, CO. *(Tracking ID # 190873)*

STATEMENT OF PROBLEM OR QUESTION (PREFERABLY ONE SENTENCE): Cardiovascular disease is the leading cause of death in the U. S., yet primary prevention is not adequately taught in many medical schools. The University of Colorado medical school graduates responses to the American Association of Medical Colleges' (AAMC) medical student exit survey has consistently identified a lack in training in prevention.
OBJECTIVES OF PROGRAM/INTERVENTION: 1. To increase students' knowledge about cardiovascular disease risk assessment. 2. To increase patient knowledge of cardiovascular disease risk and make positive changes in lifestyle. 3. To encourage practicing community physicians to participate in cardiovascular disease risk assessment.
DESCRIPTION OF PROGRAM/INTERVENTION: We developed a new interdisciplinary third year clerkship at the University of Colorado based on primary care of the adult patient. The clerkship is combined between internal medicine and family medicine and is 8 weeks long. The majority of students are placed with community physicians. During orientation to the 8 week block, we use a hypothetical case to introduce students to a cardiovascular risk assessment tool we have developed. The students assess the risk of the patient using the Framingham model and develop an individual treatment plan for the patient, using evidence-based guidelines to focus on lifestyle changes. During the 8 weeks, students use this card to complete a cardiovascular risk assessment on 10 patients. They also provide each of these patients with a pedometer and provide instructions for use and development of goals based on current physical activity. The patients are given a copy of their cardiovascular risk assessment, and are asked to fill out and mail a follow-up postcard with questions regarding the usefulness of the assessment and the pedometer. Students are given a survey prior to the clerkship and after the clerkship about cardiovascular disease risk assessment. Students are also instructed on an evidence based approach to smoking cessation during the orientation.
FINDINGS TO DATE: Currently, 100% of the students are using our tool to assess patients' cardiovascular disease risk during the clerkship. 94% of students reported they had an influence on their patients quitting tobacco products. Thus far, there has been a 20% return rate on the patient follow-up post cards. Of those responding, 96% said that the student's teaching session taught them about the risk of heart disease, 88% said that they had decreased their total fat and saturated fat intake, 70% said that they had lost weight; reporting average weight loss of 7.62 pounds, and 85% said that they are wearing their step counter on most days; reporting average daily steps of 6183.
KEY LESSONS LEARNED: Cardiovascular disease is one of the most common problems our students see in the outpatient setting, and this is consistent with national ambulatory medical data. This suggests a need to improve education of students and practicing physicians. Teaching cardiovascular disease prevention and risk assessment to third year medical students has resulted in a significant number of patients changing their lifestyles. Further data can be acquired regarding change in practice behavior of community physicians based on student interventions.

CLINICAL IMMERSIONS: CONTEXTUAL SCIENCE LEARNING IN WR2 D.R. Wolpaw[1]; S. Scott[1]; C. Chalkley[1]; T. Wolpaw[1]. [1]Case Western Reserve University, Cleveland, OH. *(Tracking ID # 189928)*

STATEMENT OF PROBLEM OR QUESTION (PREFERABLY ONE SENTENCE): The teaching of sciences basic to medicine remains the cornerstone of the first years of Medical School. However, consuming classroom activities and content demands present challenges to educators who strive to utilize experiential/contructivist learning approaches to deepen knowledge and to facilitate long-term retention and transfer. Long hours in the classroom without clear connection to clinical application encourages a "student" mentality, promotes surface learning, and delays professional development. Early clinical preceptorships partially address this problem, but do not directly serve as opportunities for the ongoing integration of basic science and clinical reasoning.
OBJECTIVES OF PROGRAM/INTERVENTION: We implemented a series of "Clinical Immersions" with the following goals for this work in progress: 1) reinforce basic science concepts 2) integrate basic science with clinical medicine 3) emphasize the relevance of science to the practice of medicine and 4) create learning opportunities that provide added value over classroom learning or self-study.
DESCRIPTION OF PROGRAM/INTERVENTION: The Western Reserve 2 (WR2) curriculum features an integrated, student-centered approach to basic science learning across five 12-week units of instruction, or "blocks", with one week near the end of each block devoted to Clinical Immersion. In this week students leave the classroom for five consecutive days, meeting patients and experiencing real-life applications of basic science concepts they have studied. Activities include patient interviews, simulation exercises, specialty clinics, clinical rounds, operative and diagnostic procedures, clinical laboratories, and community support groups. The week culminates in student-led wrap-up sessions designed to share information or explore related subjects such as ethical dilemmas. Two approaches are employed to schedule 140 students during the same week – a "weave" schedule utilizing four separate clinical themes and a shared curriculum of clinical modules utilizing multiple hospital sites.
FINDINGS TO DATE: Six immersion weeks have been completed with program evaluation available from 100% of students through an end of block survey. Overall, student feedback has been positive for the objectives of reinforcement, integration, and relevance of basic science to clinical medicine. In their comments many students have expressed enthusiasm for the opportunity to link a patient's story or a clinical activity to their classroom learning. Student feedback on the added value of the immersion experience has been variable. Some have questioned the "inefficiency" of learning in the clinical setting compared to independent study. Other feedback has suggested increasing patient-centered experiences and improving the quality of the Friday wrap-up sessions.
KEY LESSONS LEARNED: Clinical Immersions are a positive feature of the WR2 curriculum. Student feedback has been very helpful in informing quality improvement efforts. Students who have experienced clinical immersions are now working with faculty to select the most high yield activities and refine the Friday wrap-up sessions. Challenges for the future include 1) incorporating formative assessments and reflections from the Clinical Immersion week into a portfolio and 2) evaluating the impact of this curriculum on professional development.

COMPETENCY-BASED EDUCATION IN PATIENT SAFETY AND QUALITY IMPROVEMENT: A LONGITUDINAL, MENTORED, OUTCOMES-ORIENTED APPROACH FOR INTERNAL MEDICINE RESIDENTS M.P. Lukela[1]; R.S. Mangrulkar[1]; V.I. Parekh[1]; J.W. Gosbee[1]; J. Delvalle[1]. [1]University of Michigan, Ann Arbor, MI. *(Tracking ID # 190907)*

STATEMENT OF PROBLEM OR QUESTION (PREFERABLY ONE SENTENCE): Traditionally, resident physicians have not received formal training or education on patient safety, nor have they been involved in the solutions process. By providing this exposure during training, residents will aid in creating a culture of patient safety and become healthcare providers who are proactive, instead of reactive, to patient safety issues.
OBJECTIVES OF PROGRAM/INTERVENTION: By developing a comprehensive approach to patient safety education, we sought to equip our residents with core knowledge of patient safety principles, error reporting/analysis, and an understanding of our patient safety culture. Moreover, our program was designed to provide our trainees with hands on experience to solve specific patient safety issues.
DESCRIPTION OF PROGRAM/INTERVENTION: Our curriculum was designed for trainees in Internal Medicine and Internal Medicine-Pediatrics focusing on a comprehensive approach to patient safety education by developing: 1) a longitudinal patient safety curriculum; 2) an Academy of faculty mentors; and 3) Patient Safety Improvement Project (PSIP) teams. Following a review of existing approaches used in patient safety education, we devised a conceptual model rooted in sociology with principles adopted from human factors engineering (HFE). The curriculum was disseminated through small group, case-based seminars and learning objectives were reinforced at a monthly patient safety conference. As part of our initiative, we created an Academy of faculty mentors to guide teams of residents through the development of PSIPs. Faculty members representing a broad range of disciplines were trained using our conceptual model. In addition, they were introduced to analytic tools such as a HFE-based treatment hierarchy, cause-effect diagrams, and the five principles of causation. PSIP teams submitted project ideas to a committee of experts to provide individualized feedback in an effort to enhance the likelihood of a selected project's success. Currently, teams are planning and beginning to implement their selected proposals.

FINDINGS TO DATE: Following review of existing tools used to understand patient safety culture, we developed a detailed survey for our faculty Academy and residents to capture their opinions on our institution's patient safety culture and attitudes toward discussing and reporting medical errors. Prior to our initiative, respondents in both groups were reluctant to openly discuss or report errors given fear of reprisal and/or loss of collegial respect. 97% of participants agreed or strongly agreed that the seminars increased his/her understanding of the core concepts of patient safety and QI. 94% of residents felt that they understood the medical error reporting process, and 97% could identify appropriate tools within our institution to assist them in reporting (compared to 40% and 43% prior to the seminars, respectively). Importantly, following the seminars, residents reported that they would be more likely to talk about (81%) or report (84%) medical errors that s/he made or recognized. As our PSIPs have only recently begun, outcomes of the resident team-based projects have not yet been measured.
KEY LESSONS LEARNED: We believe that a comprehensive educational program can significantly change the patient safety culture at our institution and will create physicians who are more likely to serve as institutional leaders and mentors, driving the cultural shift necessary to provide safer care for our patients.

CREATING AND OPERATIONALIZING AN EVIDENCE-BASED MEDICINE CURRICULUM P.D. Kleinschmidt[1]; J. Kohlwes[2]. [1]University of California, San Francisco, VA San Francisco, San Francisco, CA; [2]VA San Francisco, San Francisco, CA. *(Tracking ID # 189866)*

STATEMENT OF PROBLEM OR QUESTION (PREFERABLY ONE SENTENCE): Evidence-based medicine (EBM) is now commonplace to clinical practice in Internal Medicine. Indeed, best practice demands ongoing incorporation of evidence from the medical literature. Many medical residents, however, feel their knowledge of EBM is nebulous, and thus have difficulty concretely applying its tools.
OBJECTIVES OF PROGRAM/INTERVENTION: Revise the EBM curriculum, so as to teach concepts in an interactive seminar format that emphasizes practical skills in order to achieve long-lasting knowledge and application of EBM.
DESCRIPTION OF PROGRAM/INTERVENTION: After completion of the previous year's EBM didactics in the University of California San Francisco (UCSF) core curriculum, medical resident evaluations were reviewed and found to be rated below the mean of other topics. Then, twelve residents participated in a focus group to discuss ways of improving EBM training in the UCSF residency program. The focus groups requested topics to be more clinically applicable and taught in a more interactive style. A list of clinically applicable EBM topics was compiled, and a two-year curriculum schedule was thus derived. The list of session titles included: "Accessing the Medical Literature While On-call," "Understanding and Applying Likelihood-Ratios and Bayes' Theorum," "Calculation and Use of Number Needed to Treat," "Basics of Epidemiology Measurement," "Reading the Medical Literature: Chance, Bias, Confounding," "How to Keep Up with the Medical Literature," "Understanding Levels of Evidence, and Use of Practice Guidelines," and "How to Conduct a Journal Club." In order to make EBM concepts and tools clinically applicable, less "dry", and knowledge more deep-seated, the sessions were designed to be interactive with exercises that forced residents to complete EBM related assignments in a small group setting. Invited lecturers were briefed on the design, and encouraged to maximize interactive learning. An EBM test and survey was created. The test consisted of fifteen questions designed to evaluate knowledge of the identified core concepts. The survey was designed to identify self-perceived levels of competence with EBM, and barriers to its application. Both test and survey were administered at the beginning of the course and will be administered again upon completion. The purpose of the test and survey is to determine if the new curriculum results in improved knowledge of EBM, or in perceived competence.
FINDINGS TO DATE: On a fifteen question exam designed to test the most applicable and important concepts of EBM, the mean score was 8.6, and the median score 9. Different residents had varying areas of difficulty, but certain subjects such as identifying study design, simple calculations of number needed to treat, and utilization of likelihood ratios were frequently answered incorrectly. Regarding the survey, residents had varying self-identified areas of weaknesses, and competence. Yet, very few felt quite competent with all the subjects of EBM, and fewer felt competent to teach EBM to medical students.
KEY LESSONS LEARNED: Based on the pre-test and survey, despite having been taught EBM several times in the past, medical residents still have knowledge and comfort gaps. Thus far, medical residents have received the new curriculum favorably, and commented that several concepts have been better elucidated than in the past. Once the curriculum is completed and the post-test data analyzed it will be possible to identify strengths and weaknesses of this teaching method, and determine which curriculum topics need more allotted time.

DEVELOPING AND IMPLEMENTING A PATIENT AND LEARNER-CENTERED INTEGRATED CLERKSHIP AT AN ACADEMIC MEDICAL CENTER B.A. Calton[1]; A.N. Poncelet[1]; P. Robertson[1]; H. Loeser[1]; M.A. Wamsley[1]. [1]University of California, San Francisco, San Francisco, CA. *(Tracking ID # 189796)*

STATEMENT OF PROBLEM OR QUESTION (PREFERABLY ONE SENTENCE): Successful, integrated third-year clerkships at university-affiliated, community-based hospitals, both urban and rural have reemphasized the value of longitudinal student relationships with patients and faculty in furthering a student's understanding of disease processes and the patient experience. It remains to be seen whether an integrated clerkship model can be effectively implemented and sustained at an academic medical center (AMC).
OBJECTIVES OF PROGRAM/INTERVENTION: To create an integrated third-year clinical experience at an AMC that emphasizes: 1) Longitudinal relationships between patients, students, and teachers 2) The course of chronic illness and the patient's experience of disease in order to enhance the learner's ability to provide patient-centered care 3) Development of clinical reasoning skills through the evaluation of patients with undiagnosed illness
DESCRIPTION OF PROGRAM/INTERVENTION: The Parnassus Integrated Clinical Student Experiences (PISCES) is a year-long integrated program for eight students at UCSF's Parnassus and Mt. Zion campuses. Each student is assigned to preceptors in Family Medicine, Internal Medicine, Neurology, Obstetrics/Gynecology, Pediatrics, Psychiatry, and Surgery. Students attend outpatient clinics on a regular weekly schedule where they independently evaluate and collaboratively manage patients with each preceptor. In addition, students develop a panel of patients whom they follow to subsequent appointments, referrals, Emergency Department (ED) visits, and admissions. Other key aspects of the program include ED shifts where students evaluate undiagnosed patients whom they follow into the inpatient setting; cross-disciplinary didactic sessions; five intensive inpatient immersion weeks including a student-chosen selective; and a year-long quality improvement project.
FINDINGS TO DATE: Because PISCES is in its first year, initial student assessment and program evaluation is ongoing. Student assessment includes discipline tests, integrated shelf exams, and quarterly evaluations from each preceptor. Early focus group data suggest PISCES students view their relationships with panel patients and integrated didactic sessions as program strengths. Challenges specific to the AMC setting cited during reflection sessions include difficulties interfacing with specialized medical and surgical services after admitting a patient from the ED, and concerns regarding the breadth of outpatient clinical experiences when PISCES preceptors are sub-specialists. Feedback from preceptors has been positive; many feel better able to assess student skills given the long-term nature of the student-preceptor relationship. Early feedback from patients involved in the program has highlighted the critical role that a student can play in facilitating communication and patient care in a complex healthcare system.
KEY LESSONS LEARNED: An integrated clerkship focusing on patient- and learner-centered clinical experiences can be a successful and motivating educational model for learners. The logistical demands of an integrated clerkship require extensive administrative support and a consideration of preceptor resources, including preceptor time and clinic space. Challenges inherent to implementing the model at a large AMC can be overcome with careful problem solving and flexible leadership. Opportunities for program growth and further integration of the disciplines are abundant.

DEVELOPMENT OF A TRANSITIONS IN CARE CURRICULUM FOR MEDICAL STUDENTS S.T. Bray-Hall[1]; A. Abraham[2]; E.M. Aagaard[3]. [1]Denver Veterans Affairs Medical Center, Denver, CO; [2]University of Colorado Health Sciences Center, Denver, CO; [3]University of Colorado Health Sciences Center, Aurora, CO. *(Tracking ID # 190827)*

STATEMENT OF PROBLEM OR QUESTION (PREFERABLY ONE SENTENCE): Transitions in care, such as occur at the time of hospital discharge, are associated with high rates of medical errors. Minimal education is provided to physicians-in-training regarding these risks and the mechanisms known to reduce them.
OBJECTIVES OF PROGRAM/INTERVENTION: 1) Develop a curriculum within the Hospitalized Adult Care clerkship to educate 3rd year medical students about transitions in care, including patient discharge education, medication reconciliation and communication with follow-up providers. 2) Assess the effect of the Transitions in Care curriculum (TICC) on student confidence related to care transitions. 3) Assess the impact of the TICC on students' knowledge of and skills in care transitions.
DESCRIPTION OF PROGRAM/INTERVENTION: Students are introduced to discharge planning and the pitfalls of transitions in care during an interactive introductory session. The students are then expected to complete a post-hospital discharge visit to a patient at their home, nursing home or inpatient hospice. The focus of this visit is to reconcile the patient's medications, ensure a follow-up visit is scheduled, and encourage the patient to develop a personal health record. A mid-clerkship session focuses on developing a comprehensive discharge plan and sharing student experiences with the post-discharge patient visit. Students complete a pre- and post-curriculum survey to assess their confidence with completing aspects of care transitions using a 5-pont Likert scale where 1=Not at All Confident and 5=Very Confident. Students' knowledge of issues relevant to care transitions is assessed using a combination of multiple choice and short answer questions. Students' ability to conduct a successful care transition meeting at the time of discharge will be assessed using an Observed Structural Clinical Exam (OSCE) to be delivered at the end of the 4th year of medical school. The knowledge, confidence and skills of students who have completed the TICC will be compared with that of the current 4th year students who have not been exposed to this curriculum using knowledge questions and the OSCE in April of 2008.
FINDINGS TO DATE: Ninety-five students have completed the TICC. Students have demonstrated improved confidence in their ability to reconcile medications (2.2, vs. 3.9, $p<0.001$), identify barriers for patients to successfully transition from the hospital (2.6 vs. 4.1, $p<0.001$), develop a discharge plan (2.4 vs. 3.8, $p<0.001$), identify appropriate discharge settings for patients (1.9 vs. 3.8, $p<0.001$), and complete a home safety (2.5 vs. 3.5, $p<0.001$) and functional evaluation (2.8 vs. 3.6, $p=0.02$). Students also felt more confident in their abilities to communicate with follow-up providers regarding the inpatient stay (2.9 vs. 4.4, $p<0.001$) and issues requiring follow-up after discharge (2.9 vs. 4.3, $p<0.001$).
KEY LESSONS LEARNED: A TICC can be implemented in an inpatient internal medicine clerkship. Moreover, such a curriculum can greatly improve student confidence in key issues relevant to patient discharge planning and communication. It is our hope that such a curriculum can not only improve confidence, but also knowledge and skills in this important and underemphasized area of medicine.

DIFFICULT TOPICS IN THE SOCIAL HISTORY: ENHANCING STUDENT CONFIDENCE IN MEDICAL INTERVIEWING H. Heiman[1]. [1]Northwestern University Feinberg School of Medicine, Chicago, IL. *(Tracking ID # 189962)*

STATEMENT OF PROBLEM OR QUESTION (PREFERABLY ONE SENTENCE): The social history includes the most delicate topics a doctor will discuss with a patient. Anxiety about the interview may lead students to discount the social history, such that the statement "no tobacco, drugs or alcohol" often constitutes the entire social history. Initiatives to improve history-taking often focus on very specific topics, such as sexual history, without contextualizing them within the routine history.
OBJECTIVES OF PROGRAM/INTERVENTION: 1.To emphasize the importance of the social history portion of the medical interview. 2.To teach a method for gathering information about sensitive parts of the social history, including intimate partner violence, sexuality, and spirituality. 3. To increase students' comfort with acquiring sensitive information.
DESCRIPTION OF PROGRAM/INTERVENTION: Our second-year clinical skills curriculum alternates preceptor visits with didactic sessions. In 2007, we added a 2.5-hour didactic module "The Social History: Difficult Topics" to the second-year curriculum, which previously taught social history along with past medical and family history. In preparation, students read brief reviews about screening for each topic and took an on-line quiz. We implemented a station-based model, in which groups of 8–9 students sequentially explored five topics for 25 minutes with an instructor. Topics included sexual history, intimate partner violence, spirituality, substance use, and diet/physical activity. Standardized patients were interviewed about sexuality, intimate partner violence and substance use. Students interviewed one another about spirituality and diet and physical activity. All teachers were physicians except the four chaplains who taught the spiritual history.
FINDINGS TO DATE: We administered a survey to measure students' confidence before and after the social history session. Students rated their confidence in each topic on a Likert scale, ranging from not at all confident to very confident. Of the 172 second-year students, 45 (26%) completed the initial survey and 56 (33%) completed the follow up. Prior to the session, most students were confident or very confident in their ability to take a diet and exercise history (100%), smoking history (93%), and drug and alcohol history (89%); we saw little change after the session in confidence related to these topics. Baseline confidence was lower in ability to take a sexual history (73%), a spiritual history (69%) and a domestic violence history (40%). Following the session, 89% of students reported being confident in acquiring a sexual history, 75% in taking a spiritual history and 52% in asking about domestic violence. On a scale of 1 to 5, students were most satisfied with the intimate partner violence session (4.5), followed by sexual history (4.2), diet/exercise (4.1), spirituality (3.8), and substance use (3.2).
KEY LESSONS LEARNED: Brief exposure improved second-year medical students' confidence in some topics in the social history. The most delicate topics—sexuality and intimate partner violence—were associated with the lowest baseline confidence, the greatest improvement in confidence, and the highest student evaluations. Lack of confidence in spiritual history-taking was not improved by this session. Students commented they did not feel spiritual history was important. Using MDs to teach spiritual history might improve attitudes. To learn whether this session has an impact into the third year we plan to compare performance in social history-taking on the third year primary care clerkship OSCE before and after the introduction of this module.

EDUCATING THIRD-YEAR MEDICAL STUDENTS ABOUT PHARMACEUTICAL COMPANY INTERACTIONS: EXPERIENCES FROM A 'SHAM' DRUG COMPANY SPONSORED EVENT B.L. Houghton[1]; M. Monaghan[1]; R. Warrier[1]; H. Sakowski[1]; A. Friedman-Wilson[1]; W. Jeffries[1]. [1]Creighton University, Omaha, NE. *(Tracking ID # 189479)*

STATEMENT OF PROBLEM OR QUESTION (PREFERABLY ONE SENTENCE): Develop an innovative method to educate medical students about interactions between physicians and the pharmaceutical industry.
OBJECTIVES OF PROGRAM/INTERVENTION: 1. Educate medical students about appropriate interactions with pharmaceutical sales representatives and the pharmaceutical industry 2. Analyze benefits (student interest and interaction) to 'sham' pharmaceutical company-sponsored session for student education 3. Utilize multi-disciplinary collaboration for this educational interventions.
DESCRIPTION OF PROGRAM/INTERVENTION: Educating medical students about appropriate interactions with pharmaceutical sales representatives and pharmaceutical companies in general can be a complicated and difficult task. Presenting data in a manner that allows students to understand some of the complexities of the topic and obtain some understanding about how it impacts on their professional growth is challenging. We believe we developed and implemented a rather unique curricular intervention that was well-received by students and enjoyable for faculty. In July of 2006 we held a regularly-scheduled 'Dimensions in Clinical Medicine' all-day session (inter-clerkship session) for our third-year medical students providing instruction on Evidence Based Medicine. We however allowed the students to believe that the session was sponsored by a pharmaceutical company and we discussed (over lunch) a new drug that was being marketed by the company. Pharmacy Faculty at Creighton served as pharmaceutical sales representatives and interacted with the students discussing information about the new drug (which was designed to prevent hangovers). Following the completion of the scheduled EBM curriculum, we 'unblinded' the students and sought their opinions and

responses to the session. We also provided information about appropriate interactions with pharmaceutical companies proscribed by various national physician organizations and other professional organizations.
FINDINGS TO DATE: Students found the session quite interesting. They found the session informative and enjoyed the experience. We conducted small group interviews with medical students and faculty and obtained recordings of students' responses to the curriculuIm. We also obtained survey data (1 through 5 Likert scale) that showed students would recommend this program to future medical students (3.69) and that the information would be helpful in thier future clerkships (3.86). We also have written comments from students about the course and thier responses to the session. We are further planning to survey the students again to gauge their responses to various questions in the next few weeks to see if there is any 'lasting' effect of the intervention.
KEY LESSONS LEARNED: Medical students find the execise engaging. They expressed some discomfort about the format of the conference until the 'unblinding' occurred (student's written comments were insightful). We would like to perform similar sessions with other health science students, though it will probably be a few years before it could be attempted with medical students again because of the 'grapevine' between upper classes and junior classes. From a faculty standpoint, the session was enjoyable and seemed to be a better method of delivering what can often be a rather 'dry' subject. Students were open about discussing their views following the session.

ENHANCING SKILLS FOR FIRST YEAR INTERNAL MEDICINE RESIDENTS: THE FEMALE GENITOURINARY EXAM B.L. Duffy[1]; J. Jou[2]; J.M. Bolek Berquist[1]; S. Chheda[1]. [1]University of Wisconsin-Madison, Madison, WI; [2]Duke University, Durham, NC. *(Tracking ID # 190901)*

STATEMENT OF PROBLEM OR QUESTION (PREFERABLY ONE SENTENCE): Internal Medicine residents are expected to be able to competently perform female genitourinary (GU) exams. First year Internal Medicine residents (interns) vary in degree of confidence when performing GU exams, in numbers of exams previously performed, and in when they last performed a GU exam. Inexperience with the exam is a common concern among interns.
OBJECTIVES OF PROGRAM/INTERVENTION: 1. Improve interns' skill and confidence with GU exam. 2. Instruct interns on proper Pap collection technique
DESCRIPTION OF PROGRAM/INTERVENTION: In July 2006 and again in July 2007, interns at the University of Wisconsin attended a workshop on GU exam. Prior to the start of the session, all interns completed a 4 page questionnaire regarding their previous experience performing GU exams, knowledge about current cervical cancer screening guidelines, and confidence with 21 components of the exam. Their confidence was rated on a 5 point scale with 1 being not confident and 5 being very confident. At the session, experienced GU exam instructors reviewed how to use the equipment, the proper terminology and phrasing to use during a GU exam, and the components of a complete GU exam. Interns then viewed a video demonstrating proper Pap specimen collection technique; next, instructors discussed appropriate follow-up testing for abnormal results. Prior to hands-on sessions, the participants completed forms identifying 3 learning needs on which they wished to focus. During these sessions, experienced patient instructors taught a complete exam but focused on each intern's learning goals and gave each oral and written feedback. At the end of the workshop, participants repeated the entire questionnaire. For the 2006 intern class, we asked them to repeat the questionnaire one year later to assess for lasting effect.
FINDINGS TO DATE: Following the workshop, both classes of interns showed a statistically significant improvement in self reported confidence with the exam. The intern class of 2006 improved from overall mean confidence level of 3.41 pre-workshop to 4.09 post workshop ($p < .0001$), and we found statistically significant improvement in each of the 21 components of the confidence questionnaire. One year following the intervention, the class of 2006 continued to show improved confidence compared to their initial evaluation, improving from 3.41 to 4.04 ($p < .0001$). When we compared their post-workshop confidence to their confidence after the additional experience of a year of residency training, we found that they did not make any further statistically significant improvement; the post-workshop mean was 4.09 and one-year follow-up mean was 4.04 ($p = .35$). The intern class of 2007 also improved from 3.25 pre-workshop to 3.91 post workshop ($p < .0001$). We found a statistically significant improvement in 19 of 21 components.
KEY LESSONS LEARNED: The female GU workshop improved interns' confidence with the exam both in the immediate term and one year later. It was well received by participants, 85% of whom rated all workshop sections as useful or very useful; 98% rated at least one section useful or very useful. Participants also requested similar refresher courses in the male genitourinary and breast exams. Because of its success, the female GU exam workshop has been incorporated into the standard series of incoming intern orientation activities.

EVALUATING THE QUALITY OF CLINICAL TEACHING ROUNDS R.L. Conigliaro[1]; T.D. Stratton[2]; E.T. Napier[3]; C.D. Jennings[3]. [1]Society of General Internal Medicine, Lexington, KY; [2]University of Kentucky College of Medicine, Lexington, KY; [3]University of KEntucky, Lexington, KY. *(Tracking ID # 190653)*

STATEMENT OF PROBLEM OR QUESTION (PREFERABLY ONE SENTENCE): Many educators struggle with defining and measuring quality clinical teaching. Student or resident evaluations may not accurately reflect specific teaching behaviors, and may not be objective.
OBJECTIVES OF PROGRAM/INTERVENTION: We performed a pilot study with the stated purpose of developing an objective scale measuring specific behaviors or skills of clinical teachers, and directly observing these during teaching and bedside rounds.
DESCRIPTION OF PROGRAM/INTERVENTION: After extensive literature review, we (TS, RC) developed a 15-item OSCE-type rating form, delineating definable observable, teaching behaviors, which was modified based on input from several teaching faculty. A group of 6 Master's-level curriculum consultants from the College of Medicine's Office of Medical Education were briefed on the use of the rating form. We then assessed the ability of these behaviors to be observed, described and rated, by completing trial clinical rounding sessions conducted by the author (RC) with raters as observers, with debriefing sessions following, to ensure that behaviors observed were actually the behaviors being rated. Examples of observed behaviors included "Goals and objectives were reviewed", Student History and Physicals were reviewed", "Clinical decisions were explained". Once the author and the raters felt that the instrument had adequate face validity, and that the raters were comfortable identifying the behaviors being rated, four raters were assigned to assess each of four volunteer medicine/pediatric faculty attending physicians during one scheduled morning teaching rounds. Learner groups varied in size, but generally consisted of four third-year medical students, one fourth-year student, two interns, and two residents.
FINDINGS TO DATE: Across all items, raters agreed on observed behaviors 67–100% of the time, with multi-rater kappa statistics indicating moderate to high levels of agreement (0.68–1.0). Two items, "Rounds were begun and ended on time" and "Literature searches/topic discussions were assigned", exhibited less agreement among raters (kappa=0.34 and 0.42, respectively). However, a general lack of variability among teaching faculty may have hindered the ability of the process to discriminate among some behaviors.
KEY LESSONS LEARNED: We learned that raters can be trained to reliably identify and observe specific teaching behaviors, and that faculty were open to allowing direct observation of their teaching rounds. We believe this has potential implications for faculty development, as well as for criteria for promotion for clinician-educators. We plan to further refine this instrument, and use this process to assess faculty with sub-optimal student evaluations as a way to provide objective and specific feedback for improving clinical teaching skills.

EVALUATION OF A SUBSTANCE ABUSE CURRICULUM FOR INTERNAL MEDICINE RESIDENTS. M.R. Stein[1]; H.V. Kunins[1]; S.J. Parish[1]; J. Arnsten[1]. [1]Albert Einstein College of Medicine/Montefiore Medical Center, Bronx, NY. *(Tracking ID # 190760)*

STATEMENT OF PROBLEM OR QUESTION (PREFERABLY ONE SENTENCE): Substance abuse disorders are common among medical patients, yet little time is devoted to formal teaching about these complex problems during residency training.
OBJECTIVES OF PROGRAM/INTERVENTION: 1. Design, implement and evaluate a substance abuse curriculum for internal medicine

interns to improve care for patients with substance abuse disorders. 2. Increase intern confidence and comfort in treating this group of patients.
DESCRIPTION OF PROGRAM/INTERVENTION: Our 9-hour curriculum includes both experiential and didactic elements. The didactic elements include a brief introduction to the curriculum and three one-hour lectures on cocaine and stimulant abuse, pharmacologic treatment of opioid dependence, and the neurobiology of substance abuse. The experiential elements include a standardized patient exercise focused on screening for and assessing alcohol abuse, a presentation and discussion with a member of Alcoholics Anonymous (AA), attendance at an AA meeting, and a presentation on illicit drug use taught by trained patient-teachers. Interns participate during an ambulatory rotation with dedicated half-days to teaching sessions.
FINDINGS TO DATE: Using a questionnaire modified from previously validated instruments, we surveyed the following domains: resident demographic characteristics; responsibility for, interest and confidence in screening and counseling about drug use (6 5-point Likert type items); competence and interest in performing specific clinical skills (10 10-point Likert type items); and attitudes towards drug users and drug treatment (8 5-point Likert type items). We compared the median response to each item before and after the curriculum using a Wilcoxon sign rank test. Seven true-false questions assessed knowledge; changes were assessed using the McNemar Test. Forty one interns participated in the curriculum and 32 completed both pre- and post-test questionnaires (response rate=78%). At baseline, participants felt at least moderately responsible for screening about drug problems (median score 4.5 out of 5) and there was no change following the curriculum. Feeling responsible for counseling about drug problems increased following the curriculum with the median score increasing from 4.0 to 5.0 ($p<.05$). Interns' confidence in performing a number of skills including discussing drugs of abuse, discussing treatment options, counseling about drug problems, assessment of clinical manifestations of drug and alcohol abuse, and referring patients to 12-step programs all increased significantly. At baseline, resident attitudes towards drug users were positive and level of knowledge was high; we did not detect changes at post-test.
KEY LESSONS LEARNED: Although we did not demonstrate a change in knowledge, resident confidence and sense of responsibility for counseling patients with substance abuse disorders increased following participation in the curriculum. We are completing analysis of data from an objective structured clinical exam for third year residents to evaluate whether increased confidence is associated with improvements in clinical practices, including screening, assessment and counseling about illicit drug use.

FACULTY DEVELOPMENT IN MEDICAL EDUCATION RESEARCH AND SCHOLARSHIP: THE MERMAID SERIES A.R. Gonzaga[1]; M.A. Mcneil[1]; A.L. Spencer[2]; W.N. Kapoor[1]. [1]University of Pittsburgh, Pittsburgh, PA; [2]Allegheny General Hospital, Pittsburgh, PA. *(Tracking ID # 190668)*

STATEMENT OF PROBLEM OR QUESTION (PREFERABLY ONE SENTENCE): Much has been written about the dearth of high quality medical education research with a particular emphasis on the absence of hard outcomes. It is unclear how to best develop and support clinician educator faculty in developing the skills necessary to perform such research.
OBJECTIVES OF PROGRAM/INTERVENTION: To develop a seminar series designed to improve faculty knowledge of medical education scholarship and research methodologies with a goal of increasing interest in medical education research initiatives.
DESCRIPTION OF PROGRAM/INTERVENTION: In November 2006, the Medical Education Research Methods and Innovative Designs (MERMAID) seminar series was launched at the University of Pittsburgh. MERMAID was created as a faculty development seminar to complement the firmly established Clinician Educator Training Program, a Master of Science fellowship in medical education. The target audience is interdepartmental faculty with an identified career track as clinician educator. MERMAID offers exposure to medical education scholarship and research methodologies, with the goal of encouraging and supporting high quality, publishable evaluations of educational interventions. Innovative educational methods, e.g., use of technology in medical education, are also highlighted. Medical educators with experience in the topic or investigators facile in methodologies commonly used in medical education research serve as presenters in a monthly, 90 minute seminar. MERMAID provides a venue for interdepartmental interactions, and opportunities to form collaborative relationships and to network with local content experts.
FINDINGS TO DATE: In the first year, 10 seminars were held, with an average attendance of 15 (range 10–21), including members of the departments of medicine, pediatrics, surgery, psychiatry, and obstetrics-gynecology. Each seminar was evaluated with a satisfaction survey; topics were rated on a 5-point ordinal scale with 5=strongly agree. The second seminar offered was Qualitative Research in Medical Education. Immediate feedback was that this seminar was of limited usefulness because the research methodology was too generalized and was not applicable to medical education research (mean satisfaction score of 3.20±0.84). Based on this feedback, future speakers were contacted by the coordinator to assure the seminar content was appropriate for the needs and goals of the target audience. Subsequent talks were much more highly rated and thought to be more applicable. The highest rated topics were Educational Portfolio in Medical Education (4.71±0.47), Designing Surveys in Medical Education (4.70±0.48), and Use and Evaluation of Technology in Medical Education (4.44±0.53). Attendees overall rated the MERMAID seminars highly (4.24±0.83), and felt that the content was appropriate to their needs (4.19±0.86) and that it would be applied to their own work (4.14±0.86). The seminars were rated as likely to change attendees' approach to curriculum evaluation (3.93±0.93) and as increasing their interest in medical education research (3.87±0.80).
KEY LESSONS LEARNED: There is a perceived need for further faculty development in medical education research and scholarship. Seminar content must be focused on medical education and examples used must be relevant to medical education research. Topics that support medical educators in curriculum development and other forms of scholarship are perceived as equally useful as sessions highlighting research methodologies.

FROM HAGFISH TO HUMANS: A NOVEL CURRICULUM FOR TEACHING PHYSIOLOGY TO INTERNAL MEDICINE RESIDENTS B.J. Shah[1]; S.J. Herzig[2]. [1]Beth Israel Deaconess Medical Center, Boston, MA; [2]Beth Israel Deconess Medical Center, Boston, MA. *(Tracking ID # 190268)*

STATEMENT OF PROBLEM OR QUESTION (PREFERABLY ONE SENTENCE): With the rapidly increasing quantity of clinical information physicians must master, residency teaching sessions are often case-based discussions or didactic lectures that focus on differential diagnosis, clinical reasoning, and patient management. This structure marginalizes discussions about mechanisms of disease and scientific investigation.
OBJECTIVES OF PROGRAM/INTERVENTION: To assess wheter a 1-week basic science immersion experience in comparative physiology for internal medicine (IM) residents would:1) Increase their appreciation for and understanding of physiology 2) Enhance residents' routine incorporation of pathophysiology into their teaching and clinical roles on the general medical ward and ICU rotations.
DESCRIPTION OF PROGRAM/INTERVENTION: The course, held at Mount Desert Island Biologic Laboratories, consisted of 4 modules (water metabolism, NaCl excretion, hematology/coagulation, cardiovascular (CV) physiology), each with basic science experiments utilizing aquatic species, accompanied by clinical correlation discussions. The experiments were designed for progressive development of core principles through the week. Residents participated in 3 of 4 modules. After completing their portion of a module, residents presented their findings to one another, passing off specific aims for the subsequent group to investigate. An anonymous pre-course (N=13) and a 6-week post-course (N=15) attitudes/knowledge survey was administered with IRB approval.
FINDINGS TO DATE: Ten junior and eight senior IM residents, two with basic science PhD's, took the course. A large portion of residents (77%) had some prior exposure to laboratory work in basic science. The course was highly rated (mean=8.94/10), with all participants feeling their goals were met and willing to recommend it to a colleague. The survey demonstrated that the residents' comfort with concepts of hematology ($p<0.05$), secretory physiology ($p<0.01$), and salt/water metabolism ($p<0.001$) each improved. Following the course, physiology played a more prominent role in their teaching and clinical decision making during ward and ICU rotations. Post-course, 82% of residents stated they were more likely to

read about pathophysiology when faced with a clinical problem. An unanticipated byproduct of the course was that 82% felt more comfortable with public speaking and 70% felt more comfortable with data analysis.
KEY LESSONS LEARNED: Although cost intensive and geographically unique, this model for teaching mechanisms of disease could be applied elsewhere with the help of physician-scientists and clinician educators. By allowing residents to return to basic science and use their clinical experience to problem-solve, we have rekindled their enthusiasm and respect for pathophysiology. The week allowed for bonding between the residents and informal mentoring with senior physician-scientists. Prior to the course, the residents rated their knowledge of CV physiology high which is one explanation for why there was no change in the post-course survey. Additionally, our program already has a strong emphasis on CV physiology. In the future, different aspects of CV physiology could be highlighted or a weaker topic could be developed into a new module. One area for improvement is to include a session focused on building skills to teach physiology in the clinical setting. We hope to develop formal sessions where concepts and experiments from this course could be revisited throughout the year. This retreat-style format is being investigated for teaching principles of health systems and quality improvement.

IMPACT OF A PILOT EDUCATIONAL PROGRAM TO IMPROVE CARE THE MED-PSYCH WAY Y. Raj[1]. [1]Oregon Health & Science University, Portland, OR. *(Tracking ID # 189664)*

STATEMENT OF PROBLEM OR QUESTION (PREFERABLY ONE SENTENCE): To assess the impact of a novel, med-psych outpatient teaching clinic.
OBJECTIVES OF PROGRAM/INTERVENTION: The benefit of having a psychiatrist train internists to self-manage medical patients with psychiatric co-morbidity in a "live," integrated setting is not clear. Thus, 27 Internal Medicine (IM) residents in post-graduate training years I-III participated in a pilot study of a med-psych teaching clinic. The primary outcomes were improvement in psychiatric fund of knowledge, participant satisfaction, and self-assessed overall utility of the clinic experience. Secondary outcomes included evaluation of the knowledge assessment instrument used in the study - a piloted 11-item multiple choice question (MCQ) test evaluating competency in key areas at the interface of medicine and psychiatry - to a cohort of psychiatry residents (n=20) who graded its level of difficulty; and determination of possible experiential differences in fund of knowledge among a cohort of general medicine faculty (n=14) who also took the test.
DESCRIPTION OF PROGRAM/INTERVENTION: Faculty and residents referred patients to the med-psych consultation clinic based on their perceived needs for psychiatric assistance. An internist-psychiatrist (dual-boarded physician) served as the clinical teacher. IM residents attended the clinic between 2 and 6 half-days. Instructional methods included didactic sessions, case discussions, and direct patient care with observation, feedback, and modeling. Psychiatric fund of knowledge was assessed through change in score on the piloted MCQ test which was administered to all residents prior to participation in the med-psych clinic (n=27) and then again at the end of the academic year for those who elected to continue study participation (n=12). Overall satisfaction and clinical utility of the med-psych teaching experience were assessed using two separate 10-point Likert scales and were administered at the same time as the follow-up MCQ test.
FINDINGS TO DATE: The MCQ test scores improved over the study period, with a mean increase from 5.00 at entry (out of a possible score of 11) to 5.33 at study end, although the difference was not statistically significant (95% CI, −1.37 to 0.71; P=0.53). Participants rated their satisfaction with the med-psych experience 8.1 (1=poor, 10=outstanding). The clinical utility of the experience was rated 7.3 on the same scale. The MCQ test was rated 7.9 (1=easy, 10=most difficult) by the psychiatry residents who took the test and scored a mean of 5.50, with a resultant mean difference of only+0.50 points compared to the IM residents (95% CI, −0.42 to 1.42; P=0.28). Interestingly, the general medicine faculty mean was 5.21 but for those who were less than 10 years removed from medical school (n=5), the mean was 4.4 compared to a mean of 5.67 for faculty who had graduated from medical school more than 10 years ago (n=9). The resultant mean difference of 1.27 was statistically significant (95% CI, −2.44 to −0.10; P=0.036) leading to speculation that perhaps more experienced internists have a better psychiatric fund of knowledge.
KEY LESSONS LEARNED: A med-psych pilot teaching clinic was well-received and was felt to add great value to the clinical acumen of its participants but did not lead to significant change in their fund of knowledge. Improved results among more experienced medicine faculty suggest that greater exposure to the med-psych clinic experience may be needed to demonstrate measurable improvement in psychiatric fund of knowledge and then perhaps, quality of patient care.

IMPACT OF AN OUTPATIENT CURRICULUM FOR COMBINED MEDICINE/PEDIATRICS RESIDENTS J.S. Talwalkar[1]; A.M. Fenick[2]. [1]Yale University, Waterbury, CT; [2]Yale University, New Haven, CT. *(Tracking ID # 190517)*

STATEMENT OF PROBLEM OR QUESTION (PREFERABLY ONE SENTENCE): Adequately teaching core outpatient topics in both internal medicine and pediatrics is a unique challenge for combined Medicine/Pediatrics Residency Programs. While many internal medicine programs have developed curricula for use during weekly continuity clinic sessions, there is less experience with this intervention in pediatrics and no published examples for combined training programs.
OBJECTIVES OF PROGRAM/INTERVENTION: Assess the impact of a standardized curriculum in ambulatory medicine and pediatrics on residents' confidence in clinical skills, participation in learning, and satisfaction.
DESCRIPTION OF PROGRAM/INTERVENTION: Our institution's Primary Care Internal Medicine Residency Program has an established pre-continuity clinic curriculum that is utilized by over 60 residency programs nationally, and formerly served as the sole guide for preclinic conference for our combined medicine/pediatrics residents. We developed a parallel curriculum for pediatrics to create a comprehensive curriculum for our combined medicine/pediatrics residents. Like the internal medicine curriculum, the pediatric curriculum consists of a series of structured, case-centered, evidence-based chapters to address common outpatient topics as well as issues relating to the ethical, business, and legal aspects of medicine. In July 2006, the new pediatric curriculum was implemented in the medicine/pediatrics continuity clinic. Residents continued to receive the internal medicine curriculum, and alternated discussion topics each week using both the medicine and pediatrics preclinic curricula. In June 2006, prior to distribution of the pediatric component of the curriculum, Medicine/Pediatrics residents completed an anonymous survey consisting of 63 items using a five-point Likert scale, in which they rated their confidence, participation, and satisfaction. Items were designed to reflect explicit goals of the ACGME core competencies. Identical surveys were distributed to residents in June 2007, eleven months after implementation of the pediatric component of the curriculum. Differences in mean scores on the 2006 and 2007 surveys were compared.
FINDINGS TO DATE: Surveys were completed by fifteen of sixteen residents (94%) in 2006 (pre-pediatrics curriculum), and thirteen of sixteen residents (81%) in 2007 (post-pediatrics curriculum). There were no significant differences in overall measures of confidence, participation, or satisfaction, with residents in both years reporting highly favorable educational experiences in preclinic conference and continuity clinic in general. However, on the 2007 surveys, residents were significantly more likely to endorse several individual items including "My continuity clinic experience is fulfilling" ($p<0.05$), and "At preclinic conference, my intern colleagues appear to have read about the topic" ($p<0.05$). In 2007, residents were significantly less likely to endorse "My formal conference time is weighted towards medicine" ($p<0.0001$), and "I read about common topics in internal medicine" ($p<0.05$), while demonstrating a trend towards increased reading related to pediatric topics. In free-form commentary, residents identified the pediatric curriculum as an important addition to their education.
KEY LESSONS LEARNED: Medicine/Pediatrics residents value a balance in outpatient didactic teaching between topics related to adult and child health. The change to a more balanced preclinic curriculum was associated with improved resident fulfillment with the continuity clinic experience, but not in overall confidence, participation, or satisfaction.

IMPROVING HYPERTENSION MANAGEMENT IN AN INTERNAL MEDICINE RESIDENCY CONTINUITY CLINIC" N. Denizard-Thompson[1]; K.B. Feiereisel[1]; S. Singh[2]. [1]Wake Forest University School of Medicine, Winston-Salem, NC; [2]Wake Forest University School of Medicine, Winston Salem, NC. *(Tracking ID # 190245)*

STATEMENT OF PROBLEM OR QUESTION (PREFERABLY ONE SENTENCE): The treatment of hypertension is the most common reason in the United States for office visits to physicians and for use of prescription drugs. The treatment of hypertension remains a challenging problem in resident clinics.
OBJECTIVES OF PROGRAM/INTERVENTION: 1. To develop a targeted quality improvement initiative to improve resident physicans compliance with guidelines and managment of hypertension.
DESCRIPTION OF PROGRAM/INTERVENTION: Wake Forest University Baptist Medical Center is a large academic medical center with two resident continuity clinic sites: a community-based clinic and a hospital-based clinic. We queried resident patient panels to identify hypertensive patients by either a hypertension billing code, electronic medical record documentation in the problem list or list of active hypertensive medications. A list of a maximum of 10 patient visits was generated for each resident physician. An 11 item chart abstraction form was developed which assessed compliance with JNC VII guideline core recommendations regarding choice of anti-hypertensive therapy, documetaiton of hypertension as a problem, and frequency of blood pressure monitoring. The residents received an individual report card on their hypertension management and cumulative data from both clinic sites. The residents were charged with devising a quality improvement project on hypertension management in the clinic.
FINDINGS TO DATE: 424 chart reviews were completed by 24 residents at the community-based clinic and 22 residents at the hospital-based clinic. Combined clinic data showed that hypertension was clearly documented in the majority of cases (89%). Residents demonstrated good compliance with several JNCVII recommendations such as use of ACE inhibitors or Angiotensin Blockers in diabetic patients (80%) and appropriate laboratory analysis (lipids 80% and creatinine 94%). However 55% of patients were not at goal blood pressure based on their comorbidities. There was also a wide variation in follow-up time with 13% of uncontrolled hypertensives scheduled for greater than three months of follow up. Data were similar between the two clinic sites. Resident improvement project proposals included a nurse visit algorithm, a self management log, a hypertension focused electronic progress note, restructuring of schedule templates, and a return visit protocol based on degree of hypertension.
KEY LESSONS LEARNED: Residents can self-identify problems with their managment and implement systems based practice methods to improve their chronic disease managment of hypertension in the clinic.

IMPROVING INTERNAL MEDICINE RESIDENTS' KNOWLEDGE AND ADHERENCE TO CLINICAL PRACTICE GUIDELINES USING AN EDUCATIONAL GAME E.A. Akl[1]; R.A. Mustafa[1]; A. Alawneh[1]; A. Vedavalli[1]; H.J. SchüNemann[2]. [1]University at Buffalo, Buffalo, NY; [2]McMaster University, Buffalo, NY. *(Tracking ID # 190888)*

STATEMENT OF PROBLEM OR QUESTION (PREFERABLY ONE SENTENCE): Didactic sessions are the most common educational strategy to teach clinical practice guidelines in Internal Medicine residency training programs in the US. Educational games, particularly Jeopardy like games, are generally popular among US Internal Medicine residency programs.
OBJECTIVES OF PROGRAM/INTERVENTION: The first objective was to explore whether an educational game would be a feasible and acceptable strategy to teach clinical practice guidelines in Internal Medicine residency training. The second objective was to compare the effectiveness of an educational game and of didactic sessions in terms of the effect on residents' knowledge and implementation of clinical practice guidelines.
DESCRIPTION OF PROGRAM/INTERVENTION: We have developed the Guide-O-Game as an educational game to improve Internal Medicine residents' knowledge and adherence to clinical practice guidelines. Two teams of residents compete in answering questions related to specific evidence-based clinical practice guidelines. It uses a multimedia interactive tool designed to optimize the educational experience. The tool has a user interface as well as a manager interface for the creation, editing and management of the question and for record keeping. It is also web-enabled allowing the online exchange of updated questions sets and performance data. We used pre-defined criteria to select evidence based clinical practice guidelines for Guide-O-Game. We then developed questions testing knowledge using strategies that we derived from the educational literature. At least two clinicians reviewed each question for validity, comprehensibility, and relevance.
FINDINGS TO DATE: Through a long and iterative process, we were able to develop the multimedia interactive tool with the help of our university Educational Technology Center. Identifying guidelines that are relevant, of high quality, and amenable to multiple choice questions was challenging but possible. The pilot testing of the Guide-O-Game proved very useful in improving the rules of the game and the functionality of the interface. A qualitative assessment showed that residents found the game an acceptable and desirable educational strategy. We are planning to evaluate the efficacy of Guide-O-Game in a controlled trial in Internal Medicine residency programs. We will assess the impact of the intervention on residents' knowledge of and implementation of clinical practice guidelines.
KEY LESSONS LEARNED: Educational games enable learning from peer interaction and feedback in an entertaining and low risk environment. The competitive nature of the game enhances learning by inciting residents to review the guidelines ahead of the next session. Jeopardy style games are probably most effective for teaching of factual information. Finally, learners' input was very important for improving the Guide-O-Game.

IMPROVING RESIDENT TEACHING ON WORK ROUNDS L.K. Snydman[1]; D. Chandler[1]; J. Rencic[1]. [1]Tufts-New England Medical Center, Boston, MA. *(Tracking ID # 190488)*

STATEMENT OF PROBLEM OR QUESTION (PREFERABLY ONE SENTENCE): Residents play a significant role in the teaching of medical students and interns. Much of this teaching occurs during resident-led work rounds, yet we believe that teaching opportunities during work rounds are not fully realized due to poor training in this area. A curriculum aimed at improving resident teaching during work rounds has the potential to improve intern and medical student learning, thereby promoting the development of clinically competent interns and medical students.
OBJECTIVES OF PROGRAM/INTERVENTION: 1. To describe residents' ability to lead an effective internal medicine work rounds. 2. To assess the efficacy of implementing a Resident as Teacher curriculum on the quality and amount of teaching done by residents during work rounds.
DESCRIPTION OF PROGRAM/INTERVENTION: We created a Resident as Teacher curriculum focusing on four key skills that surveyed medical students felt our residents lacked: orienting the learner, teaching techniques for work rounds, teaching techniques for bedside rounds, and giving effective feedback. The workshops are being conducted in a small group format with all of the internal medicine housestaff at Tufts-New England Medical Center. The workshops are a combination of didactics, group discussion, role play and video observation. The efficacy of our intervention is currently being assessed by observing second-year residents leading work rounds before and after completing the program. We have created an observation form that we are in the process of validating. Residents are observed leading work rounds in regards to six dimensions: organization, learning climate, teaching techniques, leadership, providing effective feedback and fostering lifelong learning. Observers record whether several pre-defined behaviors are present within each dimension and provide a score for each dimension on a scale from 1 (excellent) to 4 (poor).
FINDINGS TO DATE: 12 residents have been observed leading work rounds prior to completing the program. On average, work rounds lasted 94 minutes and reviewed 8.7 patients (total 18.8 hours and 104 patients). 50% of the residents did not start or complete work rounds on time. 66.7% encouraged active participation of all learners. The most frequently observed teaching techniques were reasoning aloud (83.3%) and summarizing key issues (83.3%). Less frequently residents waited 3 seconds after asking a question (16.7%) or used hypothetical case situations (8.3%). While 33% of the residents provided feedback on what was done well, none of the residents suggested what could be improved. 25% of residents volunteered to research clinical questions or encouraged use of specific learning resources. The average score for each dimension was: organization (2.1), learning climate (1.8), teaching techniques (2.5), leadership of work rounds (1.9), providing effective feedback (2.8) and fostering life-long learning (2.9).
KEY LESSONS LEARNED: Residents create a favorable learning environment through explicitly encouraging participation and communicating thought processes out loud. They are less successful with organization, varying teaching techniques, providing feedback, and modeling lifelong learning. Given the preliminary nature of these

results, we have yet to establish whether our intervention is successful. However, our data suggest significant areas for improvement of resident teaching during work rounds. The educational implications of this curriculum are multifold and include increasing residents' comfort teaching and improving resident, intern and medical student knowledge and clinical skills.

INNOVATIVE HEALTH CARE DISPARITIES CURRICULUM MAY IMPROVE UNDER-REPRESENTED MINORITY RECRUITMENT M. Vela[1]; K.E. Kim[1]; H. Tang[1]; M.H. Chin[1]. [1]University of Chicago, Chicago, IL. *(Tracking ID # 190757)*

STATEMENT OF PROBLEM OR QUESTION (PREFERABLY ONE SENTENCE): Despite evidence that diversity in the physician work force contributes to improvements in health care disparities, U.S. medical schools struggle to recruit and maintain under-represented minority medical students as defined by the AAMC (Black, American Indian/Alaskan Native, Native Hawaiian, Mexican American, Mainland Puerto Rican).
OBJECTIVES OF PROGRAM/INTERVENTION: Our goals were 1) to deliver a previously elective health disparities curriculum for incoming first year medical students as a required course, and 2) to measure the impact of the existence of the course on recruitment of under-represented minority (URM) medical students.
DESCRIPTION OF PROGRAM/INTERVENTION: All medical school applicants interviewed at the University of Chicago Pritzker School of Medicine attended an orientation which detailed the required health care disparities curriculum. Matriculating first year students were required to participate in a 5-day course held the week after orientation. The course followed the previously established curricular aims of the SGIM Disparities Task Force. The course included didactic lectures, small group discussions, role play, and site visits to local emergency rooms, hospitals, community clinics and community health organizations. Curriculum topics included defining race and culture, an exploration of racial and ethnic biases and stereotypes, historical mistrust, health literacy, language barriers and use of interpreters, and an overview of the resources and needs of the South Side Community in Chicago. The students filled out a quantitative and qualitative pre-post survey designed to evaluate their knowledge, skills and attitudes regarding healthcare disparities. Pre and Post course survey responses were 99% and 92% respectively.
FINDINGS TO DATE: One hundred twelve students participated, representing 100% of the matriculating class. This required course was highly rated (overall rating 4.7, 1=poor, 5=excellent), and will continue to be a required part of the first year curriculum. URM students (18/25, 72%) were more likely than non-URM (34/86, 40%) students to report having knowledge of the existence of the course prior to accepting the medical school's offer to matriculate (p value 0.004). Among those students reporting knowldege of the course, URM students (14/18, 78%) were more likely than non-URM students (16/34, 48%) to report that knowledge of the existence of the course positively influenced their decision to attend the medical school (p value 0.033). URM student enrollment at the University of Chicago Pritzker School of Medicine, which had remained stable from years 2005 and 2006 at 12% and 11% of the total incoming classes respectively, increased to 22% of the total class size in 2007 (p value 0.031).
KEY LESSONS LEARNED: Our health disparities curriculum translated well from an elective course to a required course. Minority students may be influenced to attend medicals schools that invest significant curricular time and resources addressing health care disparities issues. The required health disparities course may have been one of several factors contributing to the increased enrollment of URM students at the University of Chicago Pritzker School of Medicine in 2007.

INTERNAL MEDICINE RESIDENT CLINIC HYPERTENSION IMPROVEMENT INITIATIVE P. Chelminski[1]; M. Pignone[1]; R. Malone[1]; A. Whitney[1]. [1]University of North Carolina at Chapel Hill, Chapel Hill, NC. *(Tracking ID # 189458)*

STATEMENT OF PROBLEM OR QUESTION (PREFERABLY ONE SENTENCE): Blood pressure control is inadequate for many patients with hypertension.
OBJECTIVES OF PROGRAM/INTERVENTION: 1. Implement an initiative to improve the control of blood pressure in hypertensive patients attending the UNC Internal Medicine Residents Clinic. 2. Teach comprehensive cardiovascular risk assessment and rational medication use in hypertension.
DESCRIPTION OF PROGRAM/INTERVENTION: Each resident performed a chart review of their patients with uncontrolled HTN (defined as >145 systolic in non-diabetics and 135 systolic in diabetics) identified from a query of clinic triage blood pressure in the institution's electronic medical record. Residents attended a half day session that included a didactic session on continuous quality improvement and data review and entry. Residents reviewed their panels of uncontrolled hypertensive patients and recorded several key data, including blood pressure, documented medications, laboratory values. They also calculated 10 year cardiovascular risk. Based on the residents assessment, patients with uncontrolled HTN were then scheduled for follow up with a resident provider within 2 weeks to 2 months to address HTN. The study period was 10 months. Residents completed a survey at completion of the study period.
FINDINGS TO DATE: The mean resident panel was 110 patients. On average each resident reviewed 24 charts. A total of 1324 records were reviewed. Three-hundred and ninety eight patients with HTN (30%) were identified, of whom 177 (44%) had uncontrolled hypertension. Appointments were requested and 66 (37%) returned for the scheduled visit. The mean systolic blood pressure for uncontrolled hypertensives (n=177) was 158. For the 66 patients who attended follow up, mean systolic blood pressure decreased from 160 at baseline to 153 follow-up. Twenty-three (35%) were at goal; 39 were not at goal (59%); the status of 4 patients (6%) could not be determined. Of the 39 not at goal, 19 (49%) had a medication chage, 3 (8%) had a medication restarted due to nonadherence, and 17 (44%) had no medication change. Reasons for no medication change incldued: acute care visits (4), non-adherence to current medications (3), pain (3), close to goal (3), and other reasons (4). Forty-three of 77 (59%) residents completed a post-project survey, 39% believed the project improved patient care and 75% found calculating cardiovascular risk to be the most beneficial learning component.
KEY LESSONS LEARNED: A significant proportion of resident patients with HTN were not optimally controlled. An intervention based on scheduling additional visits was relatively ineffective due to high no-show rates. Among patients seen in follow-up, many did not receive appropriate intervention to improve blood pressure. Based on our survey, residents found the project to be educational, but did not feel that it significantly impacted patient care.

KOLB'S LEARNING CYCLE AS A TOOL TO ENHANCE RESIDENT PERFORMANCE R.C. Anderson[1]; L. Icayan[1]. [1]Evanston Northwestern Healthcare, Northwestern Feinberg School of Medicine, Evanston, IL. *(Tracking ID # 189640)*

STATEMENT OF PROBLEM OR QUESTION (PREFERABLY ONE SENTENCE): Can identification of an individual's preferred learning style be translated into strategies for the learner and the teacher to optimize the learning environment?
OBJECTIVES OF PROGRAM/INTERVENTION: 1) To identify the preferred learning styles of residents, individually and as a residency program. 2) To utilize preferred learning styles and the learning cycle to counsel residents and faculty on effective teaching and learning strategies.
DESCRIPTION OF PROGRAM/INTERVENTION: 30 Internal Medicine residents took the learning style inventory developed by David Kolb, PhD, and had their individual learning styles identifed. These learning styles are organized into the categories of active experimentation, reflective observation, abstract conceptualization and concrete experience, with each person fitting into a quadrant reflecting two of the four learning styles. During subsequent individual discussions of ACP In-Training Exam results, each resident was advised on optimal study strategies based on their identified learning style. For example, residents whose preferred learning style includes abstract conceptualization learn more effectively by attending lectures and those residents whose preferred learning style includes active experimentation learn more effectively by doing practice test questions. Teaching faculty are being educated on preferred learning styles and their translation to resident teaching in the setting of a faculty development retreat.

FINDINGS TO DATE: The residency program had large variability in preferred learning styles. Among the 30 residents, 6 residents fit into the concrete experience/active experimentation quadrant, 6 into concrete experience/reflective observation, 9 into abstract conceptualization/active experimentation and 9 into abstract conceptualization/reflective observation. Residents found that their identified learning styles seemed to fit their usual preferred learning practices.
KEY LESSONS LEARNED: Residents have different preferred learning styles. Identification of preferred learning style can help the individual resident better understand his or her learning strengths as well as help the teacher identify the most effective strategies to maximize the learning process. Additionally, understanding preferred learning styles within a residency program may be helpful in organization of curricular activities. Residents also must learn the importance of moving through the learning cycle. When starting from a preferred learning style, such as active experimentation, learning can be maximized by in turn incorporating reflective observation about the results of the experimentation to build to a higher level of knowledge and understanding.

LONGITUDINAL GROUPS ACROSS CLERKSHIPS FOR THIRD-YEAR MEDICAL STUDENTS ENHANCE REFLECTION ABOUT PROFESSIONAL DEVELOPMENT L.E. Carpenter[1]; A. Chang[2]; B. Johnston[2]; K. Lee[2]; B. Singh[2]; C.L. Chou[2]. [1]University of California, San Francisco, San Francisco, CA; [2]San Francisco VA Medical Center, San Francisco, CA. *(Tracking ID # 190188)*

STATEMENT OF PROBLEM OR QUESTION (PREFERABLY ONE SENTENCE): For many third-year medical students, clinical clerkships represent their first professional experiences and present significant learning opportunities in individual growth. Medical schools rarely allocate time to adequately address many of these challenges, and processing of crucial professional development issues often occurs as part of the informal curriculum.
OBJECTIVES OF PROGRAM/INTERVENTION: To develop a safe, facilitated venue in which third-year medical students can formally address clinical skills and common critical incidents as they arise.
DESCRIPTION OF PROGRAM/INTERVENTION: In 2007, a self-selected group of eighteen UCSF third-year medical students completed VALOR ("VA LOngitudinal Rotations"), a six-month program superimposed on three consecutive clerkships based at the San Francisco Veterans Affairs Medical Center: medicine, surgery, and neurology/psychiatry. Students were divided into three equal cohorts, each of which rotated together through successive clerkships. Throughout VALOR, each student cohort met with two faculty co-facilitators for a weekly, hour-long multidisciplinary conference that formally focused on clinical skills training, including oral presentations, clinical reasoning, interviewing, and physical examination skills. Significant flexibility was built into the conference schedule to allow groups to address topics of immediate concern. All third-year students at the VA hospital for the duration of the program were VALOR students, facilitating longitudinal development within and between groups.
FINDINGS TO DATE: In VALOR conferences, students debriefed critical incidents, spoke about ethical and professional quandaries, used writing exercises to reflect more deeply about the balance between their personal and professional lives, and discussed physician roles and questions regarding career planning. Surveys distributed at the end of VALOR assessed student attitudes about the utility of the sessions. Respondents (n=16) strongly agreed that the conferences were helpful to their overall development (4.9 on a five-point Likert scale, 1=strongly disagree, 5=strongly agree). Students also felt that weekly check-ins (5.0), career counseling modules (4.9), and reflective writing exercises (4.4) were valuable. Sessions on clinical skills, including clinical reasoning (4.1), interviewing (4.0), oral presentations (4.0), and physical examination (3.8) were also well-rated. In addition, students wrote narratives about their experiences. Abstracted themes from these reflections show that students particularly appreciated the camaraderie in knowing that others were experiencing the same fatigue, self-doubt, and pressure to perform. When students from different cohorts on separate clerkships cared for the same patient, they collaboratively discussed each team's treatment recommendations, allowing them to feel more like physicians. Weekly conferences provided space to reflect on topics and incidents that students were reluctant to bring up in their rotations, enhancing self-knowledge and student well-being. Finally, students felt their groups were unconditionally supportive, providing a positive environment for professional and personal growth.
KEY LESSONS LEARNED: Third-year students found this cross-clerkship, longitudinal experience to be valuable for professional development and well-being. Though this VALOR program was limited to a self-selected group of students at a single VA hospital site at one medical school, we propose that more third-year medical students could benefit from similar experiences.

MARKETING OF MEDICINES: A NOVEL CME ON PHARMACEUTICAL INDUSTRY INFLUENCE IN RESEARCH, EDUCATION, AND CLINICAL PRACTICE Y. Kim[1]; T.B. Newman[1]; E. Boyd[1]; K. Lee[1]; L. Bero[1]. [1]University of California, San Francisco, San Francisco, CA. *(Tracking ID # 189371)*

STATEMENT OF PROBLEM OR QUESTION (PREFERABLY ONE SENTENCE): While sponsorship of post-graduate education is under scrutiny, few studies have examined continuing medical education (CME) as an intervention to teach participants about interactions between physicians and the pharmaceutical industry. An independently-funded, interactive CME conference may broaden awareness of pharmaceutical industry marketing practices in research, education, and clinical settings.
OBJECTIVES OF PROGRAM/INTERVENTION: 1. Describe the potential for bias in industry-supported clinical trials, including design, interpretation, presentation, and publication or suppression of results 2. Identify the scope of pharmaceutical industry involvement in medical education 3. Critique pharmaceutical industry marketing materials, and improve awareness of the sale of physicians' personal and prescribing information for marketing purposes
DESCRIPTION OF PROGRAM/INTERVENTION: Funded by the Attorney General Consumer and Prescriber Education Grant Program, a team of multidisciplinary researchers, educators, and clinicians from the UCSF Schools of Pharmacy and Medicine led a day-long CME on pharmaceutical industry marketing techniques. Printed brochures and email announcements linked to a website were distributed to all recent UCSF CME attendees and the medical staff at local academic, public, and private medical centers. Didactic presentations on pharmaceutical industry influence regarding research, education, and direct-to-consumer advertising were supplemented with two interactive small group sessions. Small groups developed critiques of statistical analyses of research findings, discussed vignettes of interactions with industry, and used print advertisements to identify marketing techniques. Finally, a panel of CME participants volunteered to discuss ways to manage industry influence. We administered written questionnaires immediately before and after the conference to evaluate knowledge and attitudes (using five point Likert scales) among participants.
FINDINGS TO DATE: Of 61 attendees, 50 (82%) completed matched pre- and post-CME questionnaires. Sixty-three percent of participants had MD, 17% RN, 16% PharmD degrees, with mean 23.7 (SD 10.2) years since graduation. Nearly half (49%) of participants worked primarily in private practice, 25% public, and 8% in academic settings. One-quarter reported no prior education regarding pharma-physician interaction. Prior to the CME, 54.9% of participants reported that gifts from industry were inappropriate, 88.2% indicated that industry-sponsored research could be biased, and 88.2% felt there was insufficient regulation of direct-to-consumer advertising. Compared to pre-tests, perceived degree of influence on participants' own prescribing remained lower (30.6% to 44.7%, chi square $p=0.15$) than perceived degree of industry influence on others' prescribing (68.0% to 77.1%, $p=0.31$). Awareness of the sales of physician information by the AMA increased from 28.6% to 71.4% ($p<0.001$) and of the ability to opt out of the sales of this information from 37.2% to 91.8% ($p<0.001$).
KEY LESSONS LEARNED: We used different teaching methods and multidisciplinary educators in a novel CME conference on pharmaceutical industry influence. We found that even among this self-selected audience, immediate awareness of marketing practices improved significantly. Future efforts to engage a broader audience should tailor interventions to adult learners, may use portions of the conference to orient new staff, and should track prescribing or rates of opting out of AMA Masterfile sales to measure effectiveness.

MEDICAL ETHICS EDUCATION IN AN UNDERGRADUATE PROBLEM-BASED LEARNING CURRICULUM H.C. Gooding[1]. [1]Harvard University/Brigham and Women's Hospital, Boston, MA. *(Tracking ID # 189318)*

STATEMENT OF PROBLEM OR QUESTION (PREFERABLY ONE SENTENCE): How are medical ethics topics integrated into the UC Berkeley-UC San Francisco Joint Medical Program's Contextually Integrated Case-Based Curriculum (CICBC) and are students choosing to discuss medical ethics topics in a standardized manner?
OBJECTIVES OF PROGRAM/INTERVENTION: Formal curricula in medical ethics are required of all US medical schools but it is up to each institution to decide which ethics topics to teach and how to teach them. In the UCB-UCSF Joint Medical Program's case based curriculum, ethics topics are integrated into cases covering basic and clinical science, allowing students to encounter ethical dilemmas as they occur in practice as opposed to as isolated vignettes. This study describes the ethics topics presented in the CICBC and how often they are chosen for further discussion as learning issues by students.
DESCRIPTION OF PROGRAM/INTERVENTION: The eighty cases that comprise the CICBC were read for content to identify embedded ethics "triggers." Each trigger was identified as corresponding to one or more of twenty medical ethics topics defined in the medical education literature. Learning issues generated by the four cohorts of students who had participated in the CICBC were queried using an internal search engine to identify those discussing ethics topics.
FINDINGS TO DATE: One-hundred-one discrete ethics triggers were identified in fifty-seven cases. The number of ethics triggers in a given case ranged from zero to five, with most (n=48) having one or two triggers. Topics included informed consent (n=14), patient autonomy (n=13), confidentiality (n=13), health care delivery issues (n=11), reproductive issues (n=8), genetic testing/research (n=6), health disparities (n=6), vulnerable populations (n=5), medical mistakes/physician competency (n=5), duty to patients (n=5), death/dying (n=4), quality of life/futility (n=3), truth-telling (n=3), decision-making capacity (n=3), organ procurement/transplantation (n=3), blood transfusion (n=2), cultural issues (n=2), duty to society (n=2), substance abuse (n=2), and research ethics (n=1). Sixty-seven ethics-related learning issues corresponding to fifty-three discrete ethics triggers were identified by the four cohorts of students who had participated in CICBC. Three triggers were discussed by three cohorts; eight triggers were discussed by two cohorts.
KEY LESSONS LEARNED: The UCB-UCSF Joint Medical Program CICBC includes over one-hundred opportunities for students to choose to investigate and discuss medical ethics. The classic ethics issues of informed consent, patient autonomy, and distributive justice are most represented, while more interpersonal issues such as truth-telling, duty to patients, and cultural differences are less frequently encountered. Within this student-driven learning environment, students chose ethics topics as learning issues frequently but inconsistently. More discussion is needed on whether to ensure a core set of ethics topics are discussed by students in problem-based learning environments, what topics would comprise such a core set, and how ethics competency should be evaluated within medical school curricula.

OUTCOMES OF A QUALITY IMPROVEMENT CURRICULUM: IMPLEMENTATION, PRESENTATION, AND PUBLICATION OF RESIDENTS' QUALITY IMPROVEMENT PROPOSALS
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STATEMENT OF PROBLEM OR QUESTION (PREFERABLY ONE SENTENCE): Educators recognize the need to link educational interventions to healthcare outcomes. We developed a quality improvement curriculum to increase residents' competency in practice-based learning and improvement (PBLI) and systems-based practice (SBP), as well as to improve patient care.
OBJECTIVES OF PROGRAM/INTERVENTION: 1) Evaluate the outcomes of a quality improvement curriculum including the number of quality improvement proposals (QIPs) resulting in improved patient care, or presentations, publications, and awards. 2) Identify factors associated with successful implementation of residents' QIPs.
DESCRIPTION OF PROGRAM/INTERVENTION: In July 2004, we implemented a 3-year longitudinal curriculum in quality improvement for internal medicine residents at Mayo Clinic. The goal of the curriculum is to demonstrate measurable improvements in patient care through implementation of resident-led QIPs. In year 1, residents identify a patient care problem, perform a root cause analysis, consult stakeholders, and propose an intervention and evaluation plan. QIPs are evaluated using the Quality Improvement Proposal Assessment Tool – 7 (QIPAT-7, seven items with Likert scales 1 to 5). We have previously demonstrated content validity and reliability of QIPAT-7 scores. In years 2 and 3, residents implement their proposals and measure improvements in patient care. Project outcomes including patient care improvements, presentations, publications, and awards were ascertained. We used Spearman's rho to identify factors correlated with successful project implementation.
FINDINGS TO DATE: From 2004–2007, 145 interns developed QIPs. Residents achieved a mean (SD) QIPAT-7 score of 3.31 (0.69). Forty-three (29.7%) of residents' QIPs were implemented and resulted in demonstrable improvements in patient care. Twelve (8.3%) of projects were presented at regional or national meetings, 8 (5.5%) were published in refereed journals, and 5 (3.4%) received a local or national grant or award. Residents who identified a faculty mentor for their QIP were more likely to successfully implement their project (Spearman's rho=0.48, p=0.001). We did not find a statistically significant association between QIPAT-7 scores and project implementation (Spearman's rho=0.21, p=0.07), perhaps due to limited sample size.
KEY LESSONS LEARNED: We describe a successful quality improvement curriculum that resulted in increased resident competency in PBLI and SBP, dissemination of scholarly QI projects, and meaningful improvements in patient care. Involvement of a faculty mentor is associated with project success. Future studies, which will likely require larger samples, should identify additional predictors of QIP success and link quality improvement curricula to improvements in patient outcomes.

"PATIENTS, DOCTORS, AND COMMUNITIES": AN INNOVATIVE LONGITUDINAL COURSE FOR 3RD YEAR MEDICAL STUDENTS
E.H. Green[1]; D.M. Swiderski[1]; M. Mcevoy[1]; C. Cimino[1]; P. Marantz[1]. [1]Albert Einstein College of Medicine, Bronx, NY. *(Tracking ID # 189987)*

STATEMENT OF PROBLEM OR QUESTION (PREFERABLY ONE SENTENCE): The knowledge, skills, and attitudes pertinent to the clinical practice of medicine, including communication, prevention, population health, ethics, humanism and professionalism, are usually formally covered early in medical school. However, these topics are more directly relevant to students' learning during the clinical years, where teaching them poses special challenges. Given the importance of these content areas, they should be formally addressed in the clinical years. The Albert Einstein College of Medicine (AECOM) has developed a new third year course, Patients, Doctors and Communities (PDC), to provide this important training.
OBJECTIVES OF PROGRAM/INTERVENTION: The goals of the new course are to build knowledge and skills in the specific areas of communication, prevention, population health and bioethics, and to provide a forum with peers and trusted faculty members to discuss values and value conflicts. This course was designed, in part, as an "antidote" to the "hidden curriculum".
DESCRIPTION OF PROGRAM/INTERVENTION: PDC is a required course that runs the length of the third year. Small groups of students meet one to two times per month for two hours with dedicated faculty facilitators. The sessions provide time to both debrief their ward experiences in an unstructured way, and also to cover a formal curriculum. Debriefing allows students to bring up any important or powerful experiences they've encountered on the wards. This provides students with a safe space to discuss difficult issues, receive feedback from both peers and faculty, and bring the "hidden curriculum" into the open. Each session also covers a specific topic (e.g. behavior change, using an interpreter, dealing with a "difficult patient", with assigned readings and a written exercise based on a patient that the student is caring for. Thus, the curriculum is rooted in students' actual clinical experience, rather than theoretical "paper cases". Assessment is based on attendance, participation, written assignments, exams, and a standardized patient exercise.
FINDINGS TO DATE: We sought formal feedback from students at the midpoint and end of the course (now in its second year). Students have had mixed reactions to the formal curriculum in communication skills, bioethics, prevention and population health, many questioning its relevance to third year clerkships. Feedback has been much more enthusiastic about the time given to processing ward experiences, with most students in both the first and second iteration of the course asking for increased time for this activity. While some students are strongly appreciative of this new approach to medical education, many are resentful of the burden of additional work, and of time taken from the wards.
KEY LESSONS LEARNED: Students welcome the addition of an opportunity for confidential discussion of their experiences during the third year with both peers and senior faculty. Future iterations of the course will

build upon its foundation of small-group teaching and use of students' clerkship experiences in order to enhance the formal curriculum in topics previously addressed primarily by the hidden curriculum.

PERCEIVED EFFECTIVENESS OF AN ASSIGNED MENTORING PROGRAM FOR INTERNAL MEDICINE RESIDENTS M. Cunnane[1]; C.L. Spagnoletti[1]; R. Buranosky[1]. [1]University of Pittsburgh, Pittsburgh, PA. *(Tracking ID # 190512)*

STATEMENT OF PROBLEM OR QUESTION (PREFERABLY ONE SENTENCE): Assigned mentoring ensures that all residents establish a relationship early in training, but the effectiveness of these relationships is unknown.
OBJECTIVES OF PROGRAM/INTERVENTION: Our objectives were to assess the effectiveness of an assigned mentoring program for Internal Medicine residents at the University of Pittsburgh.
DESCRIPTION OF PROGRAM/INTERVENTION: The Mentorship Program, which assigns a General Medicine faculty mentor to each resident, was implemented in June, 2002. Faculty who are skilled in mentoring are selected for the program; each is matched with a resident based on personal characteristics and career interests. Residents complete a questionnaire indicating mentoring needs and career goals which is reviewed with the mentor. Assigned pairs meet at least quarterly to discuss career plans, clinical performance, and identified mentoring needs. Mentors assist residents in identifying research opportunities and fellowship planning. Monthly emails remind faculty to regularly review residents' performance evaluations and provide timely feedback. During at least one meeting, mentors are encouraged to help the resident engage in reflective practice by asking prompting questions about clinical experiences.
FINDINGS TO DATE: To assess the program, both resident mentees and assigned faculty mentors were surveyed regarding satisfaction and perceived effectiveness of the relationship in providing career development and psychosocial mentoring. Respondents were asked to rank their agreement with statements on a 5-point Likert scale, with higher rankings indicating closer agreement. Subjects also reported the frequency with which clinical evaluations and personal learning objectives were reviewed. Sixty-six residents (99% response rate) and 16 faculty (94% response rate) completed the survey. A comparison of resident and faculty responses indicated that mean scores for satisfaction with the mentoring relationship and with the productivity of meetings were not significantly different between the groups (3.78 vs 3.88, P=0.71 and 3.73 vs 3.88, P=0.50, respectively). Residents and faculty had similar mean scores regarding the perceived effectiveness of the relationship in developing the resident's career goals (mean score 3.58 vs 3.88, P=0.39) and improving clinical performance (3.46 vs. 3.63, P=0.61). Perceived psychosocial mentoring differed between the groups, with residents less likely than faculty to feel that the mentor knew them as a person (mean score 3.54 vs 4.00, P=0.04). Residents were less likely than faculty to report that they reviewed evaluations frequently with the mentor (40% vs 93.7%, P<.001) and that learning objectives were frequently discussed (20.3% vs 62.5%, P<.001).
KEY LESSONS LEARNED: Residents and faculty are satisfied with assigned mentoring relationships, and perceive them to be useful for career development mentoring. Certain goals for the program, including evaluation and learning objective review, are not being met. We plan to improve our program by increasing mentors' access to online evaluations and encouraging regular review of personalized learning objectives.

PROJECT VILLAGE: RECRUITMENT, IMPLEMENTATION AND EVALUATION OF A COMMUNITY-BASED VOLUNTEER "STANDARDISED PATIENT" PROGRAM IN MEDICAL STUDENT EDUCATION. J.M. Critchley[1]; D.E. Dewitt[1]. [1]University of Melbourne, Shepparton, Victoria. *(Tracking ID # 190058)*

STATEMENT OF PROBLEM OR QUESTION (PREFERABLY ONE SENTENCE): What are the factors that motivate local volunteers to participate in medical student education in rural areas where "standardised patients" (SPs) are largely unavailable and how can we increase their satisfaction with the experience?
OBJECTIVES OF PROGRAM/INTERVENTION: 1. To evaluate the feasibility and appropriateness of recruiting and utilising community volunteers to help students learn clinical skills and act as SPs for examinations. 2. To evaluate volunteers' motivations for participation and their satisfaction with the experience.
DESCRIPTION OF PROGRAM/INTERVENTION: Volunteers were recruited from community service and performing arts groups in regional Victoria, Australia through community presentations, 'word of mouth' and teaching clinicians. Volunteers could choose to participate via standardised patient training offered once or twice yearly or be placed on a database for opportunities to volunteer. Volunteer activities have included: half-day clinical skills sessions, e.g. patients with neurological disorders, playing a role (SP) for Objective Structured Clinical Exams (OSCEs), acting as a patient for History and Physical (H&P) practice and formal summative full Clinical Evaluation Exercise (CEX)-type examinations. Volunteers were surveyed by mail. Quantitative results on Likert scales were analysed using SPSS 15.0. Qualitative results were themed by 3 investigators.
FINDINGS TO DATE: The School of Rural Health currently has 98 volunteers in the database resulting in 193 volunteer teaching and examination episodes over 3 years: some volunteers participated on more than one occasion (84 OSCE episodes and 125 full CEX-type examinations). 53 have participated in formal "SP" training and 31% agreed strongly that they would like to attend training. 81 surveys were distributed with 55 returned (68%); 70% of the volunteers were 50 years and over; 57% women and 43% men and most had completed secondary school education. Of 39 positive comments about "what they liked" about the program, most related to the volunteers' ability to "make a contribution", either generally (n=27) or educationally (n=6). Regarding program improvements (21 comments), 5 recommended promoting the program more to the community and 5 comments reflected needing more information about the "SP" role. One respondent suggested that debriefing would be helpful.
KEY LESSONS LEARNED: 1. A volunteer program has been feasible and successful in a regional community-based setting. 2.Community participants are highly satisfied with a volunteer program in medical education. 3. Wanting to contribute to medical education is an important motivator.

PROVIDING INTERNAL MEDICINE RESIDENTS MORE EXPERIENCE IN MEDICAL EDUCATION: THE MEDICAL EDUCATION AREA OF DISTINCTION K. Julian[1]. [1]University of California, San Francisco, San Francisco, CA. *(Tracking ID # 190686)*

STATEMENT OF PROBLEM OR QUESTION (PREFERABLY ONE SENTENCE): Studies reveal that productivity in research and scholarship is associated with effective mentorship. Yet, only half of all residents currently develop successful, spontaneous mentoring relationships. Certainly, creating an area of study in which a learner can be effectively mentored will increase his/her chances of professional success. Studies reveal that department chairs view teaching skills as one of the two most important areas of performance when considering a clinician educator for promotion. Despite this, residents receive little instruction in teaching skills during residency. Additionally, residency training does not prepare residents to become educators nor does it prepare residents how to advance in an academic environment. A Medical Education Area of Distinction (AOD) allows residents with an education interest to be effectively mentored and better prepared to enter academic education positions.
OBJECTIVES OF PROGRAM/INTERVENTION: 1. To create an innovative residency curriculum in medical education. 2. To provide selected residents with experience in teaching and medical education scholarship. 3. To mentor and provide career advising in academic medicine.
DESCRIPTION OF PROGRAM/INTERVENTION: Interest in the AOD was solicited from Internal Medicine PGY1 and PGY2 residents in March 2006 and again in March 2007. Three internal medicine residents chose to join the AOD (2 PGY2 and 1 PGY3) in 2006 and four PGY2 residents joined in 2007. Participants have one elective didactic month in the fall and then meet one half-day/month during out-patient months (6 months/year). Residents receive didactic seminars on teaching skills, educational scholarship and dissemination, curricular development and evaluation, and career development. All participants also take part in the UCSF Resident Teaching Fellowship and the Objective Structured Teaching Evaluation. Participants are required to teach in the medical school as well as complete a scholarly project.
FINDINGS TO DATE: Participants complete satisfaction surveys with all seminars. The 2007 AOD residents uniformly agreed the AOD affected their teaching interest, teaching abilities, consideration of future career goals, and interest in medical education research; overall satisfaction with the AOD was 4.25 (N=4; 1=not satisfied, 5=very satisfied). Additionally, the pre-post teaching evaluations of all participants will be compared with control residents. Other outcomes that will be followed include rate of project completion, degree of project dissemi-

nation, and career outcomes. Upon graduation, participants will be surveyed as to the impact of the AOD on their career choice.
KEY LESSONS LEARNED: Residents interested in careers in medical education benefit from additional teaching and mentorship in this field. Further steps are planned to broaden this Area of Distinction to other residency programs at UCSF.

PROVIDING PATIENT-CENTERED CARE ACROSS TRANSITIONS: THE JOHNS HOPKINS BAYVIEW ALIKI INITIATIVE C. Magill[1]; N. Ratanawongsa[1]; C. Christmas[1]; J. Hayashi[1]; J. Record[1]; C.S. Rand[1]; L. Brandt[1]; D.B. Hellmann[1]; R. Ziegelstein[1]. [1]Johns Hopkins Bayview Medical Center, Baltimore, MD. *(Tracking ID # 189914)*

STATEMENT OF PROBLEM OR QUESTION (PREFERABLY ONE SENTENCE): Current graduate medical education teaches residents in "silos," rather than providing venues for learning to care for patients across transitions and in the greater context of their lives.
OBJECTIVES OF PROGRAM/INTERVENTION: At Johns Hopkins Bayview Medical Center (JHBMC), we designed an inpatient curriculum to teach residents to: 1) Educate and empower patients in shared decision-making about treatments; 2) Optimize care across transitions from the hospital to post-discharge settings; and 3) Provide more patient-centered care by exploring the psychosocial context of each patient's illness and understanding each patient as an individual.
DESCRIPTION OF PROGRAM/INTERVENTION: In the Aliki Initiative, we halved the census of 1 ward team, to enable housestaff to participate in curricular activities geared toward the objectives. JHBMC serves 8700 medicine inpatients per year on 4 housestaff teams and a hospitalist service. Each housestaff team - 1 resident, 2 interns, 2 students, a faculty attending, and a case manager - admits 10 patients every 4th night and 4 patients during intervening short-calls. In 10/07, 1 team became an Aliki team, admitting 5 long-call patients and 2 short-call patients. Hospitalists admit additional patients. The Aliki team participates in teaching sessions to improve knowledge, skills, and attitudes around 5 activities: 1) medication reconciliation and adherence assessment, 2) follow-up phone calls to patients after discharge, 3) communication with outpatient health care providers, 4) visits to home or subacute facilities, and 5) effective communication in challenging relationships. Small group discussions are based on housestaff reflections on their experiences. Pending assessments include a pre- and post- survey of resident attitudes/behaviors and analysis of length of stay and readmission rates for Aliki patients compared with patients on other housestaff teams. Current data includes qualitative thematic analysis of insights and intent to change behavior during small group discussions.
FINDINGS TO DATE: Nine housestaff and 6 attendings have participated to date. In addition to routine post-discharge phone calls to patients, teams averaged 3 home visits and 3 subacute facility visits per month. Residents described how "assumptions about patients melt away" outside the hospital environment; e.g, at a home visit, residents recognized that a man hospitalized 19 times for diabetic ketoacidosis - previously labeled as "non-adherent" and depressed - was motivated to improve his health but lacked transportation to primary care. In considering how the curriculum would affect their approach to patient care on traditional ward teams, residents reported gaining new skills and intent to change behaviors, including: 1) calling patients to inquire about difficulties after discharge, 2) documenting more precise instructions and pending results on discharge summaries, 3) contacting outpatient providers earlier during hospitalization, and 4) working with patients to reduce barriers to medication adherence. Finally, although residents were initially concerned about reduced medical learning due to a smaller census, they actually reported more time for evidence-based and bedside teaching.
KEY LESSONS LEARNED: Early qualitative data suggest that the Aliki Initiative improves residents' knowledge, skills, attitudes, and behaviors in providing effective transitions and patient-centered care. Future assessments will examine retention over time as well as process and outcomes measures for patients.

RAPID EVALUATIONS OF LEARNER EXPERIENCES - USING ECOLOGICAL MOMENTARY ASSESSMENT TO INFORM CHANGE IN AN AMBULATORY CURRICULUM T.K. Houston[1]; C.A. Estrada[1]; L. L. Willett[1]; S.J. Cohen[1]; W. Curry[1]. [1]University of Alabama at Birmingham, Birmingham, AL. *(Tracking ID # 189367)*

STATEMENT OF PROBLEM OR QUESTION (PREFERABLY ONE SENTENCE): Trainee evaluations of learning experiences are often delayed from the time of the experience and are limited to global measures. This results in lack of detail, limited discrimination, and overestimation of experiences.
OBJECTIVES OF PROGRAM/INTERVENTION: To better inform change in an ambulatory morning report (AMR) curriculum, we developed brief "exit card" surveys using ecological momentary assessment (EMA) principles. In EMA, evaluation occurs as close to the experience as possible; evaluations are brief and unobtrusive to avoid assessment fatigue.
DESCRIPTION OF PROGRAM/INTERVENTION: Immediately after each AMR, internal medicine residents completed exit cards that included eight questions assessing the curricular content and the three AMR formats (mini-lectures, muliple choice questions (MCQs), and faculty clinical case presentations). Exit card data was linked to individual session data. We dichotomized scales and conducted multivariate analyses using generalized estimating equations (GEE) to account for clustering of ratings within days.
FINDINGS TO DATE: During one academic year, 98 AMRs facilitated by 20 faculty were evaluated. The residents completed 639 exit cards (response rate=75%). AMRs with mini-lectures were rated higher (80% being in "an area that I need"), than MCQs (69%), and cases (72%). Cases originating from consults or emergency room/walk-in were rated higher than those from continuity clinic (learned over 4 "new things" 21% vs 10%, $P < 0.05$). AMR ratings for several questions declined with increasing postgraduate year (PGY), including "learned something new" 90%, 86%, 80% for PGY 1,2 and 3, respectively. All differences reported were significant at $p < 0.04$ using GEE and adjusting for other AMR covariates in each model.
KEY LESSONS LEARNED: Using EMA priniciples with brief unobstrusive surveys a.) can be successfully implemented to assesss residency education, b) provides timely and precise data to inform curricular change; and c) were sustainable, with assistance from chief medical residents. From the results, we plan to adjust the MCQ format and are considering ways to enhance the AMR experience for senior residents.

RECLAIMING THE JOY: APPRECIATIVE INQUIRY AND GRADUATE MEDICAL EDUCATION M.L. Plews-Ogan[1]; N. May[1]; J.B. Schorling[1]; D. Becker[1]; R.M. Frankel[2]; E. Graham[1]; J. Haislip[1]; S. Hostler[1]; S. Pollart[1]; R. Howell[1]. [1]University of Virginia, Charlottesville, VA; [2]Indiana University Purdue University Indianapolis, Indianapolis, IN. *(Tracking ID # 190454)*

STATEMENT OF PROBLEM OR QUESTION (PREFERABLY ONE SENTENCE): Appreciative Inquiry (AI) is an organizational change process developed in the 1980s by David Cooperrider at Case Western Reserve University. It has been used in many organizations, including a large AI project focused on undergraduate medical education at Indiana University. Traditional problem solving is based on identifying problems, conducting a root cause analysis, brainstorming solutions, and developing a plan. The metaphor for this approach is that organizations are problems to be solved. By contrast, AI locates the positive as the focus for inquiry; uses stories of success; identifies themes in these stories; selects topics for further inquiry; creates images of the preferred future; and finds innovative ways to create that future. The metaphor is that organizations are a mystery to be embraced and celebrated. Last year, the University of Virginia embarked on an organizational change to improve our GME program using AI methods.
OBJECTIVES OF PROGRAM/INTERVENTION: The key question that we put forth to pursue with AI was, "How do we create an environment of optimism, collective intellect, inspiration, and teamwork to develop leaders and mentors in medicine?"
DESCRIPTION OF PROGRAM/INTERVENTION: Following a 2-day retreat, a 20-member team of residents, faculty, and students conducted interviews with faculty, residents, students, nurses, and others, asking them to "Think of a time that that stands out for you as being particularly meaningful in GME; a time that brought out the best of who you are, when you felt connected to your values and your sense of calling and purpose. Please tell a story of that time." All interviews were transcribed, and the leadership team coded them to generate a list of themes. The team linked the themes in a logical framework to answer the question, "When we are at our best, we."
FINDINGS TO DATE: We collected 103 AI interviews. The stories demonstrate poignant moments when teaching and learning, working and healing come together in ways that reflect what's best about academic medicine and those who make it happen. We have developed thematic clusters that bring together the multiple themes identified within each story. The four clusters we identified were (1) working together as community; (2) self-awareness and reflection; (3) human

connection and empathy; and (4) excitement, joy and innovation. We are using these themes to creatively find ways to get more of what we value as a community of teachers and learners. This will entail developing residency selection, promotion and tenure, and evaluation processes that are reflective of these qualities.
KEY LESSONS LEARNED: AI derives its power from the positive imagination of a community. Academic medicine currently struggles under a deficit model, bound by a seemingly unsolvable lack of time, money, respect, and purpose. Our experience suggests that AI can be a means of bringing to light what we value in teaching and patient care, and then allowing that to shape our future. Through this process, we have begun to reclaim the joy in our work as teachers, clinicians, and researchers. AI can help academic medicine re-discover its purpose and use its collective imagination to create a brighter future.

REFRESHING EDUCATIONAL PROGRAM FOR PRIMARY CARE PROVIDERS IN A WAR-TORN STATE R.G. Asgary[1]. [1]Montefiore Medical Center and Doctors Without Borders-USA, Bronx, NY. *(Tracking ID # 190891)*

STATEMENT OF PROBLEM OR QUESTION (PREFERABLY ONE SENTENCE): Abkhazia, a former Soviet Union state under international embargo with previously very well-functioning health infrastructure, suffers from health system collapse due to civil war in a post-Soviet era, and receives a majority of its health and social resources from international aid agencies. Lack of medications and medical supplies was prominent. There were no continuous medical education or refreshing programs. Medical journals and books were unavailable. Medical practice' problems such as short-term therapy for chronic diseases, trends toward symptomatic therapies and individual doctor 's policy rather than public health, and little attention to cost-effectiveness contributed to the inefficient use of scarce medical resources. Chronic diseases such as coronary artery diseases, hypertension, and osteoarthritis were common before the collapse.
OBJECTIVES OF PROGRAM/INTERVENTION: a) To provide up-to-date information and guidelines in the management of common diseases to primary care providers in a war-torn state b) To introduce and develop a novel and modified model of continueous medical education program for practitioners in an unstable setting with minimum resources c) To improve cost-effectiveness of medical and public health practices through training programs for practitioners
DESCRIPTION OF PROGRAM/INTERVENTION: During a relief program of an international humanitarian organization, we set up an ongoing and systematic evaluation to identify common pathologies in office visits. All 75 generalists and pediatricians in all 24 centers in the state documented patients' demographics, diagnoses, and treatments over a six-month period. With participation of local health staff we accordingly developed and offered seminars, workshops, and bi-weekly medical letters which included both WHO's and new modified guidelines in diagnosis and management of common diseases. Regular interactive bi-weekly workshops, and one-page medical letters and questionnaires delivered through regular visits by our staff (no postal services), further provided more insights into the barriers to health care delivery, public health challenges, and nature of medical practices. We transferred programmatic responsibility to the locals and communicated findings to all relevant local and international agencies to adjust services and supplies accordingly.
FINDINGS TO DATE: Practitioners were very enthusiastic and welcoming. Most of diagnoses were infectious diseases (40.5%) including upper and lower respiratory infections, chronic cardiovascular diseases (18%) including hypertension and ischemic heart diseases and musculoskeletal diseases (6%) including osteoarthritis. Tuberculosis was epidemic. Practitioners found the program very useful, and acknowledged it improves their overall efficiency and satisfaction especially after tailoring educational materials toward their needs and according to common diseases.
KEY LESSONS LEARNED: This experience provided insights into the unique health challenges faced by a previously well functioning health system. It demonstrated that evaluation and subsequent training programs not only are feasible in the context of a post-war setting but also are necessary to secure efficient utilization of scarce resources. This experience suggests that epidemiology of diseases after a conflict still mirrors the original social and health characteristics of the society (high rate of chronic diseases).

RESIDENTS' OBJECTIVE STRUCTURED CLINICAL EXAM SKILLS SCORES IMPROVE AFTER INTRODUCTION OF ENHANCED SUBSTANCE ABUSE CURRICULUM S.J. Parish[1]; M.R. Stein[1]; S.R. Hahn[1]; U. Goldberg[1]; J.H. Arnsten[1]. [1]Albert Einstein College of Medicine, Bronx, NY. *(Tracking ID # 190390)*

STATEMENT OF PROBLEM OR QUESTION (PREFERABLY ONE SENTENCE): Although internal medicine residents frequently manage substance abuse disorders, optimal approaches to teaching and assessing these specialized skills are unknown.
OBJECTIVES OF PROGRAM/INTERVENTION: (1) To implement a five-station Objective Structured Clinical Exam (OSCE) for PGY 3 internal medicine residents to assess their general communication, assessment and management skills with substance abusing patients and teach competencies in addiction medicine. (2) To develop and employ a substance abuse curriculum for internal medicine interns, focusing on intervention skills. (3) To assess the durable impact of the substance abuse curriculum on OSCE performance.
DESCRIPTION OF PROGRAM/INTERVENTION: Our program was implemented from 2003–2007 in an urban university hospital setting. First, in 2003, we intitiated a substance abuse OSCE, which included standardized patients (SPs) portraying various substance abuse disorders and readiness to change stages. Faculty observers completed a 17-item instrument covering three domains (six general communication, six assessment, and three management items) and a global rating (overall performance). Items evaluating general communication and global skills were the same across all stations, while items evaluating assessment and management skills were station specific. All items were rated on a four-point Likert scale. Then, in 2005 we introduced a comprehensive substance abuse curriculum for interns consisting of interactive seminars and experiential learning about the diagnosis and management of alcohol, opioid, and cocaine use disorders. Alcohol related sessions comprised approximately 50% of the 12 hours of curricular time. Skills training focused on brief intervention and motivational interviewing techniques, including simulated and live patient interviews.
FINDINGS TO DATE: From 2003–2005 137 internal medicine residents who had not received the substance abuse curriculum as interns participated in the OSCE during their PGY-3 ambulatory rotations (group 1). From 2006–2007 63 PGY-3 residents who had received the substance abuse curriculum as interns participated in the OSCE (group 2). There were several notable differences between groups 1 and 2. Group 2 performed better in management in the entire OSCE than group 1 (mean 2.77±0.40 vs. 2.57±0.43, $p<0.01$); group 2's overall performance was better in the station portraying a precontemplative alcohol user (mean 2.95±0.61 vs. 2.72±0.71, $p<0.05$); and group 2's overall performance was better in the station portraying a contemplative alcohol user (mean 2.81±0.74 vs. 2.52±0.82, $p<0.05$).
KEY LESSONS LEARNED: Our substance abuse OSCE was sensitive to change in specific skill areas after the implementation of a substance abuse curriculum. Residents who had received skills training in intervention techniques performed better in management of substance abuse disorders than residents who had not. Also, residents who received the enhanced curriculum which gave substantial attention to alcohol use disorders performed better in this area. These findings suggest that targeted educational programs can improve skills in intervening with contemplative alcohol users, a particular clinical challenge for medical trainees.

STANDARDIZING EVALUATION OF CHRONIC NON-MALIGNANT PAIN PATIENTS TREATED WITH LONG-TERM OPIOIDS IN INTERNAL MEDICINE RESIDENT CLINIC, THROUGH EDUCATIONAL AND CLINIC POLICY INTERVENTIONS OVER 1 YEAR. J.A. Meddings[1]; S.J. Beatty[2]; C.M. Khoury[3]; V.C. Duvall[2]; C.R. Lucey[3]. [1]University of Michigan Health Center, Ann Arbor, MI; [2]The Ohio State University College of Pharmacy, Columbus, OH; [3]The Ohio State University College of Medicine, Columbus, OH. *(Tracking ID # 190343)*

STATEMENT OF PROBLEM OR QUESTION (PREFERABLY ONE SENTENCE): In the resident clinic setting, physician inexperience and reduced continuity of care add to the challenge of evaluating patients prescribed chronic opioids for non-malignant pain.
OBJECTIVES OF PROGRAM/INTERVENTION: 1) To standardize evaluation of clinic patients requiring chronic opioids. 2) To improve physician knowledge regarding prescription opioid misuse and chronic non-malignant pain treatment.

DESCRIPTION OF PROGRAM/INTERVENTION: 5 interventions were developed and implemented in collaboration by a chief resident, clinical pharmacist and residency program director: 1) Registry of patients receiving monthly opioid prescriptions from resident clinic for non-malignant pain, 2) Clinic policy for evaluating new and established patients on chronic opioids, 3) Mandatory urine drug screening and optional on-line state pharmacy fill record use for monitoring patients, 4) Revised, easier-to-read physician-patient agreements, with clear conditions for monitoring and termination, 5) Educational conference series for residents and faculty in preparation of policy implementation.
FINDINGS TO DATE: The program was evaluated by a retrospective cohort study of clinic registry patients (N=167, 5% of clinic population), 10 months after policy implementation. Chart review was first used to evaluate program implementation. 129 registry patient charts contained a signed physician-patient agreement, including 89 (53%) revised agreements and 40 prior version agreements. Drug screening was performed for 87 (52%) patients. Chart review was next used to characterize registry patients. The average registry patient was 44 years old, male (55%) and receiving opioids to treat a musculoskeletal complaint (91% of patients, including 51% for back pain). The majority of registry patients (110, 65.9%) received prescriptions for chronic opioids within 90 days of first clinic visit. Clinic policy violation(s) were detected for 58 (34.7%) registry patients. Drug screening revealed patient behavior in violation of clinic policy for 41 patients (47% of screens performed, including 31 positive for illicit drugs). Oxycodone preparations were the most common opioids prescribed (122 patients, 73%), and had been prescribed for 39% of patients with policy violations detected, and 20.8% of patients without violations detected. Our study was inadequately powered (power<0.8) to detect statistically significant associations between patient characteristics and policy violations. A retrospective pre-post on-line survey completed voluntarily by 26 resident physicians revealed a statistically significant ($p<0.001$) improvement in resident frustration and confidence in caring for patients with chronic non-malignant pain.
KEY LESSONS LEARNED: A uniform clinic policy for evaluating patients requiring chronic opioids can be useful as a teaching tool for residents and standardizing care. A patient registry is essential to enable program evaluation and to study clinic-specific issues to guide educational interventions and policy revision. Drug screening and on-line state pharmacy prescription records are useful tools to detect substance abuse and prescription drug misuse. In agreement with prior studies, our study demonstrated a high prevalence of illicit drug use and prescription drug misuse among clinic patients being prescribed chronic opioids.

STARTING AT THE TOP: CREATING A "CULTURE" OF EVIDENCE-BASED PRACTICE THROUGH MULTI-DISCIPLINARY FACULTY DEVELOPMENT M. Cunnane[1]; H. Day[1]; R. Granieri[1]; J.W. Kreit[1]; M. Mathier[1]; K. Mctigue[1]. [1]University of Pittsburgh, Pittsburgh, PA. *(Tracking ID # 190141)*

STATEMENT OF PROBLEM OR QUESTION (PREFERABLY ONE SENTENCE): Traditional journal club curricula are insufficient for teaching residents skills necessary for Evidence-Based Practice (EBP). Integrating "real time" EBP teaching at the bedside or in the outpatient clinic requires continuous reinforcement by faculty educators who are well-versed in EBP skills.
OBJECTIVES OF PROGRAM/INTERVENTION: Our objectives were to develop and assess an interactive program designed to increase faculty educators' knowledge of, and skills with teaching, EBP.
DESCRIPTION OF PROGRAM/INTERVENTION: The Evidence-Based Practice for Educators Seminar Series was implemented in September, 2007. A committee composed of six faculty members selected seminar topics. These topics included: strategies for efficiently searching the literature; assessing the validity of a research article; evaluating statistical methods and results, and evaluating the "evidence" in pharmaceutical advertising. Seminar objectives were two-fold: to increase knowledge about the topic, and to provide specific teaching strategies. Two faculty educators from each of 8 specialty divisions within the Department of Medicine were selected to participate in the seminar series and constituted the core audience. These faculty educators were chosen based on their involvement in resident education, and their commitment to disseminating learned EBP skills and teaching techniques to other faculty. Division chiefs provided each of the selected faculty with protected time to attend the seminar series. Additional faculty were invited to participate through department emails.
FINDINGS TO DATE: All faculty who registered for the seminar series completed an on-line questionnaire assessing baseline evidence-seeking behavior and confidence in evidence appraisal. Resource use was indicated on a 5-point Likert scale, with "0" indicating that the resource is "never" used and "5" indicating that the resource is used "very often." Among the 33 registrants, 68% percent spent 1–2 hours each week reading the literature to solve health care problems. The internet was used most frequently by participants (mean score for use 2.9), with journal review articles, original research reports, and clinical guidelines being used somewhat less frequently (mean scores for use: 2.53, 2.47, and 2.28, respectively). Participants rarely consulted the Cochrane Library and secondary journals, such as ACP Journal Club and Best Evidence (mean scores for use 0.93 and 1.37, respectively). On average, participants spent 5.66 hours per week searching the literature, and 24.7 minutes finding evidence to answer a specific clinical question; only 65% of the time participants felt that they had actually found the best evidence. Most reported that they were "moderately confident" in assessing study design and assessing the general worth of an article (42.9% and 61.5% respectively), but almost one-third reported that they were "not at all confident" in evaluating statistical tests. This questionnaire will be administered again at the conclusion of the seminar series.
KEY LESSONS LEARNED: Although faculty educators often consult the literature to answer health-care questions, focused instruction may help to improve their efficiency and success in finding relevant evidence. A seminar series designed to increase faculty educators' familiarity with high-quality evidence resources, interpretation of statistical tests, and evidence appraisal, may translate into improved and sustainable resident EBP training.

STRATEGIES FOR RESIDENCY PROGRAMS TO IMPROVE THE PERFORMANCE OF MEDICINE DEPARTMENTS AND TEACHING HOSPITALS R.C. Anderson[1]; A. Rahim[2]. [1]Society of General Internal Medicine, Evanston, IL; [2]Evanston Northwestern Healthcare, Evanston, IL. *(Tracking ID # 189649)*

STATEMENT OF PROBLEM OR QUESTION (PREFERABLY ONE SENTENCE): The success of an internal medicine residency program in collaboration with its department of medicine and host teaching hospital is enabled by development of congruent strategies and action plans of all three administrative entities.
OBJECTIVES OF PROGRAM/INTERVENTION: 1) To strengthen residency program initiatives in the four primary areas of emphasis in the mission statements of teaching hospitals: patient care, education, research and community service. 2) To cultivate an open, responsive culture that fosters quality improvement in the medical education and the patient care environment.
DESCRIPTION OF PROGRAM/INTERVENTION: The residency program leadership has partnered with the department and hospital leadership in multiple areas including hospital committee membership, pharmacy/nursing collaboration on rounds, community service activities such as blood pressure screening for local residents, basic science and clinical research activities and hospital quality improvement initiatives. For example, house staff are organized into teams that present projects at a special Grand Rounds series devoted to the identification of systems issues with suggestions for improvements and change. Topic examples include the overuse of acid suppression medications, the formation of a chest pain observation unit and improvements in the after-visit summary in the electronic medical record.
FINDINGS TO DATE: Jointly developed and implemented strategies can lead to win-win outcomes that improve the medical education and patient care environments. Ideas generated from our systems-based practice team presentations have led to concrete changes at our institution, including development of an observation unit, a business of medicine curriculum and a triage resident system. Other outcomes of the collaborative efforts between our residency program, department of medicine and teaching hospital include hiring of residency program graduates as faculty, promotion of an evidence-based medicine culture among physicians, assistance with set-up and implementation of research projects and outreach efforts to the local community.
KEY LESSONS LEARNED: Shared planning and collaborative decision-making between a residency program and its host department of medicine and teaching hospital can lead to improvements in the medical education environment and translate into improved patient care outcomes. Innovative ideas can originate from the house staff who are on the front lines of patient care. By engaging the leadership of the department and teaching hospital in the examination of these ideas,

medical education and patient care quality improvement both benefit. Specific outcomes beneficial to a medicine residency program include increased support for teaching time, funding for innovative education projects, partnership in hospital work flow decision-making and protection of autonomy in the patient care learning environment.

STRUCTURED OBSERVATION OF CLINICAL SKILLS (SOCS): AN INITIATIVE TO IMPROVE FREQUENCY AND QUALITY OF STUDENT FEEDBACK K.T. Johnston[1]; J.D. Orlander[2]; B. Manning[3]; N. Radhakrishnan[3]; D. Thornton[4]; C. Noronha[1]; W.Y. Hershman[3]. [1]Boston University Medical Center, Boston, MA; [2]West Roxbury Veterans Affairs Hospital, West Roxbury, MA; [3]Boston University, Boston, MA; [4]West Roxbury Veterans Affairs Medical Center, West Roxbury, MA. *(Tracking ID # 190248)*

STATEMENT OF PROBLEM OR QUESTION (PREFERABLY ONE SENTENCE): Can a formative assessment tool increase the frequency of direct observation and feedback for medical students on clinical rotations?
OBJECTIVES OF PROGRAM/INTERVENTION: 1) To increase the frequency of direct observation of medical students on clinical rotations 2) To increase the quality of feedback to medical students on clinical rotations
DESCRIPTION OF PROGRAM/INTERVENTION: There is a general lack of feedback based upon direct observation of clinical skills for medical students. We designed a Structured Observation of Clinical Skills (SOCS) card in an attempt to increase direct observation and formative evaluation of students on our medicine clerkship. Pocket cards were used to both cue evaluators to observable behaviors and record feedback of either history taking or physical examination skills. Each third-year student was asked to submit five completed SOCS cards during their medicine clerkship. Brief, 5–10 minute observations of student clinical skills with feedback by residents or attending physicians were to occur in the context of daily patient care. SOCS cards listed observable behaviors on one side while evaluators were asked to list two behaviors done well and two needing improvement on the other. Students were not graded by the card results. Residents were oriented to the project goals and use of the SOCS cards during multiple resident conferences and via email. Attending physicians received two emails discussing the program and its goals. Preliminary evaluation is based upon a student survey and information taken from the SOCS cards. Qualitative assessment was performed by coding and categorizing all documented comments on the cards by two investigators. Themes were reviewed through an iterative process.
FINDINGS TO DATE: Forty students submitted 172/200 (86%) of requested cards. 154 (90%) were completely legible, 97 (56%) included some documentation in every field, 79 (46%) included the requested two comments in "done well" or "can improve" categories. 70 (41%) cards were completed by residents (PGY2/3), 99 (57%) by attending physicians. 83 (48%) cards were observations of interviews, 89 (52%) of physical exams. Specific behaviors were documented on 107 (62%) cards, whereas general, non-specific comments were on 159 (92%). Technical skills such as "good percussion," were described on 168 (98%) cards, while 129 (75%) described interpersonal skills, such as "supported patient's modesty." Praise was documented on 167 (97%) cards, 47% of these listed specific behaviors. Advice for improvement was listed on 135 (78%) cards, 44% of which described specific behaviors. 81% of students responded to the program survey. Students appreciated the direct observation by multiple physicians, and reported that feedback was timely to the observation. Student concerns related to time constraints, having to ask evaluators to complete the exercise, and commented that physician feedback was sometimes too general or brief.
KEY LESSONS LEARNED: Through implementation of the SOCS program, we believe we significantly increased the frequency of direct, structured observation of student clinical skills. The SOCS card is a feasible tool that facilitated observation of clinical skills and documentation of feedback. Targeted training may improve the quality and utility of the SOCS initiative.

SYSTEMATIC OUTPATIENT SCREENING (SOS) FOR THE ELDERLY: USING THE COVE PIM TO ASSESS RESIDENT PERFORMANCE IN FALL RISK SCREENING S.L. Shaffer[1]; H. Day[1]; S. Perera[1]. [1]University of Pittsburgh, Pittsburgh, PA. *(Tracking ID # 189413)*

STATEMENT OF PROBLEM OR QUESTION (PREFERABLY ONE SENTENCE): Can the ABIM's computerized "Care of the Vulnerable Elderly" Practice Improvement Module (CoVE PIM) be applied by medical residency programs as an instrument for evaluating the effectiveness of medical education curricula in changing resident clinical practice behavior?
OBJECTIVES OF PROGRAM/INTERVENTION: Determine if PGY-1 and PGY-2 internal medicine residents receiving an educational intervention addressing fall risk screening demonstrate an improvement in evaluating fall risk in their elderly continuity care patients using the CoVE PIM.
DESCRIPTION OF PROGRAM/INTERVENTION: PGY-1 and PGY-2 internal medicine residents at the University of Pittsburgh Medical Center were enrolled as subjects in a pre-post intervention study consisting of a needs assessment using the CoVE PIM; an educational intervention targeting a deficient area identified by the needs assessment; and a post-intervention chart review using the CoVE PIM. The CoVE PIM is a computerized self-assessment chart review tool enabling physicians to assess their performance of screening measures for the elderly primary care population. Each subject used the CoVE PIM to review five charts of their outpatients over the age of 65. The needs assessment identified the area of screening for fall risk as a target for educational intervention. Residents were allocated into an intervention or control group according to the day of their continuity clinic. All residents were invited to attend an interactive lecture about screening for falls. Residents in the intervention group also received a pocket card and three reminder emails with information about screening for fall risk. The control group did not receive any further educational materials.
FINDINGS TO DATE: 37 subjects completed the needs assessment PIM, and 23 subjects completed the follow-up PIM. The intervention group had a greater post-intervention rate of documentation compared to the control group in the areas of screening for fall risk (43% vs 29%; p= 0.11); level of activity (58% vs 29%; p=0.001); functional status (93% vs 81%; p=0.05); use of assistive devices (100% vs 91%; p=0.02); postural hypotension (13% vs 0%; p=0.002); gait evaluation (47% vs 21%; p= 0.002); and ability to climb a flight of stairs (93% vs 71%; p=0.002).
KEY LESSONS LEARNED: Using the CoVE PIM as a novel self-assessment tool to assess resident performance, a group of residents receiving an educational intervention demonstrated a greater completion rate of measures related to screening for falls in their elderly continuity care patients compared to a control group.

TEACHING RESIDENT-PHYSICIANS ABOUT INSURANCE PROGRAMS, PRESCRIPTION DRUG COSTS AND COMMUNITY RESOURCES TO IMPROVE CONTINUITY CLINIC EXPERIENCE N. Denizard-Thompson[1]; S. Singh[2]; K.B. Feiereisel[1]; E. Gamble[2]. [1]Wake Forest University School of Medicine, Winston-Salem, NC; [2]Wake Forest University School of Medicine, Winston Salem, NC. *(Tracking ID # 190130)*

STATEMENT OF PROBLEM OR QUESTION (PREFERABLY ONE SENTENCE): A large percentage of patients cared for in resident continuity clinics are uninsured, suffer financial hardships, and have coexistent psychosocial issues which affects their compliance with clinical recommendations. These lead to resident physician dissatisfaction with their continuity clinic experience as well as office inefficiences.
OBJECTIVES OF PROGRAM/INTERVENTION: To educate resident physicians on insurance programs, prescription drug costs, and community resources for the uninsured in an effort to improve the continuity clinic experience.
DESCRIPTION OF PROGRAM/INTERVENTION: Wake Forest University Baptist Medical Center is an academic medical center with two primary resident physician clinic sites: a community-based clinic and a hospital-based clinic where Internal Medicine resident physicians receive their continuity clinic training. Prior to continuity clinic the residents participate in a 30 minute pre-clinic conference based on the Yale Office-Based Medicine Curriculum. After focus group discussion with faculty, residents and staff, we designed a novel evidence-based locally relevant educational curriculum. We incorporated three modules into the Yale curriculum over a three month period. The modules consisted of interactive cases followed by thought provoking questions. The first module focused on navigating through Medicaid and Medicare. The second module focused on Private insurance and prescription drug costs. The third module focussed on the uninsured patient, locally available community resources and practicing cost effective medicine. A 5-item multiple choice anonymous web-based survey was completed by the residents immediately prior to the educational module, and 3 months after the completion of the module. The survey assessed

resident physicians knowledge of insurance programs, locally available community resources, prescription drug costs and attitudes towards caring for uninsured patients.
FINDINGS TO DATE: 53 residents responded to the initial survey and 38 residents completed the post-module survey. The proportion of resident physicians who felt comfortable taking care of uninsured patients improved from 38% at baseline to 54% after completing the module.The proportion of resident physicians with knowledge of prescription drug costs rose from 64% to 74%. The proportion of resident physicians who were aware of locally available community resources also improved from 64% to 82%. However,the proportion of resident physicians with knowledge of insurance programs remained unchanged from 68% at baseline to 56% after completing the module.
KEY LESSONS LEARNED: Knowledge of community based resources, prescription drug costs and attitudes towards the uninsured improved after implementation of this integrated evidence based educational module in the continuity clinic. Improving knowledge of insurance programs remains an ongoing challenge. Empowering residents with information on community resources, insurance status, and cost effective medicine may improve patient care and resident satisfaction in clinic.

TEAM BASED LEARNING IN A CLINICAL CLERKSHIP P.A. Thomas[1]. [1]Johns Hopkins University, Baltimore, MD. *(Tracking ID # 189469)*

STATEMENT OF PROBLEM OR QUESTION (PREFERABLY ONE SENTENCE): Team based learning (TBL) is an instructional strategy that is increasingly popular in preclinical curricula, but there is a paucity of published experience with its use in clinical education. This study was undertaken to explore whether TBL would result in improved learning, and would be accepted by upper level medical students, in a clinical clerkship.
OBJECTIVES OF PROGRAM/INTERVENTION: To introduce an educational method in a clinical clerkship which: 1. Uses dialectic teaching to encourage critical thinking and reasoning. 2. Uses teamwork to develop student team skills and appreciation of team potential. 3. Incorporates multiple concepts and integrative thinking in formal teaching sessions.
DESCRIPTION OF PROGRAM/INTERVENTION: TBL is a structured approach to small group learning, which occurs in the following sequence: 1) Pre-class individual study, 2) Readiness assurance tested at the individual (IRAT) and team (GRAT) level, and 3) Application of concepts done as team problem-solving activities. Creation of TBL requires identification of appropriate preparatory reading, creation of RATs, and creation of appropriate problem-solving exercises. This innovative method was piloted in a 4 week required clerkship in Ambulatory Medicine. Six clerkship training problems (Type 2 Diabetes, Hypertension, Depression in Primary Care, Low Back Pain, Cough and Headache) were developed as TBL exercises. Students were placed in 5-member teams at start of the rotation, and completed the exercises in 90 min. sessions as follows: 15 min for IRAT; 15 min for GRAT with immediate feedback forms; 30 min for team problem solving exercises and 30 min for group discussion. End of clerkship evaluations included a 60 item MCQ knowledge test, and online anonymous evaluations of the sessions and peers. A crossover design was used for 2 successive rotations of the clerkship with 18 students in the first rotation receiving the TBL approach in 3 of the training problems, and the standard group lecture (SGL) in 3 problems. Twenty students in the second rotation received the reverse approaches for the same 6 training problems. All sessions were taught by the same faculty facilitator.
FINDINGS TO DATE: The power of teams was demonstrable: mean scores on IRAT vs. GRAT were 60% vs. 88%. 42 items (70%) on the knowledge test are related to the 6 problems. Students in both rotations did not differ in overall performance on the test, but scored better on those items taught with TBL vs. SGL (.79 +.11 vs..74 +.11), p=.045, effect size (Cohen's d)=.47. Ratings of sessions by students did not differ significantly, although comments varied from enjoyment to frustration with time required for TBL. Peer evaluations clearly identified a student with performance issues.
KEY LESSONS LEARNED: TBL requires increased preparation prior to the session, but less faculty input during the session. Although less than the recommended 40 hours to develop effective teams, these students were able to run effective discussions quickly. Application exercises can be used to highlight communication and socioeconomic aspects of training problems in addition to biomedical content. Knowledge assessments to date indicate moderate effectiveness of TBL compared to SGL. Most students found the method enjoyable.

THE ART OF IMPROVISATION: A TOOL FOR MEDICAL STUDENTS TO DEVELOP PATIENT COMMUNICATION SKILLS J. King[1]; R. Levine[1]; P. Haidet M.D.[2]; S.L. Clever[1]; S. Wright[1]; R. Shochet[1]. [1]Johns Hopkins University School of Medicine, Baltimore, MD; [2]Baylor College of Medicine, Houston, TX. *(Tracking ID # 190047)*

STATEMENT OF PROBLEM OR QUESTION (PREFERABLY ONE SENTENCE): Physicians often use improvisational skills such as active listening, awareness in the moment, and flexibility during agenda setting when communicating with patients. While the physical exam and biomedical history can be taught didactically, improvisational skills may require experiential training.
OBJECTIVES OF PROGRAM/INTERVENTION: Pilot an improvisation workshop with second year medical students and assess the relevance of improvisational training for patient communication.
DESCRIPTION OF PROGRAM/INTERVENTION: In collaboration with the Baltimore Improv Group, a 501(3)(c) non-profit group dedicated to promoting improvisational theater, we developed a workshop using improvisational exercises to enhance communication skills among trainees. We invited 2nd year medical students to participate in a voluntary two-hour workshop in November 2007. Participants were divided between two trained instructors, who led groups in a variety of short, focused activities. One exercise required participants to respond a partner's opening statement by saying "yes and". The focus being on active listening, unconditional acceptance, acknowledgement of another's statement, and relational responses. Other exercises focused on reading nonverbal and emotional cues, requiring communication without words or through an emotional response. At the workshop conclusion, participants discussed the relevance of the exercises for patient communication. We surveyed participants before and after the workshop using a web-based, qualitative questionnaire assessing motivation for participating, anticipated relevance to patient communication, the most enjoyable aspects of the workshop and how the activities might benefit patient communication.
FINDINGS TO DATE: Seventeen of 119 (14%) members of the second year medical class participated. The students' mean age was 24.6 years (range 22–34). Sixty-five percent were male. All students rated their satisfaction with the workshop highly on a 5-point Likert scale (mean 4.9, 1=least satisfied, 5=most satisfied). Seventy-six percent responded to both the pre and post-workshop questionnaires. Using qualitative analysis methods the following themes emerged: Improved confidence responding to patients (14/16), Uniqueness of learning method (8/13), and Reinforcement of interpersonal communication skills (12/13). In the pre-workshop questionnnaire, students hoped to gain confidence in responding spontaneously to patients. Half of these comments mentioned "thinking on my feet" as a desired skill. In the follow-up questionnaire, students reported the novelty of the learning environment and the break from traditional didactic teaching methods to be the best aspect of the workshop. One student stated, "getting far enough outside of the medicine worldview to feel a sense of newness and exhilaration, but also coming back around at the end and thinking about how to apply these ways of interacting to patient care." Almost all students stated that improvisation training would benefit patient communication and identified active listening, summarization, self-awareness, open-ended questioning, non-verbal communication and unconditional acceptance as skills that would be enhanced by the workshop. Students remarked that it was helpful to "affirm and elaborate, rather than to contradict" and "practice just accepting what other people said unconditionally."
KEY LESSONS LEARNED: Students reported that improvisational skills were relevant to their experiences with patient communication and were enhanced by the innovativeness of the improvisational teaching method.

THE CONSORTIUM OF LONGITUDINAL INTEGRATED CLERKSHIPS: AN INTERNATIONAL COLLABORATION FOR MEDICAL EDUCATION INNOVATION D. Hirsh[1]; B. Ogur[1]; A. Poncelet[2]; P. Worley[3]; G. Halaas[4]; D. Bor[1]. [1]Harvard University, Cambridge, MA; [2]University of California at San Francisco, San Francisco, CA; [3]Flinders University of South Australia, Adelaide, South Australia; [4]University of Minnesota, Minneapolis, MN. *(Tracking ID # 190010)*

STATEMENT OF PROBLEM OR QUESTION (PREFERABLY ONE SENTENCE): Despite growing evidence that a longitudinal integrated clerkship model effectively addresses problems in current clinical education, major change incorporating key elements of this model is limited to a handful of medical schools. As a result, leaders of longitudinal integrated clerkships have created an international organization to both support the innovative programs and to advocate for widespread educational reform.

OBJECTIVES OF PROGRAM/INTERVENTION: The mission of the Consortium of Longitudinal Integrated Clerkships is to: 1) Promote the development, exchange, and assessment of best practices among existing longitudinal integrated clerkships. 2) Develop a common research strategy so that contributions from this new model inform innovation in clinical education 3) Develop an advocacy strategy for longitudinal integrated clinical programs around the world.
DESCRIPTION OF PROGRAM/INTERVENTION: A number of articles have appeared in the literature describing innovative programs of clinical education, characterized by students' learning being predominantly centered in the longitudinal care of cohorts of patients over time and across disciplines. In August, 2006, leaders from longitudinal integrated programs in the United States, Australia and Canada met as consultants to the new Northern Ontario School of Medicine. This successful collaboration spawned the Consortium of Longitudinal Integrated Clerkships (CLIC). The second meeting of the CLIC took place in November, 2007 at the Cambridge Health Alliance, Harvard Medical School. Representatives from the majority of the 14 existing longitudinal integrated programs attended, as well as deans and educational leaders from a number of insitutions presently initiating or contemplating such reform.
FINDINGS TO DATE: Participants developed a uniform description of the innovation to enable future collaboration and research: A longitudinal integrated clerkship is characterized by being the central element of clinical education whereby medical students: 1. participate in the comprehensive care of patients over time 2. participate in continuing learning relationships with these patients' clinicians 3. meet, through these experiences, the majority of the year's core clinical competencies and do so across multiple disciplines simultaneously Participants developed a research agenda: 1. to describe characteristics of presently existing programs 2. to align tools for program assessment, thus enabling cross-insitutional research Participants developed an advocacy agenda: to join national and international organizations with interest in medical education reform, in healthcare reform, and in meeting medical workforce needs.
KEY LESSONS LEARNED: There is great interest among participants in expanding the frontiers of knowledge of longitudinal integrated education because of the emerging evidence that these programs promote physicians and physician-scientists who are importantly different in the areas of clinical reasoning ability and professionalism. Future meetings will be held in northern Ontario in June, 2008, and in San Francisco in November, 2008.

THE IMPACT OF CONTINUITY WITHIN A LONGITUDINAL AMBULATORY ROTATION FOR THIRD-YEAR MEDICAL STUDENTS N. Dubowitz[1]; P. Kohli[1]; B. O'Brien[1]; M.M. Cooke[1]; M.H. Vener[1]; M.A. Wamsley[1]. [1]University of California, San Francisco, San Francisco, CA. *(Tracking ID # 190037)*

STATEMENT OF PROBLEM OR QUESTION (PREFERABLY ONE SENTENCE): Many medical schools have established longitudinal ambulatory care experiences to provide students greater continuity with faculty and patients, but little is known about the impact of these experiences on students. This study explores students' experiences of continuity in the Longitudinal Clinical Experience (LCE) at UCSF.
OBJECTIVES OF PROGRAM/INTERVENTION: Through the LCE rotation, students will 1) gain outpatient clinical skills and insight into chronic illness care 2) experience longitudinal patient relationships and 3) develop a mentoring relationship with their preceptor.
DESCRIPTION OF PROGRAM/INTERVENTION: All third-year students are assigned to a faculty preceptor in the outpatient setting for 22 half-day sessions during their third year. We surveyed fourth-year UCSF medical students regarding continuity within their required LCE rotation. The electronic survey consisted of seven questions exploring students' continuity with their LCE preceptor and patients and the impact of LCE on their ability to care for patients with chronic illness. Based on survey responses, we divided students into those with some patient continuity or no patient continuity. Having continuity with patients was defined as seeing 3 or more patients more than once over the course of the rotation and seeing at least one patient for 3 or more visits. Semi-structured interviews were conducted with a convenience sample of 9 students, 6 of whom had patient continuity. All interview responses were analyzed thematically and coded for content.
FINDINGS TO DATE: Of the 167 students in the Class of 2008, 69 replied to the survey. Nearly all respondents (97%) had excellent continuity with their preceptor and 49% reported continuity with patients. Fifty-six percent felt LCE improved their ability to care for patients with chronic illness. Thirty-two percent of students were in a primary care LCE (family medicine, pediatrics or internal medicine), while 68% had a specialty LCE (surgical subspecialty, internal medicine or pediatric subspecialty, psychiatry, or obstetrics/gynecology). Several themes emerged in the responses from the 9 students interviewed. All students felt they received career mentoring from their preceptor and most (n=7) felt they received personal support. All felt LCE increased their confidence in their role as clinicians and most students (n=6) noted that the less-pressured environment of LCE enhanced their learning. Students with patient continuity were more likely to report learning about psychosocial aspects of patient care (66%) than were students with no patient continuity (33%). However, students with and without patient continuity were equally likely to report learning about chronic illness care (66% in both groups). In addition, all students noted that LCE influenced their career choice. Downsides of the LCE included logistics, travel time, lack of variety, and lack of responsibility. However, despite these limitations, 6 of the 9 students described the LCE as an overall positive experience and no students noted a negative LCE experience.
KEY LESSONS LEARNED: A longitudinal clinical experience increases students' confidence in their role as clinicians and provides a less-pressured environment for students to practice clinical skills. Continuity with a faculty member facilitates a mentoring relationship and may impact career choice. Achieving continuity with patients is challenging in a longitudinal ambulatory care rotation.

THE MEDICAL UNIVERSITY OF SOUTH CAROLINA (MUSC) SUMMER INSTITUTE PROGRAM: PROMOTING THE DEVELOPMENT OF UNDERREPRESENTED MINORITY PHYSICIAN APPLICANTS. J.G. Wong[1]; W.L. Taylor[1]; M. Haney-Singleton[1]; A. Eaddy[1]; B. Williams[1]; T. D. Waldrep[1]. [1]Medical University of South Carolina, Charleston, SC. *(Tracking ID # 190519)*

STATEMENT OF PROBLEM OR QUESTION (PREFERABLY ONE SENTENCE): In our experience, it is frequently observed that while underrepresented minority students coming from relatively resource-poor backgrounds may have strong academic records in undergraduate school, many still lack the necessary test-taking skills or professional habits to be successfully admitted to medical school.
OBJECTIVES OF PROGRAM/INTERVENTION: 1. To effectively deliver a summer enrichment program aimed at strengthening the medical school applications of selected underrepresented minority students. 2. To allow these students to improve their Medical College Admissions Test (MCAT) scores and instill behaviors conductive to the professional development of medical students. 3. To increase the total numbers of underrepresented minority students enrolling in medical school.
DESCRIPTION OF PROGRAM/INTERVENTION: From all the students who were unsuccessful applicants to the MUSC medical school for the academic years 2005–2006 and 2006–2007, we selected a subset of underrepresented minority students, based on federal definitions (African American, Hispanic, Native American, rural/impoverished backgrounds), whose academic record in undergraduate school was strong but whose low MCAT and/or interview scores were highly influential factors impeding their chances for acceptance. These students were invited to attend the MUSC Summer Institute Program. This eight-week enrichment program had two main portions: 1) a structured comprehensive MCAT review course taught and directed by medical and MD/PhD students through didactic small group presentations, question/answer sessions, and multiple mock examinations with post-examination review sessions; 2): a series of small group seminars and brown-bag working lunches presenting topics pertinent to the development and promotion of medical professionalism, leadership and effective communication (including interviewing skills). All summer Institute students received a small stipend, housing and food allowance and all study materials and practice examinations were provided by the program. Teaching sessions for the entire program were evaluated through student satisfaction questionnaires. Student outcome measures for the educational intervention included student satisfaction survey scores, change in mean MCAT scores for the group (using a two-tailed t-test statistical comparison), and numbers of Summer Institute students subsequently accepted to medical school.
FINDINGS TO DATE: Sixteen students in the summer of 2006 and nine students in the summer of 2007 participated (total N=25). There were 5 men and 20 women and the mean age of the participants was 23. Means scores for the curricular offerings as measured by the student survey were 4.7 (Likert-type scale with 1.0="Very Unsatisfied and 5.0=Very Satisfied). Mean MCAT scores for the group before and after the summer institute program were 18.85 and 23.25 respectively ($p < 0.001$) Of the 25 total summer institute students 13 have been

accepted to medical school and two students are presently on the waiting list for admission. Of note: the total number of underrepresented minority students matriculating at MUSC in 2006 was 30/144 (20.8%) and in 2007 was 28/150 (18.6%) with 11 African American men in 2006 and 10 African American men in 2007.
KEY LESSONS LEARNED: This innovational educational intervention has been successful in helping to achieve MUSC's goals of enhancing medical student diversity. Other institutions may consider similar enrichment programs for promoting diversity in their schools.

THE REVOLVING DOOR IS NOT YOUR ENEMY!: USING THE STRUCTURAL CHALLENGES OF RESIDENCY TRAINING TO DEVELOP A NEW MODEL FOR QUALITY IMPROVEMENT EDUCATION IN THE OUTPATIENT SETTING B.J. Shah[1]; C. Bates[1]; G. Kriegel[1]. [1]Beth Israel Deaconess Medical Center, Boston, MA. *(Tracking ID # 190281)*

STATEMENT OF PROBLEM OR QUESTION (PREFERABLY ONE SENTENCE): Can serial cadres of residents measure, analyze, intervene upon and reevaluate performance in their personal and group practice on quality measures?
OBJECTIVES OF PROGRAM/INTERVENTION: 1. To create a curriculum for design, implementation, and measurement of resident-generated interventions on influenza vaccination rates. 2. To calculate the rate of influenza vaccination for 121 resident providers for the 2006–2007 and 2007–2008 seasons. 3. To develop skills related to practice based learning and systems based change.
DESCRIPTION OF PROGRAM/INTERVENTION: This project used our institution's proprietary electronic medical record (EMR) to engage 79 residents over 3 months in the planning, execution, and measurement of a practice-wide outpatient influenza vaccination continuous quality improvement (CQI) project. The curriculum, designed by the primary care chief resident, was implemented in 4 consecutive three-week blocks. There were 20 different residents (primary care and categorical) each block. Each block began with a presentation on influenza vaccination, review of the prior block's data, and discussion of goals for the block. Residents had unscheduled time to complete tasks. Two to three resident champions were identified each block to lead the intervention/data collection effort. The primary care chief resident organized the presentations and coached the champions through the process. The data from each group was used by the next group to plan and execute the next step in the project. Findings were presented at the end of each block during a discussion attended by practice administrators.
FINDINGS TO DATE: The 2006–2007 vaccination rate was 13% for all patients, 33% for patients >50 years old, and 30% for diabetics; data previously unavaible for the resident practice. Chart review showed that non-vaccinated eligible patients did not have appointments during the vaccination period or that no information about vaccination could be found. Data from, one patient-focused and one provider focused intervention, and the 2007–2008 vaccination rate are pending. Although formal evaluation of the project is not complete, informal feedback showed that residents enjoyed active hands-on tasks related to outpatient CQI and learning to use EMR tools.
KEY LESSONS LEARNED: This project capitalized on the frequent turn over of residents, a common challenge to outpatient education, through small achievable tasks which built on each other in this short CQI. The resident generated data collection and intervention plan for each phase resulted in resident "buy-in" to the short term goals and to quality improvement in the practice. Our residents actively measured their practice patterns and documentation practices, in the context of aggregate practice data. The focus upon a single measure allowed us to gather data on the entire resident practice rather than a small sample. The process was free, required no research assisant time, and allowed for simultaneous QI interventions in different practice subsets. Limitations included some uncertainty in criteria for chart review and the apparent lack of documentation standards within the practice The perceived shortage of vaccine in 2006–2007, may partially explain the low rate of vaccination. Our next applications for this model of teaching and learning will focus upon diabetes care, care of the elderly, and other health maintenance indices.

TRANSFORMING EDUCATION AND COMMUNITY HEALTH: A MODEL TO PROMOTE PRIMARY CARE INTERNAL MEDICINE A.M. Wolf[1]; T.L. Fancher[1]; M.C. Henderson[1]. [1]University of California, Davis, Sacramento, CA. *(Tracking ID # 190851)*

STATEMENT OF PROBLEM OR QUESTION (PREFERABLY ONE SENTENCE): Resident interest and physician recruitment to primary care, particularly in medically underserved settings, continues to wane.
OBJECTIVES OF PROGRAM/INTERVENTION: The TEACH Program (Transforming Education And Community Health) aims to curb the dwindling interest in primary care (PC) by demonstrating the rewards of caring for the underserved within a unique resident education program.
DESCRIPTION OF PROGRAM/INTERVENTION: In 2005, the University of California, Davis Department of Internal Medicine (IM) started the HRSA-funded TEACH program: a one-year track for 5 senior residents who provide continuity of care between the Sacramento County Primary Care Center and the UC Davis Medical Center hospital. Program graduates are surveyed annually to address self-efficacy and satisfaction.
FINDINGS TO DATE: TEACH provides extensive PC training with underserved populations by providing continuity of services between the inpatient and outpatient settings. In a typical month, residents spend 1 week on the inpatient TEACH service (resident, 1 third year student, 1 faculty) and 3 weeks in clinic. A clinic week includes 3 TEACH continuity clinics (precepted by IM and IM-psychiatry physicians), 1 university continuity clinic, a hospital discharge clinic for TEACH inpatients, TEACH endocrinology or nephrology clinic, and IM subspecialty clinics. 92% of TEACH graduates felt very prepared to diagnose and treat chronic illness (diabetes, asthma, CHF, depression) compared to 68% of categorical program graduates. 100% of TEACH respondents agreed or strongly agreed with the following statement, "Overall, I am satisfied with my current practice", compared to only 47% of categorical respondents. In the words of TEACH graduates, strengths of the program include: "better continuity of care and stronger bonds with patients" and "exposure to more patients with undiagnosed illness"; weaknesses include: "burdensome paperwork, lack of an electronic health record, and difficulty obtaining specialty care referrals." While less than 25% of categorical residents choose PC, 50% of TEACH graduates practice PC and 80% of current TEACH residents plan to practice PC following graduation. 50% of TEACH graduates work in medically underserved communities.
KEY LESSONS LEARNED: TEACH graduates feel better prepared to manage underserved adults with chronic illness, are more satisfied with outpatient medicine, and more often choose PC careers. Such programs may bolster the PC workforce, particularly in underserved communities. Despite its infancy, interest in the TEACH program continues to grow. Over time we anticipate a continued trend toward PC as a career choice among the graduates. In the future we plan to evaluate whether the program's emphasis on continuity between inpatient and outpatient arenas may also improve health outcomes in the medically underserved.

TRANSITIONING TO INTERNSHIP: ARE CAPSTONE CURRICULA THE ICING OR THE CAKE? J.W. Fisher[1]; E. Harleman[2]; E. Petrusa[3]; C.M. Dewey[3]. [1]Society of General Internal Medicine, Houston, TX; [2]University of California, San Francisco, San Francisco, CA; [3]Vanderbilt University School of Medicine, Nashville, TN. *(Tracking ID # 190910)*

STATEMENT OF PROBLEM OR QUESTION (PREFERABLY ONE SENTENCE): Graduating medical students frequently report feeling incompletely prepared for some of the skills needed during internship, particularly as relates to competence in patient management and the role of the intern on the health care team. While a number of schools across the country have begun developing "capstone" courses to facilitate this transition to internship, there is little literature to describe the goals, content or outcomes of these courses.
OBJECTIVES OF PROGRAM/INTERVENTION: 1. Describe similarities and differences in capstone course goals and content across medical schools nationally. 2. Evaluate available outcomes from curriculum and suggest new areas for assessment.
DESCRIPTION OF PROGRAM/INTERVENTION: The authors reviewed the literature and have begun gathering information from approximately ten medical schools across the country that have available a current or pending capstone type of course. Most of the capstone courses are two to four weeks long and held in the spring prior to graduation. The content is variable across schools. However, common topics include: advanced medical knowledge (summative), critical legal/ethics information, professionalism/communication, residents as teachers, and the fine tuning of other skill sets (e.g. procedures, ACLS, end of life care).
FINDINGS TO DATE: 1. Course directors and developers have found that students want practical information in a concise format. 2. Flexibility within the course such as permitting student "choices"

among modules/topics has been an effective way to maintain student interest. 3. In general, "capstone" course directors report positive student feedback for personal satisfaction and enhanced preparedness.
KEY LESSONS LEARNED: 1. There is national interest among medical schools regarding the development of course materials to facilitate the transition from medical student to new physician. 2. Many of the courses are relatively new and outcomes data are limited. Further evaluation of course effectiveness would be useful. 3. The capstone curriculum has allowed course developers to be highly innovative in creating new/unique sessions (such as the "Art of Observation" module with a visit to a fine arts museum) and incorporating various teaching strategies (such as team learning) to meet students' educational needs.

USE OF A MEDICAL TEAM ASSISTANT TO RESTRUCTURE AN INTERNS WORK DAY ACTIVITIES J.P. Moriarty[1]; G. Jenq[2]; S.J. Huot[1]. [1]Yale University, New Haven, CT; [2]Yale University School of Medicine, New Haven, CT. *(Tracking ID # 190646)*

STATEMENT OF PROBLEM OR QUESTION (PREFERABLY ONE SENTENCE): The complexities of inpatient care in the context of shortened length of stay and the need for careful coordination of transition from hospital to home or another healthcare facility has resulted in an increase in the volume of clerical work required to admit, manage and discharge patients from the hospital. This added administrative responsibility often falls on the "to do" list of interns and little is known about the impact of these tasks on the educational experience of interns and their relationships with patients.
OBJECTIVES OF PROGRAM/INTERVENTION: 1)Document the tasks performed by interns during a typical work day on an inpatient medical ward. 2)Based on these observations, reduce the amount of clerical work performed by interns in order to improve opportunities to spend time with patients and in educational activities
DESCRIPTION OF PROGRAM/INTERVENTION: Each of three interns was followed by a research assistant for all four days of a call cycle starting with the overnight call day. During the period 7:30 A.M. to 4:00 P.M. the research assistant documented the activities of the interns in a time in motion study. Activities recorded included time spent on rounds, time spent with patients, time spent on the phone, writing notes, ordering, charting and in educational conferences. Interns were not observed overnight or during pre-rounds. A medical staff assistant was then assigned to one of the general medicine ward teams and a repeat time in motion study was conducted.
FINDINGS TO DATE: Interns spent an average of 187 minutes a day (range 87 to 291 minutes a day) on the phone calling consults, answering pages, arranging inpatient diagnostic tests, and arranging for outpatient follow up visits. The interns on average spent 38 minutes with their patients during the hours of 7:30 A.M. and 4 P.M. When a medical staff assistant was added to the team there was a decrease in average time spent on the phone by an intern from 187 minutes a day to 29 minutes a day (range 10–50 minutes a day). Average time spent with patients was 34 minutes (range 10–50 minutes). Additional data regarding time in educational activities, order entry time, etc. is still being collected and analyzed.
KEY LESSONS LEARNED: Interns at our institution are spending a substantial amount of their work day performing clerical work. A portion of this work can be transferred to non physician personnel in the form of a medical staff assistant. The patient care and educational impact of this intervention could be substantial and require further study. Our preliminary findings have shown that time spent with patients has not increased and therefore other interventions to increase the time interns spend with their patients may be required.

USE OF A WEB-BASED CURRICULUM TO TEACH INTERNAL MEDICINE RESIDENTS ABOUT ADDICTION D.A. Rastegar[1]; S.D. Sisson[1]. [1]Johns Hopkins University, Baltimore, MD. *(Tracking ID # 189231)*

STATEMENT OF PROBLEM OR QUESTION (PREFERABLY ONE SENTENCE): Addiction is an important and common health problem. Many internal medicine training programs do not offer structured training in addiction; as a result, residents often report feeling unprepared in caring for patients with this problem.
OBJECTIVES OF PROGRAM/INTERVENTION: To develop a web-based curriculum to teach internal medicine residents about evaluating and treating patients with illicit or prescription drug addiction.
DESCRIPTION OF PROGRAM/INTERVENTION: An educational module on addiction was developed in July of 2006 and posted on an established website that provides an internal medicine curriculum for approximately 80 training programs. The website used a pretest-didactics-posttest curricular format, requiring completion of one section before accessing subsequent sections. Pop-up message screens provided feedback on answer selections. The didactics section included descriptive summaries with links to abstracts or full text articles of key studies. Post-test completion was required before the module was registered as completed. Baseline and post-test questions were tested and validated by having other Addiction Medicine faculty members complete the tests.
FINDINGS TO DATE: In the 2006–07 academic year, a total of 1279 residents at 61 different programs completed this educational module. The mean baseline score was 32.8% and post-test score 62.9%; this difference was highly statistically significant ($p<0.0001$). Third year residents performed somewhat better on the baseline test (35.2% correct) than first year residents (30.5%), but this difference was not statistically significant ($p=0.17$). When asked to rate the educational value of the program, the residents gave it a mean score of 3.8 on a 5-point Likert scale (1=not instructive; 5=highly instructive).
KEY LESSONS LEARNED: Web-based curricula can be used to disseminate knowledge in key areas that are traditionally neglected by many training programs. While learners showed an immediate improvement in testing scores and rated this programs highly, more research needs to be done on its impact.

WORK IN PROGRESS: USE OF THE RIME EVALUATION SYSTEM IN AN INTEGRATED, LONGITUDINAL CLINICAL CLERKSHIP L. Mazotti[1]; L. Tong[1]; K.E. Hauer[1]. [1]University of California, San Francisco, San Francisco, CA. *(Tracking ID # 189904)*

STATEMENT OF PROBLEM OR QUESTION (PREFERABLY ONE SENTENCE): Is the RIME (Reporter, Interpreter, Manager, Educator) evaluation system feasible in an integrated, longitudinal third-year clerkship?
OBJECTIVES OF PROGRAM/INTERVENTION: 1. To introduce the RIME system in an integrated, longitudinal clerkship 2. To assess the feasibility of the RIME system in an integrated, longitudinal clerkship 3. To determine whether the RIME system accurately captures student progress in an integrated, longitudinal clerkship
DESCRIPTION OF PROGRAM/INTERVENTION: Introduction: Traditional clerkship evaluations are based on end-of-month recollections of student performance and contain many generalities. The RIME evaluation system used in single discipline clerkships has offered advantages over traditional evaluations including higher satisfaction among clerkship directors, residents and students, earlier identification of problems and more meaningful, timely feedback. The UCSF Parnassus Integrated Student Clinical Experiences (PISCES) is a novel, longitudinal third-year clerkship in which eight students do all core clerkships as simultaneous 12-month preceptorships. This structure necessitated a developmental evaluation system for formative feedback and summative information about student performance. We adapted the RIME (Reporter, Interpreter, Manager, Educator) evaluation system designed for single-discipline clerkships. Our system comprises faculty development, quarterly evaluation sessions, and semi-structured feedback to students. Methods: Each student has one longitudinal faculty preceptor in each of seven departments and one faculty advisor. Preceptors are oriented to the RIME system at the beginning of the year. At quarterly RIME meetings with PISCES program leadership, preceptors attend the twenty-minute period during which their student is discussed. Those who cannot attend join by conference call or send comments for presentation. A facilitator reads a standardized script to remind preceptors of RIME vocabulary, and solicits the RIME adjective that best describes the student on most occasions, with behavioral examples and next developmental steps. Faculty evaluation leaders produce a summary of adjectives and comments for each student. Advisors receive summaries and give students verbal feedback.
FINDINGS TO DATE: 43 of 56 (77%) preceptors participated in the first RIME evaluation session; 46 of 56 (82%) in the second. Preceptors' clinical schedules were a barrier to attendance. Concordance amongst preceptor RIME adjective ratings for individual students was 83% in the first meeting and 78% in the second meeting. By RIME adjective staging, most students progressed over time.
KEY LESSONS LEARNED: Preliminarily, the RIME evaluation system in a longitudinal third-year clerkship is feasible across disciplines with high rates of preceptor participation. It accurately captures student progress and guides faculty in assessment. We intend to survey faculty about the usefulness of the RIME system to consider the benefits of this method of evaluation in other student clerkship settings.

WEB-ENHANCED INNOVATIONS IN MEDICAL EDUCATION

"RATIONAL RX: MIND OVER MARKETING" A FREELY ACCESSIBLE, WEB-BASED CURRICULUM FOR INTERNAL MEDICINE RESIDENTS
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BACKGROUND: Practices learned in medical training influence physicians´ future behaviors; this is one rationale for targeted marketing of trainees by the pharmaceutical industry. A needs assessment survey of interns at our institution showed participants had considerable exposure to pharmaceutical marketing, were unfamiliar with important evidence-based medicine (EBM) resources and struggled to critically appraise articles about therapy. "Rational Rx" (RRx) takes advantage of a web-based platform, allowing for self-directed learning and interactivity as well as universal accessibility and multimedia presentations. RRx learning objectives include: 1. Analyze the process of drug discovery and approval by the Food and Drug Administration (FDA) 2. Employ the principles of EBM when making decisions about pharmaceuticals 3. List the ways pharmaceutical companies market to physicians and pay attention to the resulting conflict of interest. In July 2008 this curriculum will be free and publicly available.
CONTENT: RRx is a 1-2 hour, professionally-produced course comprised of 3 modules, each with detailed learning objectives. "Regulatory Railroad" (RR) introduces learners to the process of drug discovery and approval. An animated character "rides" a train illustrating the route pharmaceuticals take from the laboratory to the marketplace. "Evidence-Based Prescribing" (EBP) introduces the principles of EBM as they pertain to articles about therapy using simulated patient encounters. "Hooked on Pharma" (HoP) exposes pharmaceutical marketing techniques and explores conflict of interest as it pertains to pharmaceutical marketing. The learner assumes the role of a pharmaceutical representative who visits various doctors and employs different marketing techniques to "detail" each of them. By changing point-of-view we predict that learners will gain new insight into their own susceptibilities as prescribers. All modules highlight opportunities for pharmaceutical industry bias or conflict of interest to affect drug safety and/or physician prescribing. Reference citations are "hyperlinked" to PDFs when possible.
DESIGN: The hallmarks of RRx are interactivity, multimedia and self-directed learning. All courses feature evaluative exercises (multiple-choice questions, drag-and-drop and matching exercises) with feedback given for all responses. In EBP and HoP, learners self-navigate through patient and physician encounters (simulated in "video-like" format). In all courses, participants have the option of clicking on links to supporting documents and websites. We predict these measures will improve learner satisfaction and engagement.
EVALUATION: We will evaluate learners´ knowledge, attitudes and self-reported skills via a comprehensive pre-test, and 3 module-specific post-tests. A "pill-bottle tracker" records the number of screens visited, thereby tracking the "depth" to which learners explore the course. We anticipate that learners with more in-depth navigation will demonstrate more of a change between pre and post-test scores.
SUMMARY: RRx employs effective web-learning tools to provide learners with the knowledge and skills needed to critically appraise articles about therapy and to recognize and withstand marketing techniques used by the pharmaceutical industry. It satisfies a need in our local curriculum and addresses an issue of increasing national importance.

A WOMEN'S HEALTH EDUCATION PROGRAM THAT UTILIZES A WEB-BASED TUTORIAL
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BACKGROUND: To address disparities in the healthcare of women, women´s health is being emphasized in medical education. The limited numbers of faculty who specialize in women's health and the complexities of scheduling from multiple departments are barriers to providing training in this multidisciplinary field. Online curricula can reduce the time required for coordination of lectures and can also provide methods of assessing outcomes. The West Virginia University women´s health medical education program, which utilizes a web-based tutorial with a one month clinical rotation, was developed to teach internal medicine residents about the primary care of women.
CONTENT: The clinical rotation is a multidisciplinary ambulatory experience with faculty associated with the institution´s Center of Excellence in Women´s Health. Adult female patients are seen for acute complaints, chronic conditions, and preventive care in general internal medicine, gynecology, urology, neurology, and psychiatry clinics. During the rotation, residents complete a web-based tutorial which is accessed through the institution´s SOLE (Secure OnLine Environment) portal. The specific modules included in the tutorial were developed by a committee of faculty based on their knowledge and interests. The topics, including prevention, osteoporosis, menopause, cardiovascular disease, and contraception, were chosen from a comprehensive set of topics recommended by the Federated Council for Internal Medicine Task Force on the Internal Medicine Residency Curriculum.
DESIGN: Pre- and post-tests consisting of 46 identical, primarily multiple-choice, single-best-answer questions are taken before and after completing the tutorial. The tutorial includes 16 teaching modules in a variety of formats such as short written chapters, narrated power point lectures, and self-assessment quizzes.
EVALUATION: To evaluate the program´s knowledge outcome, pre- and post-test scores were compared using matched-pair t-tests. There was a significant increase in average post-test scores (71.4%) compared to pre-test scores (61.6%) with a mean difference of 9.9% (95% CI 3.5-16.2, p=.003, N=15). Residents have been given standard evaluations to complete at the end of the rotation as they do for all of their rotations. These assessed, on a 1-9 scale, general topics including teaching (mean 7.22), organization (mean 7.33), and curriculum (mean 7.44) of the rotation (N=9). A more specific survey for evaluating the program´s satisfaction, skills, and attitudes outcomes was developed and pilot tested. It has the advantage of distinguishing between the clinical rotation and the web-based tutorial. After making minor changes to the survey, it is now available as part of the program´s content where it will serve as an additional means of continued program evaluation.
SUMMARY: The West Virginia University multidisciplinary women´s health education program, which combines a web-based tutorial with a clinical rotation, enabled the internal medicine program to satisfy the women´s health training requirement. This was the first time a computer format was used in an internal medicine residency rotation at our institution. The program was effective in increasing resident scores on a board-style test, and the pre- and post-tests allowed outcomes assessment as is encouraged in graduate medical education.

ASSESSING THE COMPETENCIES : USE OF A WEB-BASED STRUCTURED LEARNING PORTFOLIO
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BACKGROUND: An educational portfolio is a collection of evidence that demonstrates the acquisition of knowledge, skills and attitudes over time. Structured learning portfolios, in which both the learner and the training program determine the contents, can be used to document all of the ACGME competencies. They are particularly useful to assess and document skills related to practice-based learning and improvement, professionalism, and communication. We describe here the content, design and evaluation of our web-based structured learning portfolio.
CONTENT: Multiple interactive web-based modules that engage the learner in self-reflection, self-assessment and critical thinking, in combination with multiple established evaluation tools.
DESIGN: Our web-based portfolio (ePortfolio) contains the following interactive modules: Practice-Based Learning and Improvement: Our ePortfolio enables the creation of a clinical question database. The learner enters a clinical question, the evidence-based answer, sources, and an impact statement. Our web-based format allows for "real time" recording of clinical questions. Learners can review the database of clinical questions to reinforce what has been learned, to reflect on their performance, and as a stimulus for further learning. Regular faculty mentor review of a resident´s clinical question log enables the assessment of a resident´s problem-solving skills and competency in practice-based learning and improvement. Self-Assessment: Developing self-assessment skills is critical to becoming a competent physician. Our program uses the ePortfolio to facilitate personal goal setting. With mentor guidance, personal goals for learning are set and documented in the ePortfolio, including the development of plans for improvement and measurement of achievement. Professionalism:

Professional behaviors can be difficult to assess using traditional evaluation tools but are amenable to portfolio documentation. We supplement our 360-degree evaluations with resident generated reflective narrative describing critical events experienced during training. Communication Skills: A structured learning portfolio can also be used to facilitate and document the development of communication skills during residency training. We use videotaped reviews of simulated patient encounters and include them in the ePortfolio for review and reflection. Use of a predetermined checklist of interpersonal and communication skills offers the opportunity for criterion-based assessment.
EVALUATION: Resident and faculty mentor feedback on our web-based portfolio has been extremely positive. Virtually all of our residents regularly use the interactive components of our ePortfolio and report that they find the ePortfolio an effective learning tool. Faculty report on ease of review and an ability to better assess resident competency in all areas.
SUMMARY: Effective evaluation is a fundamental component of residency training programs. Educational portfolios are one of the evaluation tools listed in the ACGME "Toolbox," and have been recently highlighted by the ACGME and the American Board of Medical Specialties in a published guideline on developing an outcomes-based evaluation system in residency training programs . Our web-based portfolio has enabled us to better assess and document the competencies and has been both an effective learning and evaluation tool.

BIGELOW BASICS: AN EVIDENCE BASED APPROACH TO THE GENERAL MEDICAL ADMISSION E.A. Farrell[1]. [1]Massachusetts General Hospital, Cambridge, MA. *(Tracking ID # 189950)*

BACKGROUND: Six interventions are frequently included in a medical admission order set: venous thrombosis prophylaxis, ulcer prophylaxis, diet selection, foley catheter placement, telemetry monitoring, and bowel regimen selection. These interventions may greatly impact patient outcomes and health care costs, but are often misunderstood, overlooked, and improperly implemented by interns overwhelmed by the complexity of medical admissions and the time constraints of a typical call-night. Such interventions are often seen to be less integral to patient care, and are not approached in the same evidence-based manner as disease-specific treatment plans. This on-line, case-based module targeted at interns on a ward medicine, or "Bigelow," rotation highlights the impact of these interventions on patient outcomes and encourages interns to use an evidence-based approach to their admission order sets. Evaluation of the interns' performance can then be used by the Internal Medicine Residency Program to identify knowledge gaps and misconceptions related to these interventions and take steps to reduce the rate of medical errors, nosocomial infections, and iatrogenic injuries related to basic components of patient care.
CONTENT: Through the use of a case-based, on-line module, four "typical" medical patients are presented, and participants are asked to select interventions appropriate for the given patient in each of the six areas. Through this format, interns explore the indications, contraindications, and common pitfalls encountered in the real-life approach to these topics. In the discussion of each case, links are provided to key articles and consensus statements that form the evidence base for the given recommendations. Idiosyncrasies specific to the interns´ home institution are noted and critiqued.
DESIGN: The module is designed as a case-based quiz, with feedback provided after the completion of each case. By asking participants to consider the given recommendations in the context of individual patients, the applicability of the guidelines to their routine admissions is highlighted. The use of an on-line format allows these recommendations and article links to remain available to the interns for reference as they are entering their computer-based orders throughout the year.
EVALUATION: 52% of the intern class (37/71) voluntarily completed the module in their spare time, indicating a strong desire to learn more about these topics. The interventions most likely to impact both short-term and long-term patient outcomes were those least well understood. Interns and residents chose appropriate venous thrombosis prophylaxis only 35% of the time, and appropriate ulcer prophylaxis 53% of the time. Interventions that limit patient mobility and comfort, as well as conferring risk for nosocomial infections and increased fall risk, were also poorly understood. Foley placement was utilized inappropriately 28% of the time, and telemetry monitoring 43% of the time.
SUMMARY: Participating interns were very receptive to evidenced-based approaches to these interventions, and report that they enjoyed the on-line, case-based format. Further, upon completion of the module, they report increased confidence in their ability to apply these recommendations to their individual patients, and believe that having completed the module will alter their day-to-day practice.

COMPETENCY IN SYSTEM BASED PRACTICE: MAKING THE SYSTEM TRANSPARENT- A WEB MODULE WITH "LEARNER APPEAL" S. Zabar[1]; C. Gillespie1; K. Morris[1]; C.A. Bernstein[1]; T. Ark1; M. Triola[1]; W. Holloway[1]; A. Kalet[1]. [1]New York University School of Medicine, New York, NY. *(Tracking ID # 190389)*

BACKGROUND: Our institution trains over 1000 house staff and 700 medical students in 3 large teaching hospitals representing 3 distinct health care systems - public, private and federal. In a survey of our 65 residencies, program directors reported being most challenged by orienting house staff to the systems in which they practice, and agreed to collaborate with the authors to provide this material in a new format, which would be engaging and meaningful to busy house officers, as well as cost-effective and adaptable.
CONTENT: The module aims to familiarize trainees with the history/ operational systems of our 3 hospitals. Guided by a needs assessment of residents we organized our learning objectives, learner assessments and instructional material into a 15 box matrix matching the private, public, and federal affiliate hospitals to 5 dimensions: mission and history, administrative structure, funding sources, population served and patient service dimension.
DESIGN: Module design followed theory derived principles. Material is presented with non-redundant text, pictures and sound and includes a variety of cognitive and behavioral interactivity elements. To motivate/ create a "need to know" learners first take a 20 question multiple choice pre quiz covering all 5 dimensions. Next learners must go through all 15 content boxes but may choose the order in which they do so, going across to learn about a topic in all 3 hospitals or going down to learn all 5 dimensions at one site. We employed a variety of multimedia: historical photo montage for mission/history, an interactive org chart for administrative structure, a dynamic pie chart for funding source, bar charts for population served and a doctor-patient interaction video simulation about filling a prescription for asthma to compare and contrast patient services. Each institution is identified by a symbol and color scheme and narrated by an institutional leader. After working through the matrix learners view a synopsis of the material, complete a post quiz and receive individualized feedback in the form of a summary of their pre and post quiz scores and reports of facts they know (correct both pre and post), learned (correct on post) and need to learn (incorrect on post). There is automatic tracking of resident module attendance and performance.
EVALUATION: A total of 291 residents and 156 medical students spent an average of 40 minutes logged-on, and showed improvement in their pre to post module knowledge scores (47% vs. 76%, $p<0.001$). Time spent on the module correlates with improvement on quiz ($r=.16$, $p<.001$). From a sample satisfaction survey (n=58), the majority found the module enhanced their learning (88%), made them want to learn more about the system they work in (91%) and increased their comfort dealing with the 3 hospital systems (79%). 73% disagreed that a lecture would be preferable to the online module.
SUMMARY: This Systems Based Practice web based multimedia module allows us to effectively teach important curriculum to a large number of diverse trainees. We are currently looking at a variety of module content tailoring and implementation strategies across programs.

CREATING COMPETENCY-BASED CURRICULA: INTERACTIVE TOOLS FOR DESIGN, ORGANIZATION AND IMPLEMENTATION J.D. Voss[1]; J.M. Jackson[1]; V. Goodkovsky[1]; B. Jerome-D'Emilia[1]; Y. Chen[1]; J. Schectman1. [1]University of Virginia, Charlottesville, VA. *(Tracking ID # 190163)*

BACKGROUND: Designing competency-based curricula for systems-based practice (SBP) and practice-based learning and improvement (PBLI) competency instruction is challenging because clinician-educator faculty (CEF, the primary audience) report problems defining, organizing and delivering curricular material.
CONTENT: We defined a conceptual model (the Professional Abilities/ Learning Activities/ Assessment or PLA model) that frames the processes and goals of competency-based instruction hierarchically.

Using the PLA model and open source learning management software (Moodle), we built web-based curriculum design tools for CEF to use to collect, organize and present resources for single or interprofessional groups of learners. Our application contains both a competency mapping (CMI) and a curriculum building interface (CBI). The CBI presents CEF with keyword-coded and searchable collections of professional abilities, learning activities and assessments organized by competency. The CMI helps users divide competencies into logical subunits called professional abilities and attach specific learning activities and assessments such that individual curricular learning activities and assessments can support teaching different but related SBP and PBLI competencies and subcompetencies.
DESIGN: CEF access the CBI via the web to select from stored educational resources to craft a custom curriculum or choose a predefined curricular package. CEF can check their selected curriculum using a curriculum analysis tool to assess coverage of key subcompetencies dynamically. All resources can be downloaded or emailed to CEF. Using the CMI, CEF can define their own competency-based curriculum and attach digital resources including multimedia files for use in learning activities or assessments. CEF will use the CBI primarily; the CMI is a development tool for advanced users. Both are Sharable Content Object Reference Model compliant for incorporation into other curriculum management systems.
EVALUATION: The current interface translates SBP and PBLI competencies into 40 key professional abilities. Model and application validation was achieved with a focus group of 13 physician educators representing 6 diverse US internal medicine residency training programs. 100% of validators found the PLA model conceptually sound and practically useful. 93% felt they could use the CMI and CBI to organize or select material for their own use. 100% felt they could use the curriculum analysis tool to find coverage gaps.
SUMMARY: Open source software can enable defining competencies and developing curricular solutions. The instruments created support curriculum development for any competency-based UME, GME or other education program. Incorporation of Achieving Competency Today national curriculum resources and identification of other material to be included in the CBI is ongoing with a 'go live' date set for April 2008. Development of Wiki technology to facilitate sharing and potential co-development of learning materials and to enhance physician-nurse interprofessional education are ongoing but not demonstrated. Future directions include using these software tools to route assessment data to learner portfolios and to develop web-based intelligent tutoring systems for residents that actively evaluate emerging competence and offer personalized learning opportunities to promote further competency acquisition.

EVALUATION OF A WEB-BASED COMMUNICATION SKILLS LEARNING TOOL: DOC.COM©, C.L. Spagnoletti[1]; T. Bui1; G.S. Fischer[1]; A.R. Gonzaga[1]; R.M. Arnold[1]. [1]University of Pittsburgh, Pittsburgh, PA. *(Tracking ID # 189518)*

BACKGROUND: Doc.com©, is a commercially available web-based product developed by the American Academy on Communication in Healthcare which consists of numerous communication training modules for use by healthcare professionals. To date, Doc.com©, has not been evaluated formally. We sought to assess the modules´ effectiveness at improving internal medicine interns´ communication skills knowledge, and satisfaction with the modules as a curricular intervention.
CONTENT: Because prior communication training received in medical school varies, we asked interns to complete 4 basic communication skills modules (`Overview", "Integrated Patient-Centered and Doctor-Centered Interviewing", "Open the Discussion", "Gather Information") during a reserved time in their second month of internship. We anticipated that the modules chosen would represent review material covered during most interns´ medical school training, while bringing the remainder "up to speed" before embarking on more advanced communication training provided in residency.
DESIGN: Each module consists of video clips of patient encounters conducted by communication experts, bulleted discussion sections, questions for reflection, and references for further reading, and takes between 30-60 minutes to complete. To evaluate the modules´ effectiveness at improving communication skills knowledge, a group of local clinician-educators with advanced communication training developed web-based pre/post multiple choice tests. In addition, interns were asked to complete an electronic survey after each module which assessed satisfaction.
EVALUATION: A total of 31 of 32 eligible interns at the University of Pittsburgh completed each of the four modules (97% participation rate). About half (52%) were male. The reported median number of hours of medical school communication training received was 28 (range 3-270). Knowledge-based multiple choice test scores improved significantly with module completion (Average pre-test score 89% vs. post-test 95%, $p = 0.004$). Neither gender, nor number of hours of prior communication skills training was associated with pre-module test scores. A total of 85% felt that the modules were clearly presented and met their stated learning objectives, and 90% were satisfied with the amount of time it took to complete each module. Most (81%) reported that the material presented was familiar. A total of 67% felt that completing the modules will improve their communication skills in the outpatient setting, and 65% in the inpatient setting. However, 86% agreed that completing the modules does not replace the need for faculty-led communication skills instruction on the material covered by the modules.
SUMMARY: Although baseline knowledge of basic doctor-patient communication skills among interns was high, the use of 4 introductory Doc.com©, modules improved interns´ communication skills knowledge on multiple choice tests. Most were satisfied with the modules' format and stated learning objectives and indicated that completion of the modules will improve their communication with both outpatients and inpatients. In addition, the modules were felt to be time-efficient. Use of the Doc.com©, modules may be a valuable adjunct to faculty-led communication skills training aimed at helping trainees achieve competency in the areas of interpersonal and communication skills.

INTEGRATION OF AN ELECTRONIC PORTFOLIO TOOL WITHIN A PATIENT SAFETY EDUCATION CURRICULUM FOR RESIDENTS TO PROMOTE REFLECTION AND FEEDBACK ON ADVERSE EVENTS AND NEAR MISSES R.S. Mangrulkar[1]; M.P. Lukela[1]; V.I. Parekh[1]; N. Botimer[2]; M. Peet[2]; J. Delvalle[1]. [1]University of Michigan Health System, Ann Arbor, MI; [2]University of Michigan, Ann Arbor, MI. *(Tracking ID # 190555)*

BACKGROUND: Portfolio-based learning methods are designed to improve reflection, critical thinking, and demonstration of competence. Adverse events (AEs) represent potential critical events that require in-depth analysis and reflection in order to change practice. We sought to facilitate these skills in our internal medicine residents by developing and integrating an open-source electronic portfolio within our patient safety educational program, providing a centralized vehicle and data repository for reflection and analysis of AEs and for interactive feedback about these reflective exercises.
CONTENT: We developed and implemented a set of seminars that introduce a conceptual framework with key concepts in AE analysis. Residents then apply this framework to AEs in which they have been involved, recording them in their electronic portfolios using the Case Analysis form. Two other forms have been developed to promote further reflection and feedback. (1) The Second Reflection form (just released to residents) prompts the resident to review their portfolio entries and revise their analysis based on new patient safety knowledge and skills. (2) A Mentor Feedback and Evaluation form (to be released in February 2008) is a mechanism for each resident´s advisor to review the portfolio entries and provide the learner competency-based evaluation, as well as qualitative feedback.
DESIGN: The tool is based on the Open Source Portfolio (OSP) platform, and is housed within our existing learning management system (Sakai-based CTools), providing a seamless access vehicle for all learners. Advantages provided by the design and integration of our e-portfolio in this environment include the following: (1) disseminated access to materials to facilitate entry and reflection at the time when cases are encountered (at work) or when reflection may be easiest (at home), (2) the ability to view an individual´s entries over time to track development, (3) facilitated electronic communication between assigned mentors and specific learners allowing for the asynchronous exchange of feedback.
EVALUATION: During our use of this tool, 133 residents have entered one or more AE case analyses into their portfolio, representing 79% of residents in our program. A total of 167 case analyses were entered by this cohort (average 1.26 case analyses per resident). Portfolio entries covered the spectrum of 7 validated categories of AEs: medication safety, device complications, discontinuity and communication errors, fatigue-related events, hospitalization complications, diagnostic errors, and patient identification issues. Future assessment will center on the content, quality, and sophistication of residents´ analyses of their cases and their Second Reflection, the quality of the evaluation and feedback provided by the mentor, along with all users´ satisfaction with the tool.

SUMMARY: As a mechanism to facilitate access, analysis and reflection, our version of the OSP electronic portfolio fulfills our educational objectives within the content domain of patient safety education.

Innovations in Practice Management

A CREATIVE COLLABORATION TO IMPROVE HEALTH CARE DELIVERY S. Doorley[1]; A. Soto[2]; L. Smith[1]; R.G. Asgary[1]; J. Deluca[1]; G. Paccione[1]. [1]Montefiore Medical Center, Bronx, NY; [2]Montefiore Hospital, Bronx, NY. *(Tracking ID # 190847)*

STATEMENT OF PROBLEM OR QUESTION: An underutilization of the services offered by the Comprehensive Health Care Center Center (CHCC) in the South Bronx by the foreign-born population.
OBJECTIVES OF PROGRAM/INTERVENTION: 1) Increase utilization of health care services by the uninsured immigrant population in the South Bronx. 2) Create a collaborative team of Community Health Workers (CHW), resident physicians, and Community Based Organizations (CBO) to improve health care delivery and dissolve existing barriers to access.
DESCRIPTION OF PROGRAM/INTERVENTION: The Montefiore CHCC is a multi-service center that was developed in an effort to improve access to high-quality, affordable health care. The CHCC has an established OPEN-IT Clinic (Opportunities Pro-Immigrant Elderly Newcomers-International Travel) that services clinical activities around immigrant health, educates resident physicians in immigration/travel medicine, and provides an avenue to deliver culturally appropriate health care. It is located in the Highbridge-Morrisania (HM) section of the South Bronx where 30% of the population is foreign born and 45% do not have a personal doctor. There are multiple barriers for the HM population to access available health care services. These include spoken language, cultural differences, fear of retribution (for those undocumented), lack of knowledge regarding available services etc. The CHW-OPEN-IT clinic collaboration began with the selection and training of Community Health Workers. The training began with bilingual health classes led by Montefiore medical residents for ESL students and progressed to a biweekly seminar curriculum and health promoter certification for those who expressed interest in improving the health of their communities, i.e. becoming CHWs. In collaboration with several CBOs, the CHWs began outreach to local places of worship, businesses, immigrant organizations, schools etc in order to identify families who did not have regular health care providers and to link them to the OPEN-IT Clinic. The CHWs accompanied the new immigrant patients to the OPEN-IT clinic where they assisted patients in maneuvering through the complicated medical system, facilitated the registration process, and ensured that the patients received all available health care services. The CHWs organized home visits to clients by physicians and conducted follow-up phone calls to the patients. The CHWs were available to assist residents in providing cross-cultural care and served as a communication link between the patient and the physician.
FINDINGS TO DATE: 1) Increased utilization of health care services by the foreign-born population. Via the CHW-OPEN-IT clinic collaboration, 57 new immigrant patients have received health care at the Montefiore CHCC OPEN-IT clinic so far 2) Discovery of additional barriers to receiving health care services at the CHCC. It was learned through CHW feedback that a percentage of uninsured patients were erroneously receiving expensive bills from the clinic with a subsequent hesitancy to return for follow-up. It was also discovered that several of the patients were having difficulties receiving their prescriptions from the CHCC pharmacy for the sliding scale price. 3) Novel feelings of provider trust and service satisfaction by the new patients (per CHW feedback).
KEY LESSONS LEARNED: Community Health Workers can serve as an important link between the formal health care sector and the community, helping to improve utilization of existing services, provide valuable feedback regarding patient care, and dissolve existing barriers to access.

A MULTIDISCIPLINARY APPROACH TO IMPROVING "HOSPITAL FLOW" M. Johnson[1]; L. Dodge[2]; N. Ray[2]; L. Du[2]; M. Mote[2]; G. Rufe[2]; V. Huerta[2]; L. Leykum[3]. [1]University of Texas Health Science Center at San Antonio, San Antonio, TX; [2]University Health Systems, san antonio, TX; [3]Society of General Internal Medicine, San Antonio, TX. *(Tracking ID # 190007)*

STATEMENT OF PROBLEM OR QUESTION: In an attempt to improve the efficiency of patient care, the Institute for Healthcare Improvement (IHI) has studied "hospital flow." This work suggests that a multidisciplinary approach using formulas that examine flow in a "real-time" manner leads to greater success in decreasing bottlenecks and improving length of stay (LOS).
OBJECTIVES OF PROGRAM/INTERVENTION: Using IHI's methods, we implemented a program to: 1. Decrease hospital bed wait times for admitted ED patients 2. Decrease overall length of stay
DESCRIPTION OF PROGRAM/INTERVENTION: We formed a multidisciplinary "Flow Committee" consisting of physicians, nurses, and administration. A process was implemented whereby nurse managers from all inpatient units, including the ED, and the nursing house supervisor met every six hours to review the inpatient bed demand and capacity based on admission and discharge prediction formulas proposed by the IHI (Figure 1). We also implemented biweekly "wasted bed walk-throughs" to assess the number of admitted patients whose condition did not warrant continued hospitalization or who had experienced a delay in care delivery.
FINDINGS TO DATE: Review of the collected data at weekly Flow Committee meetings revealed poor organization of transport personnel, as manifested in wait times for transfer between units and to diagnostic tests, and variation in anticoagulation practices, both within and outside the hospital, resulting in prolonged LOS for inpatients and unecessary admissions. Based on these data, we implemented a hospital-wide bed transportation and tracking system and created an anticoagulation protocol that spanned the inpatient and outpatient settings. We also created a "Transitional Care Unit" to accept patients of all acuity from the ED while decisions could be made by the nurse managers regarding the most appropriate unit for admission based on 6 hour prediction meetings. Implementation of these initiatives led to decreased wait times for admitted patients despite an increase in the number of beds requested and a decrease in LOS.
KEY LESSONS LEARNED: Implementation of the IHI "Hospital Flow" measures helped us to determine areas of bottleneck in our hospital admissions process. Adding the "wasted bed walk-through" was a local addition to this implementation project that allowed us to collect richer data regarding delays Based on these data, we were able to create local solutions to improve patient flow and overall length of stay.

AN ONLINE PORTAL FOR PATIENTS TO REVIEW THEIR LABORATORY AND RADIOLOGY REPORTS: LESSONS LEARNED IN A GENERAL INTERNAL MEDICINE PRACTICE S.V. Joy[1]; P. L'Engle[2]; K. Britton[3]; B. Carlson[2]. [1]Duke University, Durham, NC; [2]Duke Health Technology Solutions, Durham, NC; [3]Private Diagnostics Clinics, Durham, NC. *(Tracking ID # 189341)*

STATEMENT OF PROBLEM OR QUESTION: Is it feasible to enable patients to have direct access to their unedited laboratory results and radiology reports using a secure online portal?
OBJECTIVES OF PROGRAM/INTERVENTION: To develop and test the feasibility of an online portal to allow patients access to view their unedited lab results and radiology reports. To create educational materials and communication strategies to notify patients of the existence and use of the online portal. To measure the usage of this new technology by patients and the provider perception of the impact of the portal on their clinical responsibilities.
DESCRIPTION OF PROGRAM/INTERVENTION: A secure, online patient portal was created by Duke Health Technology Solutions in collaboration with IBM. This portal was used to interface with the Duke Medicine e-browser, which is an electronic data repository for medical information used by the providers within the Duke University Health System. On July 9, 2007, the practice of Duke General Internal Medicine (DGIM) became the beta test site for the online portal. Patients of DGIM who had laboratory or radiology studies performed were able to review their unedited results and reports 7 days after the reports were created. Patients were introduced to and educated about the portal by the following methods. Written instructions explaining the online portal and methods to create a secure account online were given to patients at appointment check-in. The providers had the opportunity to discuss the portal with their patients during the office visit. Patients who provided an e-mail address at check-in had an e-mail sent to that address after their clinic visit inviting them to access the portal and to create a secure account to view their test results. During this test phase, providers continued to send standard lab letters to patients explaining their test

results as was previously done before the portal was operational. Mailed with these test results were now written instructions on how patients could create a secure portal account and review their results online.
FINDINGS TO DATE: From July 9 to November 30, 2007, 7,429 lab letters were sent to patients. 1,843 individual patient portal accounts were created, and 12,492 laboratory results and/or radiology reports were viewed online by patients. A survey of providers participating in the pilot program suggested that the impact of the portal on their clinical responsibilities was neutral to positive. Unsolicited patient feedback has been positive regarding the portal.
KEY LESSONS LEARNED: Patients are willing to use a secure, electronic portal to review unedited lab results and x-ray reports obtained within a general internal medicine clinic. Written communications and reminder e-mails can be used at the point of care and within normal clinic operations to describe to patients how to access the online portal. Provider perceptions on the impact on their work duties with the portal operational was neutral to positive, and reported patient experience with the portal has been positive.

BEYOND PAGING: BUILDING A WEB-BASED COMMUNICATION TOOL FOR NURSES AND PHYSICIANS K. Locke[1]; N. Hariton[2]; D. Morra[1]; B. Duffey-Rosenstein[3]. [1]University of Toronto, Toronto, Ontario; [2]Lion's Gate Hospital, Vancouver, British Columbia; [3]Mount Sinai Hospital, Toronto, Ontario. *(Tracking ID # 190183)*

STATEMENT OF PROBLEM OR QUESTION: The traditional means of communication between nurses and physicians is through paging and return phone calls. This method is disruptive to the workflow of both professions and is too non-specific to be used for all types of messages. Numerous attempts to use paper based task lists have failed in the past.
OBJECTIVES OF PROGRAM/INTERVENTION: We sought: (1) the ability to send messages from nurses to trainee physicians through different streams to distinguish urgent and non-urgent matters; (2) a reliable method of sending urgent messages to physicians that allowed nurses to send clinical details to physicians, and that was as simple to use as traditional paging; and (3) a system for non-urgent messages that removed the need to interrupt physicians, but showed nurses that messages had been received.
DESCRIPTION OF PROGRAM/INTERVENTION: A GIM teaching unit in a tertiary care academic centre was used for the intervention, with 4 traditional housestaff teams and over 200 nurses on 3 physical units. Through collaborative techniques, we developed a novel communication technology which sends non-urgent messages to an Intranet-based task list, and urgent messages to a single alphanumeric pager for each team. The system gives nurses a choice of sending pre-formatted urgent messages for common clinical situations with minimal need for software navigation. Partnership between nurses, physicians and informatics personnel in developing a solution allowed both nurses' and physicians' needs to be identified and met. We implemented this new technology using a collaborative process between nurses and physicians to address all concerns. Training and support for both nurses and physicians was provided throughout the early implementation period. Total cost of development and implementation was less than $50,000.
FINDINGS TO DATE: Post-implementation surveillance of switchboard use indicated a high degree of uptake of the new practice. The switchboard is no longer used to contact GIM housestaff for anything other than true emergencies. User surveys and focus groups showed a high level of satisfaction, and a perceived decrease in interruptions to the workflow of both nurses and physicians with the use of the new system. Usage data indicated that the new system continues to show increasing volumes of non-urgent messages, while urgent volumes remain stable. This system may increase the frequency of non-urgent communication overall. Users indicated a strong preference to continue with the new system, and to extend its use to all health disciplines, as well as to other teaching sites in the University of Toronto system.
KEY LESSONS LEARNED: (1) An Intranet-based system to triage urgent and non-urgent messages between nurses and physicians can successfully improve workflow for both groups. (2) New interventions for basic communication practices must be developed with all users' interests in mind and should be an improvement over the status quo for all involved. (3) Implementation of such interventions requires considerable training and support for the intervention to become a new standard method of communication. (4) Collaboration between nurses and physicians is an effective way to improve basic hospital practices for both professions.

BRINGING THE ROOT CAUSE ANALYSIS UP TO SPEED: THE IMPACT OF INCREASING THE VOLUME AND RAPIDITY OF RCAS N. Allaudeen[1]; R.M. Wachter[1]; B. Ide[1]; K. Radics[1]. [1]University of California, San Francisco, San Francisco, CA. *(Tracking ID # 190772)*

STATEMENT OF PROBLEM OR QUESTION: On July 1, 2007, California joined more than 20 other states by requiring that hospitals report National Quality Forum "never events"; however, the state added a new element of urgency: a requirement to report within five days of the event and possible onsite inspections by the Department of Health Services within 48 hours of reporting. Hospitals therefore needed a method to rapidly analyze an error, establish a cogent understanding of the event, and develop an action plan.
OBJECTIVES OF PROGRAM/INTERVENTION: To transform our root cause analysis process into a means for rapid investigation of adverse events, with the goal of meeting the new five day reporting mandate and developing clear strategies to reduce future errors.
DESCRIPTION OF PROGRAM/INTERVENTION: In response to the new California reporting legislation, UCSF Medical Center created the Clinical Event Oversight Committee (CEOC), tasked with performing prompt RCAs of medical errors and enacting the recommended changes. The CEOC seeks to perform RCAs in a blame-free environment, focusing on systemic factors leading to the error and risk reduction strategies to decrease future errors. A standing weekly two-hour meeting was established as a means to rapidly develop a clear understanding of events prior to mandatory reporting and site visits. Standing committee members include executive medical center leadership, experts in patient safety and quality, and key medical staff supervisors. Participants involved in the case present the facts and circumstances of the event. The group uses standardized RCA tools to identify system issues and areas for intervention.
FINDINGS TO DATE: In its first year, the CEOC has resulted in a 30% decrease in average number of days from event to RCA and a 56% increase in the number of events analyzed. Only 18% of the adverse events reviewed were "never events" requiring reporting to the DHS; therefore, the majority of events were investigated voluntarily. Having a rigorous RCA structure in place has also allowed us to identify trends, with some themes becoming clear only with experience.
KEY LESSONS LEARNED: The creation of the CEOC has allowed our institution to quickly and effectively respond to adverse events, thereby advancing a culture of patient safety. Going beyond minimum requirements, we have transformed our RCA process into an invaluable tool to identify system flaws and develop strategies to correct them.

CORRECTING CONTINUITY PANEL SIZE TO PROMOTE A LONGITUDINAL THERAPEUTIC RELATIONSHIP M.J. Rosenblum[1]; K.T. Hinchey[1]; M. Picchioni[2]; M. Stefan[1]; S.H. Borden[1]; L.B. Meade[2]. [1]Tuft's University School of Medicine/Baystate Medical Center, Springfield, MA; [2]Tufts University School of Medicine/Baystate Medical Center, Springfield, MA. *(Tracking ID # 189237)*

STATEMENT OF PROBLEM OR QUESTION: What is the "ideal" continuity panel size that promotes the development of therapeutic relationships, patient ownership and leads to improved outcomes and safety?
OBJECTIVES OF PROGRAM/INTERVENTION: 1. Determine appropriate panel size for a resident training in an inner city health center with a complex patient mix. 2. Institute methods to limit and resize patient panels in a logical and equitable manner. 3. Examine the impact of rationale panel size development on patient, physician and scheduling system.
DESCRIPTION OF PROGRAM/INTERVENTION: There is an "ideal" panel size that promotes the development of therapeutic relationships, patient ownership and leads to improved outcomes and safety. Our residents see their own patients 70% of the time but the patients see their PCP <50% of their visits. To make ambulatory medicine a viable career option, we must design and implement a system that solidifies and promotes the bond between patient and resident. Two methods were used to evaluate the appointment frequency requirements/desires of our inner-city, underserved population to identify an appropriate panel size. Survey #1 examined the demographics of show/no show patients and documented the patient's perceived need for visit frequency. Survey #2 analyzed the timeframe of follow-up appointments requested by providers. On average our show patients requested 6 visits/year (77% wanting visits <90 days apart). The average number of visits requested by our providers was 11/year (83% preferred in <two months). For example, an R1 has 6 appointments per 1/2 day session

(our show rate is about 70%) and has approximately 50 sessions/year. 50 sessions x 6 appointments ×0.70 show rate=210 visits/year. Survey #1: 210/6 visits per year requested by patients=35 continuity patients. Survey #2: 210/11 requested appointments by provider=19 continuity patients. We have begun the process of limiting panel size and maximizing patient-provider relationships while maintaining identical volume by four methods: 1. R1's begin the year with a panel of 40 patients selected by the outgoing PCP. 2. R2's no longer absorb the entire panel of an outgoing R3. 3. We have hired additional faculty to assimilate the surplus graduating R3 patients. 4. Addressing the discordance between provider/patient follow-up frequency requests. Chronic care models are based on 4 visits/year and thus yield a panel size of 210/4=53 patients for an R1.
FINDINGS TO DATE: The markers that we are currently following include patient/provider satisfaction surveys, improvement in our show rate and percentage of appointments kept with the PCP. We have seen improvement in no show rate and appointment percentage with PCP without significant change in patient satisfaction. We are in the process of reviewing physician satisfaction.
KEY LESSONS LEARNED: To make ambulatory medicine a viable career option, we must implement a system that solidifies the connection between patient and resident provider. An initial step in the process must be to properly design a continuity panel with regard to the needs of both patient and provider. The establishment of this relationship as early as possible during the three years of training is an additonal benefit of assigning a patient panel for an intern.

DEPRESSION INTERVENTION FOR LATINOS IN A PUBLIC EMERGENCY DEPARTMENT S.A. Mohanty[1]; I.T. Lagomasino[1]; B. Xie[1]; S.M. Asch[2]; L. R. Perez[1]; J. Miranda[3]. [1]University of Southern California, Los Angeles, CA; [2]VA Greater Los Angeles Healthcare System, Los Angeles, CA; [3]University of California, Los Angeles, Los Angeles, CA. *(Tracking ID # 190731)*

STATEMENT OF PROBLEM OR QUESTION: Depression, often poorly detected among public sector health care systems, has been shown to be prevalent in medical emergency departments (EDs), which frequently serve as surrogates for primary medical care for low-income Latinos.
OBJECTIVES OF PROGRAM/INTERVENTION: 1) To develop a culturally and linguistically sensitive depression intervention program for low-income, minority, uninsured patients in a large, public ED; 2) To implement the intervention using a randomized controlled trial design that assigns patients to the study social work intervention vs. an enhanced care, wait list control; 3) To evaluate the feasibility, acceptability, effectiveness, and potential sustainability of the intervention.
DESCRIPTION OF PROGRAM/INTERVENTION: Approximately 298 adults with probable depression (Patient Health Questionnaire-9 (PHQ-9) score $\geq$ 10) who are not currently receiving any mental health care are being recruited from one of the largest U.S. public sector medical EDs. Latina community health workers (Promotoras) screen patients for depression and provide depression education. Intervention subjects are assigned to bilingual social workers (SW) supervised by a psychiatrist. Subjects may choose to receive Problem Solving Treatment (by SW) and/or antidepressant medications (by psychiatry residents). Subjects are assessed at baseline, 4, 7, and 12 months. Outcomes to be assessed include feasibility (depression care use), acceptability (satisfaction), effectiveness (depression outcomes), and sustainability (cost-effectiveness).
FINDINGS TO DATE: Among 2,086 approached, 32% (N=671) screened positive on the PHQ-9. Average PHQ-9 scores for those screening positive for depression were 15.93 (SD 4.02), indicating moderately severe depression. Sixty percent (60%) indicated a perceived need for treatment for emotional problems. Forty two percent (42%, N=285) agreed to enroll in our study. Subjects are mostly Latino (93%); female (71%); uninsured (65%); not married (63%); Spanish-speaking (61%); US born (9%); average age 47.51 (SD 13.06); have ≤6 years of education (46%) with a household income ≤$15,000 (78%); live below Federal Poverty Level (87%); and are unemployed (59%). Majority does not have a usual source of medical care (61%). Approximately 10% of participants reported unstable housing. Most patients had self-reported diagnoses of stomach or digestive problems (45%), arthritis (41%) or back problems (43%). Baseline sociodemographic factors, health characteristics, and health utilization patterns were similar when comparing both control and intervention patients. Preliminary results indicate that the intervention is both feasible to implement in the public sector health care system and acceptable to patients.
KEY LESSONS LEARNED: There is a significant need for depression screening, education, outreach, and ultimately connection to a uaual source of care for low-income, predominantly Latino medical ED patients, many who are poor, lack education, and at times, are without stable housing. These patients have complex psychiatric, medical and social histories, which we have taken into account when designing and implementing our ED-initiated intervention. As we complete study enrollment, we hope to demonstrate improved outcomes and cost-effectiveness for a new, culturally appropriate model of depression care that can be applied to other public sector EDs often serving as primary care for low-income Latinos.

EFFECT OF ADVANCED CLINIC ACCESS ON PROCESSES AND INTERMEDIATE OUTCOMES OF DIABETES CARE AND HEALTHCARE UTILIZATION U. Subramanian[1]; R.T. Ackermann[2]; E. Brizendine[2]; H. Zhou[3]; M. Rosenman[4]; D.R. Willis[2]; D.G. Marrero[5]. [1]Roudebush VAMC and Indiana University School of Medicine, Indianapolis, IN; [2]Indiana University Purdue University Indianapolis, Indianapolis, IN; [3]Indiana University, Indianapolis, IN; [4]Regenstrief Institute, Indiana University, Indianapolis, IN; [5]Diabetes Prevention and Control Center, Indiana University, Indianapolis, IN. *(Tracking ID # 189894)*

STATEMENT OF PROBLEM OR QUESTION: Advanced (Open) access scheduling is an organizational strategy intended to improve access to care, physician productivity and patient satisfaction. Yet, its impact on the process and outcomes of chronic disease has never been explored.
OBJECTIVES OF PROGRAM/INTERVENTION: To assess the effect of open access implementation on: 1) processes (testing for A1c, LDL and urine microalbumin) and 2) intermediate outcomes (SBP, A1c, LDL level) of diabetes care, as well as 3) healthcare utilization (ER visits, hospitalization, outpatient visits).
DESCRIPTION OF PROGRAM/INTERVENTION: This was a retrospective longitudinal cohort study 1-year before and after open access implementation between 2004 and 2006. Participants were 4,060 adult diabetes patients who were continuously enrolled and belonged to the same health plan. Processes and outcomes for patients in 6 open access clinics were compared to otherwise similar patients in 6 clinics within the same primary care network that did not implement open access. Differences in patient demographics, disease severity, and organizational level variables (percent of managed care patients; ratio of MD FTEs/support staff FTEs; number of patient visits; MD productivity) were controlled for using generalized linear model framework with linear regression for continuous, logistic regression for dichotomous, and poisson regression for utilization outcomes.
FINDINGS TO DATE: Patients seen in the open access clinics were older, mostly African American (51% vs. 34%), with a higher percentage being on insulin; no other patient or clinic level differences were noted. In multivariate analyses, controlling for all other covariates, there were no differences between patients in the open access and control clinics in the number of ER visits or hospitalizations. Outpatient visits were 16% lower (95% CI: 1%, 29%) for patients in the open access clinics compared to control clinics at 1-year follow-up. For patients who were tested for A1c at baseline, the odds ratio (OR) of being tested for A1c during the 12-month follow-up period in an open access clinic as compared to a control clinic was 0.13 (95% CI: 0.04, 0.40) for black patients and 0.15 (95% CI: 0.10, 0.23) for non-black patients. Non-black patients who were not tested for A1c at baseline also had a decreased likelihood (OR 0.73; 95% CI: 0.62, 0.85) of being testing for A1c in an open access clinic. For those patients who were not tested for LDL or urine microalbumin at baseline, the odds of being tested for either during 1-year follow-up was significantly ($p<0.05$) lower in the open access clinics than in the control clinics for both black and non-black patients. There were no significant differences in A1C, SBP or LDL level between patients in the open access and control clinics at 1 year.
KEY LESSONS LEARNED: Our study, which controlled for important patient and organizational factors, found that open access implementation did not affect clinical outcomes at least in the short-term for diabetes patients. These results, however, should be interpreted with caution, as we found that the process measures as well as outpatient visits were lower in the open access clinics, and differences in outcomes

may take more than 12 months to emerge. Our results suggest that open access clinic scheduling should be examined more critically in larger systems of care, multiple healthcare settings and/or in a randomized controlled trial.

EFFECT OF NURSE PRACTITIONER CHF CASE MANAGEMENT ON RESOURCE UTILIZATION U. Subramanian[1]; D. Welsch[2]; J. Lowery[3]. [1]Roudebush VAMC and Indiana University School of Medicine, Indianapolis, IN; [2]Ann Arbor VA HSR&D Center of Excellence, Ann Arbor, MI; [3]VA Ann Arbor Healthcare System, Ann Arbor, MI. *(Tracking ID # 189666)*

STATEMENT OF PROBLEM OR QUESTION: While randomized controlled trials (RCTs) of case management interventions addressing individual components of Chronic Heart Failure (CHF) care [medication management; patient education] among selected high risk patients have shown positive results, there have been few rigorous studies in the real world among all patients with CHF.
OBJECTIVES OF PROGRAM/INTERVENTION: This quasi-experimental study evaluated the effects of a CHF case management model run by nurse practioners (NPs) in a sample of VA medical centers. It was hypothesized that compared with patients receiving usual care, those receiving case management would have less resource utilization in terms of admissions, bed days of care, and outpatient visits.
DESCRIPTION OF PROGRAM/INTERVENTION: CHF patients in 2 tertiary and 2 primary facilities received their care under the NP model and were recruited for the intervention group. CHF patients in 1 tertiary and 1 primary facility made up the control group and received usual primary and cardiology care. Intervention - The NP's who oversaw the care of the intervention group were given the AHA/ACC CHF guidelines, treatment algorithms and guidance from cardiologists at the tertiary facilities - All NP's participated in a weekly teleconference with a cardiologist from one of the tertiary facilities to discuss specific patient care questions and concerns - Patients were all given a CHF booklet that explained their chronic illness and to help keep track of their medications, and weights, and shown a CHF video to promote CHF self-management - Care consisted of clinics visits as well as telephone visits with NPs as needed over the course of 2 years - NPs coordinated care with the patients' physicians and if admissions occurred outside the VA Resource utilization was compared at 1 and 2-years following enrollment using regression models. Independent variables included group status (intervention vs. control), baseline resource use one year prior to enrollment, comorbidity count, and age.
FINDINGS TO DATE: 969 patients were enrolled (458 intervention, 511 control) between 2002 and 2004. Excluding deaths, sample size was 845 at 1 year following enrollment and 766 at 2 years. Using logistic regression, control patients were 1.6 and 2.8 times as likely as intervention patients to have an admission for any reason and for an admission for CHF (respectively) within year 1 ($p<0.001$). In year 2, control patients were 1.3 times as likely to have an admission for any reason ($p=0.05$); but there were no differences between groups for CHF admissions. Using Poisson regression to analyze bed days of care for patients with admissions, there was no significant difference between the two groups for both years. The control group had significantly fewer outpatient visits than the intervention group in both years (Poisson regression, beta;=−0.40 year 1, −0.07 year 2; $p<0.001$).
KEY LESSONS LEARNED: It appears that the intervention had the desired effect of reducing admissions, but at a cost of increased outpatient visits. These results are consistent with results from RCTs of NP case management in highly select groups of CHF patients in tertiary facilities. This study demonstrates potential effectiveness of the intervention in both primary and tertiary care hospitals, and with a more inclusive sample of patients.

EFFECTS OF "GUIDED CARE" ON CHRONICALLY ILL PATIENTS' UTILIZATION OF INPATIENT SERVICES. B.A. Leff[1]; C. Boyd[1]; J. Marsteller[2]; L. Reider[2]; K. Frey[2]; L. Karm[3]; C. Boult[1]. [1]Johns Hopkins University, Baltimore, MD; [2]Johns Hopkins University Bloomberg School of Public Health, Baltimore, MD; [3]Kaiser Permanente, West End, Washington, DC. *(Tracking ID # 190334)*

STATEMENT OF PROBLEM OR QUESTION: The current health care system faces a burgeoning population of patients with chronic illness for which it is entirely unprepared. Developing efficient and effective models to deliver high-quality primary care to such patients is critical to the health of patients and the survival of general internal medicine.
OBJECTIVES OF PROGRAM/INTERVENTION: Guided care (GC) is primary care that is enhanced by the infusion of the principles of seven chronic care innovations.
DESCRIPTION OF PROGRAM/INTERVENTION: In GC a specially trained registered nurse works on-site with 2–5 primary care physicians in providing eight services for 50–60 chronically ill patients: 1) assessing the patient and caregiver at home, 2) creating an evidence-based care plan, 3) promoting patient self-management, 4) monitoring the patient monthly, 5) coaching the patient to practice healthy behaviors, 6) coordinating the patient's transitions between sites and providers of care, 7) educating and supporting family caregivers, and 8) facilitating access to community resources. We are conducting a cluster-randomized trial of GC (versus Usual Care, UC) in the community-based practices of 49 primary care physicians in the mid-Atlantic United States. Four of the practices are in urban areas and four are in suburban areas. All but one are nonprofit organizations. They are generally fairly mature practices, ranging in age from 7 to 27 years. All of the practices used reminders for patients and electronic communication among providers. 88% have an electronic medical record, reminders for providers, evidence-based guidelines available during patient visits, and access to a case manager's services. Participants are patients age 65 years or older who have a twice-average probability of using health services heavily during the following year, according to the claims-based Hierarchical Condition Category (HCC) predictive model. Participants' health care is insured by Tricare, Kaiser-Permanente, or fee-for-service Medicare.
FINDINGS TO DATE: Here we compare the GC and UC groups' annualized use of inpatient health services (for Tricare and Kaiser-Permanente members, n=546) through the first eight months of the study. Data on Medicare beneficiaries will become available later in 2008. Use of hospitals and skilled nursing facilities (SNF) was quantified from "admission authorization" data provided by the patients' health insurers. There were 291 GC and 255 UC patients. There were 0.56 hospital admissions per person per year in the GC group and 0.51 in the UC group ($p=0.655$). GC patients experienced 2.91 hospital days per year compared with 2.64 in UC group ($p=0.501$). There were 0.10 SNF admissions per person per year in the GC group and 0.20 in the UC group ($p=0.238$). GC patients experienced 1.63 SNF days per year compared with 3.60 in the UC group ($p=0.232$).
KEY LESSONS LEARNED: Compared to usual care, Guided Care may be associated with the use of fewer SNF admissions and SNF days during the introductory eight months. The availability of the GC nurse may have facilitated discharging some patients directly home from hospitals and discharging others earlier from SNFs. If the final results of this study remain positive, Guided Care may become a national model for providing cost-effective health care to patients with chronic conditions.

EVALUATING THE EFFECT ON PROVIDER SATISFACTION OF AN OPIOID PRESCRIBING PLAN T.M. Jaeger[1]; D.A. Reed[2]; K. Ravi[1]; A. Jonathan[1]. [1]Mayo Foundation for Medical Education and Research, Rochester, MN; [2]Mayo Foundation for Medical Research and Education, Rochester, MN. *(Tracking ID # 190710)*

STATEMENT OF PROBLEM OR QUESTION: Based on target interviews, chronic opioid prescribing in the outpatient setting is a source of dissatisfaction for both Internal Medicine (IM) residents and faculty.
OBJECTIVES OF PROGRAM/INTERVENTION: To assess provider satisfaction regarding opioid prescribing in our IM clinic. To design and implement a standardized renewal process. To measure the impact of our intervention on provider satisfaction.
DESCRIPTION OF PROGRAM/INTERVENTION: Faculty and residents were assigned either to an intervention or control arm (48 residents, 20 faculty in each arm). The intervention consisted of an Opioid Treatment Agreement (OTA) as well as Controlled Substance Plan (CSP). The OTA is a set of expectations for patient behavior and renewal policies that will be shared with the patient at entry to the plan. The CSP includes a database of patients who have agreed to the OTA, and a protocol managed by Registered Nurses to coordinate criteria for additional renewals. The physician role is to identify appropriate patients, and to provide the drug, dose, and quantity of medication, as well as to authorize prescriptions for providers who are absent. Nursing role will be to document provision of prescriptions and the next renewal date.

FINDINGS TO DATE: We surveyed residents, nurses and faculty regarding prescribing chronic opioids in the outpatient setting prior to our intervention. 37 residents, 12 nurses, and 18 faculty responded. Residents (69%), nurses (66%) and faculty (91%) were not satisfied with our current process of providing opioid renewals. Residents (80%), nurses (93%) and faculty (100%) also agreed that a standardized process for providing renewals did not exist in our practice. There was dissatisfaction with urgent requests for renewals (residents 76%, faculty 85%), as well as renewals requests for other providers patients (residents 76%, faculty 67%). Additional sources of physician dissatisfaction were the lack of documentation of a comprehensive treatment plan, and lack of documentation of criteria for medication renewal. Nurses felt supported by physicians in providing renewals (only 7% dissatisfied with physician support) but felt that the criteria were not identifiable in our medical record (73% of respondents).
KEY LESSONS LEARNED: The lack of a standardized process of opioid renewals, as well as the lack of consistent documentation are major sources of provider dissatisfaction in our practice and resident outpatient clinic. Our intervention was designed to address these specific process issues. After implementation and enrollment of a substantial number of patients, we will repeat our provider satisfaction survey to determine whether our intervention influences provider satisfaction.

HOSPITALISTS AS EMERGING LEADERS IN PATIENT SAFETY (HELPS): LESSONS LEARNED S.A. Flanders[1]; S.R. Kaufman[1]; S. Saint[2]; V.I. Parekh[1]. [1]University of Michigan, Ann Arbor, MI; [2]Ann Arbor VA Medical Center, Ann Arbor, MI. *(Tracking ID # 190589)*

STATEMENT OF PROBLEM OR QUESTION: The emergence of hospitalists has resulted in large numbers of patients being cared for by small cadres of physicians. Most hospitalists and hospital medicine programs participate in, and in many cases coordinate, patient safety activities in their respective hospitals. Targeting safety efforts at key hospitalists at several institutions would thus potentially affect the care of many patients. Conversely, by failing to target such individuals, innovation in patient safety becomes difficult. With this premise in mind, we created the Hospitalists as Emerging Leaders in Patient Safety (HELPS) consortium with funding from the Blue Cross Blue Shield of Michigan Foundation.
OBJECTIVES OF PROGRAM/INTERVENTION: To describe the implementation and results of a novel, hospitalist-based patient safety consortium.
DESCRIPTION OF PROGRAM/INTERVENTION: The HELPS consortium consisted of a hospitalist lead and a patient safety representative from each of nine healthcare systems in southeastern Michigan, representing a diverse group of hospitals. The aim of the consortium over its two-year life was to provide rapid dissemination of best practices in patient safety through regular group meetings and to facilitate the implementation and analysis of hospitalist-led patient safety initiatives. The first meeting consisted of a methodological primer on safety improvement; the next seven were devoted to different substantive patient safety-related topics, such as prevention of device-related infections, creating a culture of safety, care transitions, medication safety, fall prevention, perioperative care, ICU safety, and end-of-life care. Participating institutions were free to implement any of the best practices and had access to the expertise of the HELPS coordinating site. In describing the results of their patient safety initiatives at group meetings, institutional representatives identified the key barriers and facilitators encountered during the implementation.
FINDINGS TO DATE: Common themes emerged among both barriers and facilitators. Most institutions reported that their solutions to safety problems created more work, or required hospital staff to change longstanding practices, both of which were substantial barriers to overcome. These issues were addressed successfully when improvement teams were able to get institutional buy-in for the new process and create and highlight "synergies" between their goals (improving safety) and other institutional priorities (reducing costs). Similarly, several hospitals reported problems when no one individual or group "owned" the new process and when they tried to adopt an easier to implement, "one size fits all" approach to patients. These were addressed with multidisciplinary teams, clear lines of authority, creating formal quality improvement processes that allow for rapid-cycle redesign, and the feedback of data demonstrating that an approach, while labor intensive, was leading to safer care. Another purpose of this consortium was to disseminate knowledge regarding best practices. We used surveys to measure dissemination; consortium participants answered, on average, 84.2% of the questions correctly.
KEY LESSONS LEARNED: By partnering hospitalists and patient safety personnel from diverse institutions across southeastern Michigan, HELPS successfully disseminated knowledge regarding best practices and identified barriers and facilitators faced by hospitalists and institutions attempting to improve safety. This experience indicates that a hospitalist-centered safety consortium is feasible and worthwhile.

HOSPITALIST-UNIT STAFF PARTNERSHIP TO IMPLEMENT AND EVALUATE IMPROVEMENTS IN THE DISCHARGE PROCESS: UTILIZING LEAN THINKING AS A COMMON METHODOLOGY C.S. Kim[1]; R. Chang[1]; S.A. Flanders[1]; D. Mcclish[1]; J. Grunawalt[1]; J. Shlafer[1]; K. Bombach[1]; M. Calarco[1]; V.I. Parekh[1]; D.A. Spahlinger[1]; J. E. Billi[1]. [1]University of Michigan, Ann Arbor, MI. *(Tracking ID # 190492)*

STATEMENT OF PROBLEM OR QUESTION: Hospitalists often care for patients on multiple hospital units simultaneously, limiting opportunities for consistent interactions and collaboration on quality improvement initiatives with a familiar group of unit staff.
OBJECTIVES OF PROGRAM/INTERVENTION: 1. To partner hospitalists with unit staff to develop and test process improvement models, utilizing a Lean Thinking approach. 2. As a pilot, we wanted to evaluate and work to improve the discharge process, which is consistently rated among the lowest patient satisfaction markers in surveys.
DESCRIPTION OF PROGRAM/INTERVENTION: Our hospital is part of a large academic health system in the Midwest. The health system has been interested in developing a "Lean" project within the inpatient setting to improve quality, safety, and efficiency of patient care. Lean Thinking is an operations improvement management model that derives its roots from the manufacturing industry. Toyota is considered the gold standard in its application. Our organization as a whole has been looking to this management philosophy as a consistent approach to quality and process improvement initiatives. As a pilot, we evaluated the discharge (d/c) process, which is consistently rated among the lowest patient satisfaction markers in surveys. Our hospitalist group partnered with staff (e.g. nurses, nurse aids, clerks, discharge planning, social work, physical therapy, etc…) on a new dedicated hospitalist service unit to develop and test patient care process improvement changes. Hospitalist service patients were preferentially admitted to the designated test unit. Hospitalists and staff on the inpatient unit were provided an overview of Lean Thinking concepts. A three day Lean workshop evaluated the current state of the d/c process, identified areas considered "waste" in Lean Thinking, and developed an improved model of the d/c process (the future state). We performed time-analysis studies, root cause analysis, and interviewed key participants in the d/c process.
FINDINGS TO DATE: Poor communication among staff and with patients/families was a key problem identified. Work by hospitalists, clerks, and nurses were batched. An additional problem was that d/c work was done in a serial fashion; hospitalists completed their part, followed by the clerk, and finally the nurse. Each part did not start until the previous step was completed in full. A waste and root cause analysis was performed, and action steps were developed, implemented and evaluated. Interventions included: improved communication of d/c plans to patients, families, and staff through the use of a white board in the patient's room; write the d/c order early in the day to start a parallel work flow whereby the hospitalist, clerk, nurse, and pharmacist worked simultaneously to d/c the patient; bedside shift change reporting by nurses to enhance communication among themselves and to patients/families; and prioritizing work for the patient being discharged. In a sample of patients d/c'd from this unit prior to the project, the average lead time to leave the floor from d/c order written was 195 minutes; after several months of implementation, the lead time was reduced by 54% (to 89 minutes).
KEY LESSONS LEARNED: Partnership between hospitalists and unit staff on a dedicated hospitalist unit is critical to improve patient care processes. The use of a common management model such as Lean Thinking aids this collaborative work.

HYPERTENSION QUALITY INITIATIVE L.M. Bigi[1]; M. Elnicki[1]; D. Simak[1]; C. Murphy[1]. [1]University of Pittsburgh, Pittsburgh, PA. *(Tracking ID # 190594)*

STATEMENT OF PROBLEM OR QUESTION: Hypertension (HTN) is the most common primary diagnosis in the United States. However, it is

frequently under treated. In our large, hospital-based, academic, internal medicine practice (over 12,000 unique patients, 39 Faculty, 36 Residents), only 28% of patients with diabetes mellitus(DM) or chronic renal failure(CRF) achieved a goal BP of <130/80 and 58% of our patients without DM or CRF met a goal BP of <140/90.
OBJECTIVES OF PROGRAM/INTERVENTION: 1) To improve overall BP control 2) To help physicians efficiently order appropriate interventions and follow-up 3) To teach patients effective lifestyle interventions
DESCRIPTION OF PROGRAM/INTERVENTION: 7/06 we started the HTN QI Initiative. New HTN interventions were made available for physicians to order electronically. Protocols for medication management per JNC 7 were reviewed with physicians, at which time we also emphasized the need for 1 month follow-up. Our nurse educators started a HTN Class teaching Lifestyle Modification including information on benefits of the DASH Diet and exercise. We offered free home BP Monitoring with home BP cuffs and 24-Hour ambulatory monitoring to evaluate for white coat HTN. Orders were available electronically for manual selection by physicians. 11/06 – We initiated an Electronic Alert and Order Set on all patients whose BP was not at goal. We developed the Alert to make sure the physician was aware that the BP was elevated and to facilitate physician action and simplify steps to "click" new orders for HTN interventions, including the HTN class, short-term follow-up BP check with the nurse, and 24-hr BP monitoring. The Alert occurred at the time the physician entered the order and diagnosis field of our electronic medical record. We used ICD-9 codes from Visit Diagnosis or Problem Lists from the previous 18 months and lab values including HgbA1c > 7.0,GFR < 60, and urine Albumin Creatinine Ratio > 30 to most accurately identify our patients whose goal BP should be <130/80. We used unique Order numbers to differentiate if an MD ordered an intervention manually or through the Alert Order Set. In 11/07 – We measured the degree to which new interventions were put into practice and effect of our Electronic Alert. We compared order frequency for a future BP check, HTN class and 24 hour BP monitoring before and after the electronic Alert was initiated. We determined how many orders were initiated manually or via the Alert Order Set from 11/ 06 to 11/07. We evaluated actual BP changes.
FINDINGS TO DATE: HTN intervention orders increased following implementation of our Alert Order Set from 44 to 97 per month. In patients with elevated BPs during the visit, the percentage of patients having interventions ordered increased from 5% before the Alert to 27% after the Alert. Percentage of MDs who ordered an intervention increased from 23% to 81%. Most of the orders for new interventions (70%) came from the Order Set. Only 76% of our 39 faculty members used the Order Set. The percentage of patients with BP at goal increased from 28% to 34% in our patients with DM or CRF and from 58% to 66% in hypertensive patients without DM or CRF. The mean difference in BP values reduced 2.7 points in systolic BP and 1.8 points in diastolic BP with p-value (paired t-test) of <.0001
KEY LESSONS LEARNED: Electronic (E)-record Alerts should appear timely during visit on appropriate patients. E-record Order Sets should be brief and user friendly. MDs need training and reinforcement to use EMR tools.

IMPLEMENTATION AND IMPACT OF A TOTAL SMOKING BAN IN A UNIVERSITY HOSPITAL J. Humair[1]; P. Borrero[1]; S. Kupferschmid[1]; F. Scherrer[1]; V. Benz Duborgel[1]; J. Mascarini[2]. [1]University Hospitals of Geneva, Geneva,; [2]J. Mascarini, Geneva,. *(Tracking ID # 190674)*

STATEMENT OF PROBLEM OR QUESTION: Smoke–free policies in public and work places like hospitals are effective tobacco control strategies to reduce exposure to environmental tobacco smoke and smoking prevalence.
OBJECTIVES OF PROGRAM/INTERVENTION: We describe the implementation of a total smoking ban in the University Hospitals of Geneva, Switzerland, on January 1, 2006. This intervention has 3 major objectives: (1) to minimize indoor passive exposure to tobacco smoke; (2) to promote smoking cessation among patients; (3) to reduce tobacco consumption among staff.
DESCRIPTION OF PROGRAM/INTERVENTION: In May 2005, the hospital executive committee adopts and announces a new smoke-free policy with a total indoor smoking ban to be implemented on January 1, 2006. A few months later tobacco sales in the hospital and smoking in the restaurants are prohibited. For a year employees and patients receive regular information through various media: mailing and journal for staff, flyer and leaflets for patients, application of posters with a new layout at all entrances. Ashtrays are placed outside of hospital buildings at distance from entrances. We developed specific strategies for patients who smoke: letters for elective admissions informing about the new policy and support services; systematic offer of minimal counseling with a new leaflet by health care teams; increased number of specialized nurses providing smoking cessation consultations to inpatients; available nicotine replacement products in the wards; reinforcement of the ambulatory smoking cessation clinic; available self-help smoking cessation brochures in wards and clinics. Other strategies were offered to employees who smoke: free consultation by occupational health nurses; access to the ambulatory smoking cessation clinic; sale of nicotine replacement products at lower prices by the hospital pharmacy; dissemination of a flow-sheet summarizing cessation strategies and pharmacological treatment. We delivered 74 1.5-hour training sessions to teach 656 health professionals how to manage smokers: explaining the policy, providing minimal counseling and initiating nicotine replacement for cessation, reduction or temporary abstinence. In a shorter course, we also taught 81 reception and security staff how to inform about the policy, direct smokers and enforce compliance with the smoking ban.
FINDINGS TO DATE: Inpatients consultations increased to 1099/year. In a year, 2427 leaflets were distributed to inpatients while 85′000 brochures were provided to both in- and outpatients in 2 years. Yearly costs for nicotine replacement in the wards doubled from 60′363 to 130′383 Swiss Francs respectively before and after the new policy. A survey among 4500 employees with a 64% response rate showed a strong support of the new policy (92%) and a good knowledge that indoor smoking is prohibited (92%). Compared to a 1999 survey, smoking prevalence among staff decreased from 22% to 15%. The new policy may have triggered smoking cessation as 16% of employees, who were smokers before its implementation, have quit after that date. Despite its decrease, 27% of employees still report exposure to passive smoking. This was confirmed by high levels of fine particles PM 2.5 above the unhealthy level of 65.45 g/m3 in 2 areas with persistent smoking.
KEY LESSONS LEARNED: Implementing a smoke-free policy in the University Hospital of Geneva was a real challenge but globally successful, particularly to promote smoking cessation among patients and staff. We must intensify our efforts to enforce compliance with the new policy to reduce passive exposure to tobacco smoke.

IMPLEMENTATION OF POST CARDIAC ARREST TREATMENT PROGRAM IN A TERTIARY CARE FACILITY J.C. Rittenberger[1]; F. Guyette[1]; M. Devita[1]; R. Alvarez[1]; S.A. Tisherman[1]; C. Callaway[1]. [1]University of Pittsburgh, Pittsburgh, PA. *(Tracking ID # 190543)*

STATEMENT OF PROBLEM OR QUESTION: Approximately 350,000 people suffer cardiac arrest each year in North America. Therapeutic hypothermia, early cardiac revascularization, and protocol driven care plans after cardiac arrest resuscitation improve outcome. However, few hospitals employ these therapies.
OBJECTIVES OF PROGRAM/INTERVENTION: Increase appropriate use of therapeutic hypothermia and cardiac catheterization in patients resuscitated from cardiac arrest.
DESCRIPTION OF PROGRAM/INTERVENTION: UPMC Presbyterian University Hospital is a tertiary care, university-affiliated hospital with 152 critical care beds in 8 medical and surgical intensive care units (ICU). We developed and implemented a hypothermia order set bundling physiologic goals along with induction of hypothermia and cardiac revascularization in appropriate patients suffering cardiac arrest. Beginning in January 2007, a post-cardiac arrest service (PCAS) was implemented to provide dedicated on-call physicians to assist with hypothermia induction, attainment of physiologic goals, neurologic prognostication, cardiac workup, and rehabilitation in patients with cognitive deficits. Surviving patients are also evaluated for implantable cardiac defibrillator (ICD) placement. Educational sessions about therapeutic hypothermia were provided to physicians, nurses, and medical trainees. Process measures were also implemented to increase use of the hypothermia. These included a 'hypothermia kit' that contained the order set, a cooling blanket and a note indicating that cold IV fluids are available in ICU refrigerators. An endovascular cooling catheter and cooling apparatus were made available. All charts for patients resuscitated from in-hospital (IHCA) and out-of-hospital cardiac arrest (OHCA) were audited to determine if target therapies were delivered. Referring and primary physicians received feedback regarding care delivery and improvement suggestions. We reviewed all charts of all patients suffering a cardiac arrest between 1–1–2005 and 11–15–2007. We compared treatment received after implementation of this program and the two years antecedent. Process measurements of interest were: appropriate use of hypothermia in eligible patients, number of patients receiving cardiac catheterization, and number of patients receiving ICD's.

Chi squared analyses were used for comparison between groups with a p value 0.05 considered significant.
FINDINGS TO DATE: Ninety-five OHCA patients were treated (2005- 24; 2006- 37; 2007- 34). Use of hypothermia in eligible patients increased during the study period (20%; 76%; 96%; p<0.001). Cardiac catheterizations increased during the study period (2005- 4; 2006- 15; 2007–16; p=0.02). Placement of ICD's did not differ (2005- 4; 2006- 7; 2007- 7; p=0.7). Eighty-five IHCA patients were treated (2005- 18; 2006- 39; 2007- 28). Use of hypothermia for eligible IHCA patients increased (0%; 24%; 60%; p=0.01). A trend toward increased cardiac catheterizations was noted (2005–2; 2006- 4; 2007- 10; p=0.056). Placement of ICD's did not differ (2005- 2, 2006–2; 2007- 3; p=0.8).
KEY LESSONS LEARNED: The implementation of a multi-disciplinary post-cardiac arrest treatment program including a dedicated team increased appropriate use of hypothermia and cardiac catheterization in post-cardiac arrest patients. This is one of the first system-wide implementations of a pathway for treating patients after OHCA and IHCA in multiple different ICU settings. This process change package resulted in practice change for treating OHCA and IHCA in our institution.

IMPROVEMENT IN ANTICOAGULATION MANAGEMENT BY A NURSE DRIVEN ANTICOAGULATION SERVICE IN A PRIMARY CARE SETTING K.A. Waite[1]. [1]Duke Division of General Internal Medicine, Durham, NC. *(Tracking ID # 190679)*

STATEMENT OF PROBLEM OR QUESTION: Anticoagulation therapy with warfarin is recommended often in a primary care setting for a number of clinical indications. The best clinical practice for anticoagulation management continues to be debated. Our goal was to evaluate outcomes for physician management of anticoagulation compared to a nurse driven, point of care method of management within an academic general medicine clinic.
OBJECTIVES OF PROGRAM/INTERVENTION: Improve the percentage of time patients requiring chronic anticoagulation spend within their therapeutic range. Improve the compliance of patients on anticoagulation therapy with routine international normalized ratio (INR) monitoring. Improve patient satisfaction regarding management of anticoagulation therapy.
DESCRIPTION OF PROGRAM/INTERVENTION: In October 2005, a finger stick INR point of service anticoagulation program was created. Dedicated clinic nurses were educated in how to performance a finger stick INR, and how to make adjustments in warfarin dosing based on a protocol agreed upon by the faculty of Duke General Internal Medicine (DGIM). Referrals to the anticoagulation service were given by the DGIM physician. The referral included the indication for anticoagulation, duration of anticoagulation, and the indicated therapeutic range. After the referral was given, a nurse then assumed care of anticoagulation management under the direction of a medical director for anticoagulation services. Prior to this time, a physician driven model existed where patients on warfarin would go to the lab for a venous blood draw. Each primary care physician would review their patient's INR value, recommend wafarin dose adjustments, and establish appropriate follow up. A clinic nurse would provide information to the patient regarding these instructions via the phone.
FINDINGS TO DATE: Patients managed under the physician model before Oct. 2005 had INRs maintained within the therapeutic range 54% of the time, with 28% of INR readings being sub-therapeutic and 18% being supra-therapeutic. Data from July of 2006 through Dec 2006 when patients were being managed via the nurse driven model showed an improvement with 71% of INR reading in therapeutic range, 7% sub-therapeutic and 22% supra-therapeutic.In addition, there was improvement in patient compliance with monthly INR monitoring, 53% with physician management and 88% with the nurse management. A survey was administered to patients after the clinic had been in operation for about 6 months. The results showed that 90% of patients felt that the finger stick measurement was easier than the laboratory venous measurement of INR. Also, 92% of patients felt that dose instruction changes were clearer with nurse visits than by telephone follow up.
KEY LESSONS LEARNED: A nurse driven anticoagulation clinic within an academic general medicine practice can improve the number of patients meeting their target INR goal and can improve compliance with anticoagulation monitoring compared to physician management. Patient satisfaction with a nurse driven anticoagulation service within a general medicine practice and with point of care testing is high. Our results support those seen previously in the medical literature.

IMPROVING ASPIRIN UTILIZATION RATES AMONG PATIENTS WITH DIABETES IN AN ACADEMIC PRIMARY CARE CLINIC M.S. Rutledge[1]; A. Whitney[1]; R.M. Malone[1]; M. Pignone[1]. [1]University of North Carolina at Chapel Hill, Chapel Hill, NC. *(Tracking ID # 190193)*

STATEMENT OF PROBLEM OR QUESTION: Aspirin utilization rates among patients with diabetes remain low, despite the American Diabetes Association recommendation that all patients with diabetes over the age of 40 take a daily aspirin to prevent cardiovascular events.
OBJECTIVES OF PROGRAM/INTERVENTION: Our goal was to increase aspirin utilization rates among patients with diabetes in our academic primary care clinic.
DESCRIPTION OF PROGRAM/INTERVENTION: We queried our diabetes registry for our adult outpatient Internal Medicine Clinic and identified patients over the age of 40 not documented to be taking a daily aspirin. From this population, we randomly selected 100 patients out of the total 201 for chart review to determine if they should be included in our pilot intervention to increase aspirin utilization. Of these 100 patients, 24 had no known contraindication to be on aspirin, nor were they documented to be taking the medication. Each patient's primary care provider was informed of our planned intervention and given the opportunity to opt out of the intervention. Providers were asked to notify us of any known aspirin contraindications and told that we would interpret no response from them as clearing their patients for the intervention. Patients cleared for the intervention were mailed a letter describing the risks and benefits of taking a daily aspirin. The letter included a phone number to call if they had questions or concerns and a reporting document to return indicating whether or not they intend to take aspirin, were already taking aspirin, or if they had any listed condition which would contraindicate aspirin use. We followed up with patients via phone call or in clinic with a questionnaire pertaining to their opinions of this intervention.
FINDINGS TO DATE: We found that 7 out of 19 providers opted to respond to the email. Of the 7, 5 were attending physicians and 2 were resident physicians. Providers approved letters to be sent to 85% (11 of 13) of their patients. Aspirin was contraindicated for one patient due to Warfarin therapy and another patient refused aspirin in the past. One patient was deceased, so a total of 21 patients were sent letters. We followed up with the letter through a returned response form, by phone, or in the clinic. We contacted 16 (76%) patients to evaluate the impact of the letter, of which 4 (25%) reported contraindications to aspirin, 10 (63%) are now taking aspirin, 1 (6%) plans to start aspirin, and 1 (6%) wants to wait to discuss this with a physician. All patients who received the letter found the information helpful in making a decision regarding aspirin use. Over the next two months we plan to send letters to the remaining 101 patients with diabetes who are not documented to be on aspirin but should be, and will complete follow-up to report full details. In addition, we will consider using this method to increase utilization of statin therapy in indicated patients with diabetes.
KEY LESSONS LEARNED: Patients and providers are both receptive to and appreciative of letters about medication utilization that could benefit their health. In order to increase utilization, there may be value in sending information and recommendations to patients regarding indicated medication. Patients reported that the letter helped them understand why aspirin was important. Letters regarding medication utilization can be helpful in educating patients and increasing medication usage.

IMPROVING CLINICAL CARE USING WORKFLOW ANALYSIS J.J. Chen[1]; J. Bronner[2]; N.J. Farber[2]; P. Gamble[1]; J.M. Fontanesi[1]. [1]University of California, San Diego, La Jolla, CA; [2]none, La Jolla, CA. *(Tracking ID # 190339)*

STATEMENT OF PROBLEM OR QUESTION: Can operational research methods improve clinical care?
OBJECTIVES OF PROGRAM/INTERVENTION: Apply operational research methods using workflow redesign to improve:
Patient satisfaction<\/li>Patient throughput<\/li>Clinical outcome
DESCRIPTION OF PROGRAM/INTERVENTION: To address the problems of poor patient satisfaction and decreased patient throughput, we applied the principles of operational research–a methodology that has found success in industries outside healthcare–to an academic internal medicine outpatient practice. Outcome measurement was assessed using a standardized workflow instrument (Observational Checklist of Patient Encounters) and a standardized patient satisfaction questionnaire.Assessment involved different components of the "ambulatory system," including physicians, triage nurses, medical assistants, secretaries, exam rooms, medical charts, time,

and patients.Workflow instruments were used to evaluate patient satisfaction, patient throughput, and clinical outcomes over 13 months.Changes were made to the system in response to data obtained via the workflow instrument. Using the same workflow instrument and patient satisfaction questionnaire, reassessment was conducted after the changes were made.
FINDINGS TO DATE: Our workflow analysis identified sources of clinic delays and bottlenecks. Specific interventions were implemented to improve clinic processes, including:
Streamline check-in<\/li>Improve information flow using EMR (EPIC)<\/li>Implement urgent care practice: within internal medicine clinic for urgent or same-day appointments and to cover absent physicians<\/li>Implement phone pods: assign designated staff to take patient phone calls
Simplify staff assignment<\/li>Physician/staff meetings: confidential meetings with representatives of each level of clinic staff without presence of supervisor to address concerns
Despite a decrease in average physician-patient "face" time (down from 24 minutes to 16 minutes), patient satisfaction improved in several areas post-intervention, including satisfaction with waiting time and physicians. Physician throughput also improved, as did outcomes related to HgA1c ("Missed Opportunities" dropped from 63% to 48%) and immunization rates ("Missed Opportunities" dropped from 76% to 41%).
KEY LESSONS LEARNED: Our research shows that operational research methods can indeed improve clinical care and outcome in an ambulatory care setting. This workflow redesign study shows that patients' overall clinical outcome and satisfaction do not depend solely on the physician-patient relationship. Understanding the clinic systems–not just individual outcomes measures–would help achieve the "Holy Grail" of clinic care by improving patient satisfaction, clinical outcome, and patient throughput, all at the same time.This study represents an attempt to translate operational research principles to a healthcare setting to fit the healthcare industry. Applying operational research principles would also help the healthcare industry implement the core principle of "work smarter, not harder."We face a crisis in healthcare, with increased demand in services, decreased patient/physician satisfaction, and ever-higher healthcare costs. Rather than pushing physicians and staff to "work harder," creating a better-functioning system is a more effective way of solving the problem. Through physician participation in quality improvement projects related to the overall clinic care delivery system, we may be able to render a cure to the ailing healthcare system, one clinic at a time.

IMPROVING HEDIS MEASURE RATES OF TESTING FOR PATIENTS WITH DIABETES J.A. Melin[1]; S. Emro[1]; J. Cusolito[1]; P.S. Sherry[1]. [1]Lahey Clinic, Burlington, MA. *(Tracking ID # 190075)*

STATEMENT OF PROBLEM OR QUESTION: Improving rates of testing for patients with diabetes: streamlined supports.
OBJECTIVES OF PROGRAM/INTERVENTION: Increase diabetes measure testing rates for urinary nephropathy, eye examination, LDL and A1c. Streamline support processes for clinicians. Define measurements by HEDIS criteria.
1. DESCRIPTION OF PROGRAM/INTERVENTION: Patients with diabetes (identified by large health plans and systems at the medical group 'site') who have reportedly not yet had measured laboratory tests (urine nephropathy, A1c, LDL) during the calendar year, have forms prepared so physicians may review and choose to approve laboratory testing. If the physician orders the test(s), notification for testing is mailed to the patient. Result(s) return to the ordering clinician and may also be reviewed by a clinical pharmacist. If results suggest the patient could benefit from clinical adjustments, individual or collaborative communication to the patient may occur. Mailings are sent to patients who appear to be due for eye examinations to encourage scheduling. Reported testing rate results are from Massachusetts Health Quality Partners (MHQP), for commercial patients of health plans that contribute data for statewide MHQP data aggregation. Baseline year is 2002 and most recent year reported is 2006. Measure definitions are from NCQA (National Committee for Quality Assurance) HEDIS (Health Plan Data and Information Set) criteria. An adjustment factor is applied to the results by MHQP, based on adjustment factors provided by the health plans. The HEDIS measure definitions for two of the measures, LDL and nephropathy testing, changed between 2002 and 2006. As MHQP reports, "due to measure specification changes, results for this measure cannot be trended to previous years' results." In 2006 ACEI/ARB medication usage began to be accepted as meeting the HEDIS nephropathy testing measure. So, for comparison we show certain MHQP results for the site as well as for the state for 2002 and 2006.
FINDINGS TO DATE: Key findings include: results improved in each measure between 2002 and 2006. In 2006 (n=1391), the site's rates of testing for four diabetes-testing measures approached or exceeded 90%. The site's range of results for the four measures narrowed in 2006 to 86.1% - 91.9%, range 5.8 percentage points, having been in 2002 67.8% to 86.8%, range 19 percentage points, even excluding the measures whose definition subsequently changed. In 2006 site eye examination rates improved to 87.2%. Nephropathy testing rates (definition changed) were 86.1%. The 2006 site rate for testing of LDL (definition changed) was 90.1% and A1c was 91.9%. The site had previously shown improved rates of testing for the measured population (abstract IsQua '07 & poster regional SGIM '05), and LDL cholesterol control improved in a random sample of the measured patients in whom the rate of LDL cholesterol testing improved (abstract SGIM '07). In 2006 the site results for each measure approximate each other, and absolute performance for eye examination and urinary nephropathy testing measures rose to a range similar to the A1c and LDL testing rates results. And, the 2006 range of results for the site (reported above) is narrower than and in the upper portion of the range for the state in 2006 (75.3% - 92.0%, range 16.7 percentage points).
KEY LESSONS LEARNED: Improvements can be made to the frequency of performance of diabetes tests with a streamlined process without electronic point-of-care decision support systems.

INTERNAL MEDICINE RESIDENT SAME DAY CLINIC HYPERTENSION IMPROVEMENT INITIATIVE P. Chelminski[1]; D. Dewalt[1]; M. Pignone[1]; R. Malone[1]; W.G. Annie[1]; J. Pagliei[1]. [1]University of North Carolina at Chapel Hill, Chapel Hill, NC. *(Tracking ID # 189597)*

STATEMENT OF PROBLEM OR QUESTION: To identify common reasons why patients with uncontrolled hypertension (HTN) do not receive medication interventions in the outpatient acute care setting.
OBJECTIVES OF PROGRAM/INTERVENTION: 1. This pilot project will determine the percentage of patients seen in the Internal Medicine Same Day Clinic (SDC) with uncontrolled HTN who received a medication intervention. 2. Elucidate the common reasons why uncontrolled HTN is not treated in SDC. 3. Determine what changes we can make to increase the percentage of patients with uncontrolled HTN seen in SDC whose BP is addressed and appropriately treated. Lessons learned will guide development of a formal intervention.
DESCRIPTION OF PROGRAM/INTERVENTION: A daily chart review of each patient seen in SDC with uncontrolled HTN (defined as SBP>160 and/or DBP>95) was performed during the study period from 10/30/07 through 11/30/07. The clinic is staffed by an attending physician and 2 to 3 resdidents. We determined: 1. Whether uncontrolled HTN was addressed at the visit. 2. If uncontrolled HTN was addressed, whether the physician recommended titration of existing anti-hypertensive medications or addition of a new anti-hypertensive medication once adherence to current medications was confirmed. 3. Whether the physician cited any reasons for not intervening to improve BP control. 4. Whether the physician requested follow-up for patients in whom a medication intervention was not made.
FINDINGS TO DATE: Over the assessment period, a total of 482 patients were seen and 87 patients (18%) had SBP>160 and/or DBP>95. On average 4 patients per day met study entry criteria. Chart review showed that 31 patients (36%) received a medication intervention to improve BP control. In 16 patients (29%), there was no explanation for lack of intervention. In the remaining 40 patients, several reasons were cited for no intervention. These included 13 patients with pain (24%), 6 with medication non-adherence (11%), 6 were deferred to the primary provider (11%), 5 had a lower blood pressure on recheck (9%), 2 recommendations for lifestyle modifications (4%), and 2 isolated elevated blood pressure readings (4%). One patient refused interventions. In two patients, an upper respiratory infection and cocaine use were cited as reasons for non-intervention, respectively. One patient had a lower GI bleed. Of six patients instructed to follow-up with their primary care physician, only 2 had an appointment scheduled.
KEY LESSONS LEARNED: Uncontrolled HTN was common in an outpatient acute care setting. Elevated blood pressure was frequently not addressed, and there were many missed opportunities to improve HTN control. Pain, though frequently cited as a reason for no intervention, may not be a valid justification for inaction. Patient non-adherence contributes to poor blood pressure control. Lack of patient ownership in the acute setting leads to inaction and sub-optimal follow

up. We will formally evaluate an intervention to address these areas a report the outcome.

QUALITY DASHBOARDS: PROVIDING PERFORMANCE MEASUREMENT AND DISEASE MANAGEMENT TOOLS IN AN ELECTRONIC HEALTH RECORD R. Tsurikova[1]; K. Mccolgan[1]; J.A. Linder[1]; J.L. Schnipper[1]; E. Jung[2]; L.A. Volk[2]; B. Middleton[1]. [1]Brigham and Women's Hospital, Boston, MA; [2]Partners HealthCare System, Inc., Wellesley, MA. *(Tracking ID # 190496)*

STATEMENT OF PROBLEM OR QUESTION: Can quality reporting tools integrated with ambulatory electronic health records (EHRs) help clinicians understand their performance, manage populations, and improve quality of care?
OBJECTIVES OF PROGRAM/INTERVENTION: To assess the perceived value of EHR "Quality Dashboards" by clinicians; to assess the impact of quality dashboards on compliance with best practices in Acute Respiratory Infection (ARI) and Coronary Artery Disease (CAD); to identify barriers to the effective use of computer-based quality improvement strategies.
DESCRIPTION OF PROGRAM/INTERVENTION: The ARI and CAD Quality Dashboards (QDs) are secure web reports integrated into the Partners Healthcare EHR, known as the Longitudinal Medical Record (LMR). The QDs provide clinicians with performance measures for their panels of patients, comparing clinicians' data against clinic and national benchmarks. The ARI QD displays rates of antibiotic prescribing for various ARI diagnoses with a goal of reducing inappropriate antibiotic use. The CAD QD displays rates of compliance with 7 different CAD quality measures such as blood pressure, lipid management, and antiplatelet use. Both QDs allow users to "drill down" to individual patient data to review details and export the report to Excel for additional follow-up action or analysis. In addition, the CAD QD provides the ability to create customized lists of patients using filters pertaining to various clinical data, such as lipid levels, documentation of smoking status, and medication use. Such lists can then be used by physicians or practice managers for follow-up.
FINDINGS TO DATE: Both the ARI and CAD QDs have successfully completed pilot testing with Partners-affiliated clinicians. The CAD QD also underwent usability testing. Pilot users were asked to complete an online post-survey. The ARI QD recently completed a cluster randomized controlled trial (RCT) in 24 Partners ambulatory care clinics. The CAD QD is scheduled to begin its RCT in February 2008. Evaluation of the ARI QD by pilot users found it to be useful and insightful. Clinicians found the ARI QD with information on diagnoses and levels of service billing data comparisons helpful in understanding practice patterns for ARI. Pilot evaluation of the CAD QD indicated that clinicians would prefer it to include the ability to perform actions for patient populations (i.e., for case management) as well as for individual patients. In response to pilot users' feedback, the CAD QD now allows providers to utilize the application to perform batch actions (e.g., letter writing) for selected groups of patients.
KEY LESSONS LEARNED: Preliminary results suggest that the ARI and CAD QDs are useful performance measurement tools for acute and chronic disease conditions. They allow providers to compare themselves to their peers and to national quality benchmarks, while having the functionality to drill down to patients' records. As pay-for-reporting and pay-for-performance become more common, the perceived value and usage of Quality Dashboards will likely increase.

RUNNING ON TIME AND ON TARGET: USING THE PLAN-DO-STUDY-ACT MODEL TO IMPROVE CLINIC EFFICIENCY N. Moy[1]; C. Chin-Garcia[1]; S. Swenson1; B. Tschai[1]. [1]California Pacific Medical Center (CPMC), San Francisco, CA. *(Tracking ID # 190396)*

STATEMENT OF PROBLEM OR QUESTION: Delays at multiple junctures can impede pre-visit patient flow in ambulatory practices and thereby jeopardize clinic efficiency. We used the Plan-Do-Study-Act (PDSA) Cycle to ascertain barriers to on-time patient visits and develop and evaluate interventions to improve this process in an academic general internal medicine (GIM) practice.
OBJECTIVES OF PROGRAM/INTERVENTION: 1. Determine the components of efficient patient flow in an academic ambulatory practice. 2. Determine the barriers to efficient patient flow. 3. Implement a succession of rapid PDSA cycle interventions that target these barriers and evaluate their impact on pre-visit patient flow.
DESCRIPTION OF PROGRAM/INTERVENTION: We initially shadowed willing patients (N=19) from their entrance to the clinic until their exit after the visit to determine the components of patient flow and generate baseline times for each of these components. We met with key clinic stakeholders to garner perceptions of patient flow barriers and brainstorm potential interventions. We focused on components of patient flow that occurred prior to the patient meeting with the physician (pre-visit). Using the PDSA process, we tracked an additional 29 patients and implemented an intervention that eliminated a redundant component for pre-visit patient flow, measuring changes in the duration of pre-visit patient flow times.
FINDINGS TO DATE: We isolated four distinct components of pre-visit patient flow whose duration ranged from a mean of 1.1 to 8.8 minutes for a mean total pre-visit time of 16 minutes (range 6–39 minutes). Prior to our study, the majority of clinic staff and clinicians believed that late patient arrival and registration time accounted for the major delays in pre-visit patient flow. In contrast, we found that those components that occurred after registration and involved nursing staff were the longest and most variable in duration. Our quality improvement interventions streamlined the process of notifying nursing staff of patients' arrival and thus created a decrease in the duration of one nursing component by an average of 1.1 minutes (a 60% reduction).
KEY LESSONS LEARNED: 1. The PDSA process is easily adaptable to quality improvement measures that aim to improve systems issues of care, such as patient flow and clinic efficiency. 2. Data generated from the PDSA process can correct staff and clinician misperceptions regarding the barriers to efficient patient flow and allow investigators to target effective interventions. 3. Soliciting staff input for quality improvement interventions can improve the content of interventions and is important in facilitating intervention acceptance by staff members. 4. Soliciting staff involvement can temporarily improve patient flow (observer bias) even in the absence of an intervention, underscoring the importance of data collection throughout the different stages of PDSA cycles.

TAILORING WEB-BASED INTERVENTIONS TO YOUNG FEMALE SMOKERS USING AUDIENCE SEGMENTATION C.J. Ewan Whyte[1]; S.N. Keller[2]; M.D. Slater[3]; L. Pbert[4]; E. Chang[5]; S. Druker[4]; L.N. Kuhl[1]; N.F. Col[1]. [1]Maine Medical Center Research Institute, Scarborough, ME; [2]Montana State University-Billings, Billings, MT; [3]The Ohio State University, Columbus, OH; [4]University of Massachusetts Medical School (Worcester), Worcester, MA; [5]Independent Consultant, Seattle, WA. *(Tracking ID # 190182)*

STATEMENT OF PROBLEM OR QUESTION: Although young women who smoke face substantial health risks, they present unique challenges in receiving counseling to quit as they rarely seek help and tend not to report that they smoke to their clinicians.
OBJECTIVES OF PROGRAM/INTERVENTION: We designed the website, Delivering Effective Brief Behavioral Interventions (DEBBI), to deliver targeted educational videos and health information to three distinct subgroups, or clusters, of young women 18–24 years old who smoke. Our aims are to increase young women's motivation to talk to their clinicians about their smoking, and to simplify and stimulate their clinicians' delivery of brief behavioral interventions about smoking.
DESCRIPTION OF PROGRAM/INTERVENTION: Latent Class Analysis was used to profile patterns of behavioral, attitudinal and cognitive variables related to tobacco use among 443 young female smokers involved in a separate longitudinal study. Three distinct clusters were identified: (1) light-smoking "carefree" college students, (2) "happy" working women who enjoy smoking, and (3) "unhappy" addicted smokers with young children. Using the techniques of audience segmentation, we conducted 9 focus groups (54 participants) and 23 videotaped interviews to develop brief videos tailored to each cluster. Each video features personal testimonials from women in a cluster, modeling approaches to overcome barriers to quitting and discussing smoking with their physicians. DEBBI, the website that delivers the videos, includes a short questionnaire (12 items) to identify the user's cluster, a brief video matched to their cluster, and access to health information and resources for quitting. DEBBI also generates brief messages (matched to cluster) intended for their clinicians. We are presently conducting usability testing of the website.

FINDINGS TO DATE: Of the 16 participants screened, 14 were eligible and 8 participated. Their mean age was 20 years, 75% were white, and 88% were college students; they smoked an average of 15 cigarettes daily, and tried to quit an average of 3 times. Participants completed a one-on-one structured interview that included guided and unguided usage of the website and viewing of all 3 videos. Interviews lasted an average of 55 minutes; unguided use of DEBBI took 8 minutes. Nearly all (88%) of the usability subjects preferred the video matched to their cluster, 38% reported an increase in awareness of the benefits of quitting, and all showed an increased willingness to talk to their doctors about smoking and/or quitting. Half reported being more ready to quit after viewing the video matched to their cluster. DEBBI was endorsed by all the participants and all requested more information on the consequences of smoking and resources available to them for quitting. An important limitation of this small usability study is that the subjects may have reacted more favorably to DEBBI out of a desire to please the interviewer.
KEY LESSONS LEARNED: Our findings suggest that this novel approach to delivering tailored, brief behavioral interventions is feasible and can potentially motivate young women to talk to their doctors about smoking and increase their readiness to quit. Based on these favorable pilot results, DEBBI will be assessed in a randomized controlled trial and, if found to be effective, made available online for integration into clinical practices to help clinicians identify and counsel young women who smoke.

THE CHRONIC CARE MODEL: ASSESSMENT OF A QUALITY IMPROVEMENT INITIATIVE AIMED AT REDUCING HBA1C VALUES IN A POPULATION OF PATIENTS WITH POORLY CONTROLLED DIABETES E.S. Spatz[1]; S. Islam[2]; E. Bellin[1]; D.E. Morrison[1]. [1]Albert Einstein College of Medicine, Bronx, NY; [2]New York Medical College, Yonkers, NY. *(Tracking ID # 190200)*

STATEMENT OF PROBLEM OR QUESTION: For patients with chronically uncontrolled diabetes, is the Chronic Care Model (CCM) more effective than standard delivery of primary care at reducing hemoglobin A1c (HbA1c) values?
OBJECTIVES OF PROGRAM/INTERVENTION: (1) To determine the effectiveness of a quality improvement (QI) program based on the CCM at reducing HbA1c values of patients with chronically uncontrolled diabetes; (2) To determine factors predictive of HbA1c reductions; (3) To compare HbA1c reductions of program patients with a comparison group receiving standard primary care.
DESCRIPTION OF PROGRAM/INTERVENTION: The QI program was implemented in a medical residency ambulatory practice located in an urban, low-income, largely Latino community. Residents and faculty were encouraged to refer diabetic patients with HbA1c values >8%. The program operates one half-day per week and is staffed by medical residents, a primary care attending, a nutritionist and a licensed practical nurse. Patients referred to the program are seen by each member of the interdisciplinary team, which discusses each patient at the time of the visit. Medical residents use data sheets with point-of-care reminders to reinforce optimal diabetes management. Patients are seen every 2 weeks until their diabetes is better controlled.
FINDINGS TO DATE: 157 patients attended the program from May 2004 until June 2006. Patients eligible for inclusion had diabetes for more than one year and 2 HbA1c values >8% at least 3 months apart in the year prior to enrollment, with the latest HbA1c serving as the baseline value (n=85). We assessed factors predictive of achieving absolute HbA1c reductions of >1.2%, including number of program visits, body mass index, insulin use, and blood glucose self-monitoring. We compared our study group to a group of patients with uncontrolled diabetes who attended the same clinic and met identical criteria for analysis as the study group, but were not referred to the QI program. Patients were included in this analysis if they had HbA1c values available at 6 and 12 months from the index date, defined as the first study visit in the QI group (n=62) and the baseline HbA1c in the comparison group (n=425). Comparison patients were randomly selected for matching to study group patients based on initial HbA1c until a 2:1 match was achieved. Prior to matching, the mean baseline HbA1c values for the study and comparison groups were 10.66% and 9.64%, respectively, and the mean absolute HbA1c reductions at 6 and 12 months were 1.49 and 1.68 in the study group and 0.69 and 0.95 in the comparison group ($p<0.0001$ for each). Matching on baseline HbA1c (n=50 study patients, n=100 comparison patients; mean HbA1c= 10.054) and linear modeling of the change in HbA1c, with baseline HbA1c and treatment status as explanatory variables, demonstrated significantly greater reductions in the study group at both 6 and 12 months ($p=0.043$; $p=0.016$, respectively). Within the study group, only the number of program visits was predictive of HbA1c reductions.
KEY LESSONS LEARNED: Programs based on the CCM can lead to significant and sustained reductions in HbA1c values among patients with chronically uncontrolled diabetes. The CCM may be more effective than standard delivery of primary care in treating such patients. Limitations of this analysis include its nonrandomized design and potential referral bias. Although both groups attained significant HbA1c reductions, final HbA1c values were suboptimal. More research is needed to better define how best to achieve meaningful HbA1c reductions in this patient population.

THE CREATION OF A PHYSICIAN STAFFING MODEL TO DECREASE HANDOFFS. P. Gibbons[1]. [1]Stanford University, Palo Alto, CA. *(Tracking ID # 190937)*

STATEMENT OF PROBLEM OR QUESTION: Patient handoffs contribute to medical errors, and a system wide solution is necessary to mitigate the ill effects of handoffs, as outlined in the National Patient Safety Goals. For the purpose of this project, a handoff is defined as the transfer of patient care from an admitting physician to a team of physicians who provide care until discharge.
OBJECTIVES OF PROGRAM/INTERVENTION: The purpose of this quality improvement project was to (1) determine trends in patient admissions, (2) define the incidence of patient handoffs, and (3) utilize this information to create a new admitting structure to minimize handoffs.
DESCRIPTION OF PROGRAM/INTERVENTION: Over a five week period, from November 20 to December 24, 2006 (observation phase), all patient time of admission, admitting physician, and final ward service were collected. Data were entered into an Excel database, and analyzed with STATA to define the incidence of handoffs and determine admission trends. These data were utilized to design a staffing model that provided optimal physician resources during the busiest hours of the day. Specifically an additional general medicine ward team was created to admit patients during the daytime, which allowed the overnight team to admit patients from 5pm until 2am. The new model was implemented on April 10, 2007 with continuous data collection through May 8, 2007 (intervention phase).
FINDINGS TO DATE: During the observation phase, 301 patients were admitted to the medical service; 94 (31%) patients were handed off to a general medical service. Patient admission time demonstrated that 148 (49%) patients were admitted between 4pm and midnight. During the intervention phase, 306 patients were admitted to the general medicine service, 46 (15%) of whom experienced handoffs. Comparison of the observation versus intervention phases demonstrated a 52% reduction in handoffs (31 vs. 15%).
KEY LESSONS LEARNED: The 2008 National Patient Safety Goals published by the Joint Commission on the Accreditation of Healthcare Organizations mandates hospitals implement a standardized approach to handoffs. This ideal stresses the importance of seamless patient care transitions. Reduction in the incidence of handoffs may be complementary to this goal. The ability to match physician staffing to patient flow resulted in a dramatic reduction in the number of patient handoffs.

THE PHYSICIAN-TO-PHYSICIAN HANDOFF: THE VETERANS AFFAIRS CAIRO PROJECT J.K. Anderson[1]; D. Schroff[2]; A. Curtis[3]; N. Eldridge[4]; K. Cannon[1]; R.M. Karnani[3]; T.E. Abrams[3]; P. Kaboli[3]. [1]VA Iowa City Health Care System/University of Iowa, Iowa City, IA; [2]Washington DC VA Healthcare System, Washington, DC; [3]Iowa City VA Health Care System/University of Iowa, Iowa City, IA; [4]VA Central Office, Washington, DC. *(Tracking ID # 190036)*

STATEMENT OF PROBLEM OR QUESTION: The Joint Commission on Accreditation of Healthcare Organizations (JCAHO) introduced a National Patient Safety Goal which states hospitals should "implement a standardized approach to 'handoff' communications, including an opportunity to ask and respond to questions." Despite this recommendation, few studies on the safety or efficacy of current patient handoff systems exist and few standardized electronic medical record (EMR)-based handoff tools are available.

OBJECTIVES OF PROGRAM/INTERVENTION: We have designed and examined the utility of a standardized handoff software tool.
DESCRIPTION OF PROGRAM/INTERVENTION: As part of the process of improving physician handoffs, paper-based handoff sheets used by physicians were collected at two VA Medical Centers before and after implementation of an EMR-linked handoff tool and abstracted to identify the presence or absence of vital information. Physicians also answered a questionnaire regarding their perceptions of handoff methods before and after the EMR-linked handoff tool was implemented.
FINDINGS TO DATE: 963 patient handoffs were abstracted at baseline (N=550) and post-intervention (N=413). Improvements in handoff tool content were found for all vital component domains including code status, floor location, room number, two types of identifying information, typed format, medication and allergy lists. Eighty questionnaires were completed pre-intervention (N=36) and post-intervention (N=44). In general, the handoff software was well liked. There was post-intervention improvement in respondent perceptions that the handoff system optimizes patient safety and is of excellent quality (P<0.01) without causing the perception of omissions of necessary information (P<0.01) or commission of unnecessary information (P=0.04). There was significant improvement in perceptions that the handoff system is easy to use, efficient, and easy to read (P< 0.05). Respondents reported 12.4 minutes less time typing handoffs post-intervention (44.7 vs. 32.3 minutes; P=0.08) while caring for slightly more patients (6.4 vs. 6.8, P=0.04) and spending similar amounts of time in face-to-face handoff communication (12.9 vs. 12.7 minutes, P=0.53). Post-intervention respondents also reported increased comfort (P=0.02) with handing off patients to covering physicians and feeling greater preparedness (P=0.01) to care for patients received in handoff. No significant post-intervention changes were seen in reported physician-to-physician communication including changes in the handoff setting, giving a verbal report, format of the report, or use of "if-then" statements. Additionally no change was observed in communication with nursing staff.
KEY LESSONS LEARNED: The standardized handoff software improves shift change handoff methods between physicians, includes the necessary elements of a handoff, improves handoff completeness and data accuracy, and is well liked by users. With use of the handoff tool, we have also shown improvements in physician perceptions of handoff related patient safety, quality, and efficiency. The success of this new EMR-based handoff tool has led to national adoption with planned implementation across all VA Medical Centers.

THE RURAL OLDER ADULT MEMORY STUDY (ROAM): AN INTERVENTION TO IMPROVE SCREENING AND DIAGNOSIS OF DEMENTIA L. Boise[1]; E. Eckstrom[1]; L.J. Fagnan[1]; A. King[1]; M. Goubaud[1]; C.D. Morris[1]. [1]Oregon Health & Science University, Portland, OR. *(Tracking ID # 189836)*

STATEMENT OF PROBLEM OR QUESTION: Cognitive impairment affects at least 10–16% of people over 75, and 50% of people over 85. Yet, screening for cognitive impairment is rarely part of routine primary care visits for older adults.
OBJECTIVES OF PROGRAM/INTERVENTION: To determine if clinician education plus a simple practice protocol is feasible and can increase dementia screening and diagnosis in a rural primary care population over age 75.
DESCRIPTION OF PROGRAM/INTERVENTION: We implemented interactive, web-based dementia training for primary care clinicians and their staff, linked to newly implemented clinical protocols in a rural Oregon practice-based research network. The intervention was adapted from ACOVE (Assessing Care of Vulnerable Elders), a practice-change model developed by UCLA and Rand. In the ACOVE model, four methods of changing medical practice are used: efficient collection of condition-specific clinical data, medical record prompts to encourage performance of essential care processes, patient education and activation, physician decision support, and physician education. We conducted 2 2-hour web-based workshops for clinicians and their staff on dementia diagnosis and treatment that emphasized patient education and referral to local resources through the Alzheimer's Association. Clinic staff were trained to use a simple screening tool including the 3-item recall; these forms were placed on the chart of every patient over 75. If the patient screened positive, the clinician received an assessment form to assist in completing a dementia workup. The assessment could be done at that visit, or the clinician could schedule a separate appointment. The screening and assessment forms plus chart review were used to evaluate study outcomes. Clinicians completed brief pre- and post-intervention surveys of self-efficacy for dementia, and patients were surveyed to assess their acceptance of screening. Charts were reviewed during a 3-month period prior to the intervention to determine baseline rates of dementia diagnosis.
FINDINGS TO DATE: Nineteen clinicians and 26 medical staff in seven rural practices participated. Five hundred eight patients (age range 73–99, mean age 81) were seen by study clinicians during the three-month intervention; 436 (86%) of these were screened and 66 patients were subsequently evaluated for dementia. Twenty-one patients (4.8%) were diagnosed with either probable dementia (5) or mild cognitive impairment (16). For the 340 charts reviewed in the pre-intervention period, 3 patients (0.8%) were diagnosed with either dementia (2) or mild cognitive impairment (1). Chi-square analysis showed a significant increase in dementia-related diagnoses during the intervention (Pearson's chi-square=9.865, 1 degree of freedom, p<.01). The ROAM training and protocol increased clinicians' confidence in diagnosing dementia (p values 0.003–0.08 for individual questions). The protocol was easy to implement by clinicians and medical assistants. Ninety-eight percent of patients reported being "pleased" with screening or having "no concerns" about being screened for cognitive impairment.
KEY LESSONS LEARNED: The ROAM intervention increased screening for and identification of patients with cognitive impairment and was easy to implement in rural primary care practices. Clinicians reported increased confidence to diagnose dementia, and patients were satisfied with the screening process. The use of web technology and a simple clinic protocol may be an effective way to improve care of older patients in rural practices.

THE USE OF A PRESCRIPTION VOUCHER TOWER IN A GENERAL INTERNAL MEDICINE PRACTICE S.V. Joy[1]; B. Copley[1]; L. Mayo[1]; E. James[1]; T. Berry[2]. [1]Duke University Medical Center, Durham, NC; [2]Private Diagnostic Clinics, Durham, NC. *(Tracking ID # 189343)*

STATEMENT OF PROBLEM OR QUESTION: Is there a more efficient and effective way to distribute prescription medication coupons and vouchers to patients in a primary care setting?
OBJECTIVES OF PROGRAM/INTERVENTION: Objectives were to create a more effective process to display and distribute relevant prescription medication coupons and vouchers to patients, to develop a process to identify which prescription coupons and vouchers would be displayed in the display tower, and to track the dollar value and patient usage of the prescription coupons and vouchers that were made available.
DESCRIPTION OF PROGRAM/INTERVENTION: Coupons and vouchers for rebates or discounts on prescription medications are ubiquitous in a general internal medicine practice. Our experience has been that these vouchers go largely unused, which is unfortunate, as many of these coupons could provide additional financial benefit to patients and to the overall health system in regards to prescription drug costs. To develop a strategy for these prescription medication coupons and vouchers, Duke General Internal Medicine created a list of the top 100 medications currently prescribed by the providers in the practice. If a coupon or voucher was made available by pharmaceutical representatives for a medication on this list, it was included in the display. If the medication was not on the list, the coupons were discarded. A display tower and pockets to display the coupons were purchased for approximately $300. The display was placed in the practice waiting room, and coupons/vouchers were placed in the pockets, free for patients to pick-up and take from the clinic to their pharmacy along with their prescription. A member of the front desk staff and a member of the nursing team were tasked with maintaining an inventory of the coupons and obtaining new coupons from pharmaceutical representatives when existing coupons were depleted.
FINDINGS TO DATE: At the start of this project in September 2007, 154 coupons for 12 prescription medications were displayed in the tower. The total dollar value amount of the coupons displayed (AWP of the medication, and/or any dollar amount saving per prescription) was $15,541.62. As of January 4, 2008, 88% of the coupons had been taken from the voucher tower, representing a potential patient savings in prescription medication costs of $12,881.06.
KEY LESSONS LEARNED: Prescription medication coupons and vouchers can be organized in a single location that is accessible to patients visiting a medical office. Significant potential financial benefit was gained by the patients who chose to take a prescription medication coupon from the display stand. The effort required of the clinical staff to maintain the voucher tower was minimal, and strategies to increase further exposure and usage of a prescription voucher tower continue to develop.

USING HOSPITAL ADMINISTRATIVE DATA TO DETERMINE IF DEEP VENOUS THROMBOSIS/PULMONARY EMBOLISM IS PRESENT UPON HOSPITAL ADMISSION OR HOSPITAL-ACQUIRED: WHY YOUR INSTITUTION NEEDS TO KNOW P.J. Grant[1]; V. Bahl[1]. [1]University of Michigan, Ann Arbor, MI. *(Tracking ID # 190785)*

STATEMENT OF PROBLEM OR QUESTION: The Centers for Medicare and Medicaid Services (CMS) will not reimburse hospitals for several hospital-acquired conditions starting in October 2008, and will consider including DVT/PE on this list in 2009. Historically, hospitals have not documented whether the secondary diagnosis of DVT/PE was acquired during hospitalization or present upon hospital admission. In addition to hospital reimbursement, this difference can have several important implications including hospital performance profiling and patient safety reporting.
OBJECTIVES OF PROGRAM/INTERVENTION: To report the implementation and preliminary results of a systematic process to analyze an administrative database to determine the number of all secondary diagnoses of DVT/PE and the number of these that were hospital-acquired.
DESCRIPTION OF PROGRAM/INTERVENTION: The University of Michigan Health System began coding the timing of each ICD-9-CM diagnosis using a Present on Admission (PoA) variable for all hospital discharges in late 2005. Using an administrative database for adult patients discharged over a 12-month period, the incidence of DVT/PE as a secondary diagnosis that were present upon hospital admission versus those that were hospital-acquired were identified.
FINDINGS TO DATE: From 11/01/2006 to 10/31/2007, there were 982 hospital discharges with a secondary diagnosis of DVT/PE on all medical and surgical services. Of these, only 276 (28.1%) were determined to be hospital-acquired, indicating the vast majority were present upon hospital admission. Without using this PoA indicator, approximately 700 cases of DVT/PE would have been considered hospital-acquired and potentially not reimbursed under proposed CMS changes. Our institution has further utilized this data to preliminarily analyze General Surgery cases with acquired postoperative DVT/PE and examine if adequate prophylaxis measures were instituted. There remain limitations to the use of administrative data. The incidence of hospital-acquired DVT/PE may be understated as the sensitivity of ICD-9-CM coding is likely suboptimal. Additionally, it is well known that many cases of DVT/PE are diagnosed after hospital discharge and may not be captured with this system. Furthermore, the reliability of reported incidence will be influenced by the accuracy of ICD-9-CM and PoA coding.
KEY LESSONS LEARNED: Given our findings, the distinction of whether DVT/PE is present upon hospital admission versus hospital-acquired was impressive, and could have significant implications for hospital reimbursement. With the recent implementation of the CMS rule that requires hospitals nationally to code PoA value for all discharge diagnoses, this systematic analysis can be implemented at other institutions. Additional benefits of such a system may include the standardizing of medical record documentation and coding practices, as well as the identification of deficiencies in DVT/PE prophylaxis practices.

USING INFORMATION TECHNOLOGY TO ENHANCE BEHAVIOR CHANGE COUNSELING IN PRIMARY CARE C.D. Brackett[1]. [1]Dartmouth-Hitchcock Medical Center, Lebanon, NH. *(Tracking ID # 190498)*

STATEMENT OF PROBLEM OR QUESTION: Behavioral risk factors are the major causes of preventable death and disability in our society. Clinician interventions to change these behaviors have been inadequate due to a number of factors, most notably lack of time and clinician self-efficacy.
OBJECTIVES OF PROGRAM/INTERVENTION: To enhance the efficiency and efficacy of clinician behavioral counseling interventions through clinician training and the use of information technology to facilitate clinician counseling, educate patients, and link patients to existing behavior change resources.
DESCRIPTION OF PROGRAM/INTERVENTION: Smoking status, physical activity level, self reported height and weight, and responses to the Alcohol Use Disorders Identification Test (AUDIT) are assessed as part of a web-based patient questionnaire (HQUEST, Dynamic Clinical Systems) before physical exam appointments in an academic general internal medicine practice. Patients who are current smokers, obese (BMI>30), or score>15 on the AUDIT are asked additional questions to assess readiness, importance, and confidence in changing the relevant behavior. Based on the patient's responses, tailored messages are displayed on a "Personal Health Report" under the following categories: smoking, eating well, physical activity, weight, and alcohol. The message under each of these five categories includes a link to a corresponding website that offers more information, links to relevant reputable websites, and a menu of local and national resources. The existing clinician report from HQUEST was enhanced to cue behavior change counseling by the clinician during the appointment. This report includes the patient's behavioral risk factors, readiness to change, and (for smokers, the obese and alcohol use disorders) self rating on a 0–10 scale of their importance of and confidence in changing the behavior. Clinicians were trained on how to use these data for a motivational interviewing intervention.
FINDINGS TO DATE: The majority of patients surveyed found the patient report helpful (preliminary data-to be completed by the time of the meeting). Clinicians found the patient report, the changes to the clinician report, and the websites helpful. The websites were well utilized, each receiving roughly100 hits/month. A mailed survey of current smokers before and after the introduction of the personal health report did not show an impact on smoking cessation, but was limited by a low response rate and incomplete distribution of the report to patients during the rollout period.
KEY LESSONS LEARNED: A personal health report, individually tailored to a patient's behavioral risk profile, can serve as a useful adjunct to clinician delivered behavior change counseling. Websites containing information and resources on behavior change are utilized by patients and helpful to clinicians. These interventions can make the "knowledge transfer" aspect more efficient, leaving more time for motivational counseling during a physical exam visit.

USING IPOD TECHNOLOGY FOR WARFARIN EDUCATION: MOBILE COMPUTER-ASSISTED PATIENT EDUCATION FOR IMPROVING OFFICE EFFICIENCY N. Denizard-Thompson[1]; S. Singh[1]; M. Wells[1]; J.L. Wofford[1]. [1]Wake Forest University School of Medicine, Winston-Salem, NC. *(Tracking ID # 189873)*

STATEMENT OF PROBLEM OR QUESTION: Accomplishing patient education is an increasing challenge for office-based physicians because of the small amount of time allotted for an encounter and the growing number of tasks. New strategies are needed to improve educational efficiency in the ambulatory setting.
OBJECTIVES OF PROGRAM/INTERVENTION: 1. To pilot a new mobile patient education system using iPod technology to educate patients on warfarin management. 2. To develop educational tools that will save patient and clinician time while improving clinic flow and efficiency.
DESCRIPTION OF PROGRAM/INTERVENTION: We developed an educational module which consisted of a skit depicting two patients in the clinic lobby discussing the process of warfarin management within our clinic. The first introductory module was five minutes in duration and featured video, familiar voices, and imagery from the clinic. We created this module using standard software (Apple iMovie, iTunes), and it is available as an mp4 and through the following website (http://gallery.mac.com/wofford1#100042). After the patient received point-of-care INR testing, a physician solicited baseline information regarding duration of warfarin therapy, INR goal range, and warfarin indication. The patient then viewed the module on an Apple iTouch hand-held device, while the physician reviewed the INR and made necessary adjustments to the warfarin dosing. After completing the module, the patient was asked knowledge questions on warfarin adjustment and clinic protocols, and attitude questions regarding the module/device.
FINDINGS TO DATE: To date, 15 patients have viewed the module. The average age was 49 years old (range of 18 to 72). Two patients had initiated warfarin in the past week, and the remainder had been on warfarin for greater than two years. Baseline questions revealed that 47% (7/15) patients knew their target INR range, while 93% (14/15) knew their clinical indications. From the presentation, 53% (8/15) patients understood the office hours of when they could get their INR checked, but 93% (14/15) correctly answered a question about dosage adjustment. All participants were interested in viewing future patient education modules on the iTouch.
KEY LESSONS LEARNED: The use of the mobile educational device was well received by patients and staff. This strategy could standardize the educational message, improve clinic efficiency and help physicians meet educational goals. Based on this feasibility study, we are developing additional modules on warfarin management (drug interactions, nutrition, health risks etc.) that the patient can view at INR checks. We envision modules on other health topics such as diabetes, hypertension, and obesity that could be shared with other physicians.

USING THEORY OF CONSTRAINTS AND SYSTEMS THINKING TO IMPROVE PERFORMANCE IN A PRIMARY CARE CLINIC D. Hoover[1]; S. Kirsh[1]; D. Aron[1]. [1]Louis Stokes Cleveland VAMC, Cleveland, OH. *(Tracking ID # 190297)*

STATEMENT OF PROBLEM OR QUESTION: Systems approaches have been recommended as a means to improve overall clinic performance, but there are few systematic reports of their use.
OBJECTIVES OF PROGRAM/INTERVENTION: To use and evaluate a systems approach-Theory of Constraints (TOC) to identify core problems and potential high leverage points for intervention. (Breen AM, Burton-Houle T, Aron DC. Applying the Theory of Constraints in Healthcare:Part 1 -The Philosophy. Qual Manag Health Care. 2002 Spring;10(3):40–6.)
DESCRIPTION OF PROGRAM/INTERVENTION: Setting: Urban academic primary care clinic with ~11,000 patients that is staffed by a mix of attending physicians, internal medicine residents, and nurse practitioners. Team: All relevant services (clerks, nursing, providers, etc) were represented on the team. Three local business school students were also involved. Data collection: The team interviewed all types of clinic staff, observed patient and staff flow, and reviewed organizational policies. A series of "undesirable effects" (UDEs), e.g., suboptimal quality performance, high clerk turnover, and insufficient capacity for urgent visits, were identified. Using TOC: A current reality tree (CRT) was created to provide a logical systems view of the clinic. Starting with the list of UDEs, a chain of cause and effect relationships was built downward and laterally. After multiple iterations, all UDEs were linked through ~150 entities to an identifiable root cause (core constraint): meeting increasing stakeholder demands within increasing budgetary/policy limitations. The CRT also revealed that four core problems within our scope of influence accounted for >75% of UDEs and were potential high leverage points for intervention. TOC Evaluation: Ease of learning and implementing methods and communicating results were assessed.
FINDINGS TO DATE: The team found TOC concepts and methods to be simple to learn, implement and operationalize. The iterative processes and the visual representation of the CRT were helpful in facilitating understanding the complexity of clinic operations and facilitated communication among staff. Interventions were planned to address the four core problems: high provider scheduling variation, provider staffing not keeping up with demand, specific administrative policies, and insufficient space. We proposed our interventions to top management with a presentation using the CRT. Management found the clear links between the core problems and UDEs identified in the CRT easy to follow and saw the logic and potential in our plan targeting the leverage points. Based on prior experience, use of the CRT and the ease of sharing its results with others was instrumental in securing the additional resources needed to implement our clinic improvement plan. The main cost/resource was the time required. Seven core team members met for ~4 hrs a week with each team member doing an additional ~2 hrs of individual work between meetings.
KEY LESSONS LEARNED: TOC's current reality tree is a simple and easy to use tool to help a team gain a systems view of complex operations. The visual depiction of the cause and effect relationships from core problems to undesirable effects is easy to follow. It simplifies assessing core problems and identifying potential high leverage points for intervention. The team education on basic TOC concepts and sharing the CRT with staff between iterations were the most important parts of implementing TOC. The team plans to use and evaluate other TOC tools such as the future reality tree and transition tree in upcoming improvement projects.

"MY PATIENTS CAN'T READ?": RESIDENTS DO NOT YET HAVE THE SKILLS TO MAXIMIZE THE CARE OF VERY LOW LITERACY PATIENTS J.G. Adams[1]; D.L. Stevens[1]; C.C. Gillespie[1]; K. Hanley[1]; A.L. Kalet[1]; S. Zabar[1]. [1]New York University, New York, NY. *(Tracking ID # 190055)*

BACKGROUND: Our residents care for patients in a NYC public hospital and therefore serve a large proportion of patients with very low health literacy which is associated with worse health status, increased hospitlization and less health knowledge. As part of an annual performance based assessment of our residents' core generalist competencies we sought to assess their remediable skills in this arena.
METHODS: We developed, piloted, and implemented a standardized patient (SP) case as part of an annual 10-station objective structured clinical examination (OSCE). The 10-minute station presented a 30 year old Chinese patient diagnosed with Hepatits B (HepB) during pregnancy, with limited formal education, inability to read in English,no clear understanding of her diagnosis or understanding of any previously given information. The SP was trained to hand each resident a jumble of papers, including a pamphlet on HepB and an electric bill, saying "I don't know what all this means" but not to discuss her reading ability unless asked. Trained faculty observed residents, provided feedback, and rated them, using a 16-item behaviorally anchored checklist with acceptable reliability (alphas range from.50 to.90) on general communication skills (data gathering, rapporting building, patient education) and on the following case-specific health literacy and patient education competencies: recognition of the patient's limited health literacy, effective education about HepB, and negotiation of a mutually acceptable management plan.The SP rated her overall satisfaction
RESULTS: 24 medical residents (8 PGY1, 8 PGY2, 8 PGY3) and 2 faculty participated. Only 1 (4%) resident explicitly assessed the patient's ability to read the materials,and 23 (95%) residents did not identify the patient's low health literacy. A third of residents recommended the patient read the pamphlet, 15 (64%) performed the core patient education competencies called for by this scenario, however more than a third failed to do so in ways responsive to the patient's level of health literacy. While all 24 residents sought to educate the patient about HepB, a third used technical terms and/or failed to assess the patient's understanding, 2(8%) did not evaluate the patient's understanding of transmission and 9 (38%) evaluated the patient's understanding only in terms of risky behavior. Two (8%) did not formulate a plan for follow-up and of the 22 (92%) who did formulate a plan, 5 (23%) residents did not assess patient's ability/willingness to follow through on the plan. Residents' performance of these health literacy competencies was strongly correlated with SP satisfaction ($r=.76$, $p<.001$) and with their overall OSCE patient education communication skills ($r=.51$, $p=.012$) but not with total communication ($r=.21$, $p=.331$) or other sub-domains of communication skill (rapport building $r=.01$, $p=.961$), information gathering $r=.03$, $p=.896$).
CONCLUSIONS: Despite serving a low literacy, predominately immigrant population our residents, who overall have strong communication skills, did not identity low literacy as an obstacle to providing optimal care. This suggests the need for training on how to assess paitients' literacy, ensure understanding of printed material, and employ literacy tailored strategies for education to improve the quality of care

Scientific Abstracts

"NOTHING WORKS FOR MY PAIN": A QUALITATIVE STUDY OF BARRIERS AND FACILITATORS TO CHRONIC PAIN SELF-MANAGEMENT M.J. Bair[1]; M.S. Matthias[1]; K.A. Nyland[1]; M.A. Huffman[1]; D.L. Stubbs[2]; T.M. Damush[1]; K. Kroenke[3]. [1]Roudebush VA Center of Excellence for Implementing Evidence Based Practice, Indianapolis, IN; [2]Indiana University School of Medicine, Indianapolis, IN; [3]Regenstrief Institute, Indianapolis, IN. *(Tracking ID # 189812)*

BACKGROUND: Patient self-management is critical for the optimal treatment of chronic conditions, yet is complex and not well understood. Little is known about the challenges patients with chronic pain face in becoming effective "self-managers." Our objective was to identify barriers and facilitators to self-management of chronic musculoskeletal pain in an effort to improve the delivery and effectiveness of pain self-management strategies.
METHODS: We conducted a qualitative study of four focus groups. Patients were recruited from VA and university primary care clinics after their participation in a randomized clinical trial. The trial was designed to test a combined intervention, delivered by nurse care managers, of optimized anti-depressant therapy and a 6-session pain self-management program versus usual care for patients with comorbid chronic pain and depression. All patients completing the trial intervention were eligible for the current study. Focus groups were stratified by gender and three to six patients participated in each session. An experienced moderator facilitated the sessions, guided by semi-structured questions addressing self-management strategies delivered during the trial. Groups were audio-taped and transcribed. Analysis of each transcript identified conceptual themes present in the focus group guide as well as emergent themes from patient narratives of their self-management experiences. Three researchers independently coded transcripts with MAXqda software using constant comparison methodology. Discrepancies were resolved by consensus.
RESULTS: Patients (N=18) were 27 to 84 years old (M=54.8), 61% women, 72% White, and 22% Black. Barriers to the use of pain self-management strategies included: 1) lack of support from friends and

family; 2) limited resources (e.g. transportation, financial); 3) depression ("I have no hope", "I don't want to do anything when I am depressed"; 4) ineffectiveness of pain-relief strategies ("I hurt more"); 5) time constraints and other life priorities (e.g. work, child care and other family demands); 6) avoiding activity because of fear of pain exacerbation ("don't want to end up hurting myself"); 7) lack of tailoring strategies to meet personal needs; 8) not being able to maintain the use of strategies after study completion; 9) physical limitations ("problems walking"); and 10) difficult patient-physician interactions ("the only thing they (primary care providers) want to do is put you on an antidepressant"). Facilitators to improve pain self-management included 1) encouragement from nurse care managers ("she can get me back on track, because I'm off track"); 2) improving depression with treatment ("the depression went away and I was able to do more"); 3) supportive family and friends; and 4) providing a menu of different self-management strategies to use.
CONCLUSIONS: Given the cross-cutting relevance of patient self-management, the barriers and facilitators identified in this study may lead, not only to improved management of chronic musculoskeletal pain, but also to improvement in the care of patients with many other chronic conditions. Because our sample was relatively small, future research is planned to confirm these findings and design interventions to capitalize on the facilitators identified while at the same time addressing the barriers to pain self-management.

"THANKS FOR LETTING ME VENT": MORAL DISTRESS IN PHYSICIANS
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(Tracking ID # 190545)

BACKGROUND: Moral distress can arise when healthcare providers are constrained from implementing the course of action they deem ethically appropriate due to institutional obstacles or conflict with others about values. This construct has been extensively studied in nursing but has received little attention in physicians.
METHODS: We adapted an existing Moral Distress scale for use in physicians. The instrument contains 17 brief clinical scenarios such as professional competence, substandard care, end of life care, and workload. Respondents were asked to rate both the frequency of occurrence and the severity of distress using a 5-point Likert scale. An open response item asked respondents to describe the time when they experienced the greatest moral distress in clinical practice. The anonymous survey was administered to attending physicians and trainees who provide care to seriously-ill adult inpatients including internal medicine and subspecialties, neurology, family medicine and general surgery. Surveys were administered at departmental conferences or via mail. We analyzed the data using SAS including descriptive statistics and correlation matrices. Two independent raters performed content analysis via an iterative process on the open response data.
RESULTS: 125 physicians completed the survey for a response rate of 60%. This sample included 72% trainees and 28% attendings; 62% were male. The scenarios rated highest in frequency involved providing extensive life-sustaining treatment against the physician's judgment (rated 4 or 5 on a 5-point scale by 42%) and caring for a higher number of patients than is reasonable (40%). Scenarios most likely to receive high ratings for severity of distress include initiating extensive treatments believed only to prolong death (73% of respondents rating 4 or 5) or following the wishes of surrogate decision makers with regards to end-of-life care (70%). Two workload scenarios also received high ratings (68%, 69%). Overall years experience was correlated with increasing distress in trainees but not attending physicians. Increasing critical care experience was positively correlated with distress in housestaff ($p<0.05$) but negatively correlated for attendings ($p<0.05$). Gender was not predictive of moral distress. Content analysis revealed respondents describe the most distress in dealing with surrogate decision makers with 21of 53 open responses containing this theme. This most often was described when caring for patients near the end-of-life (10). Providing sub-optimal care and inadequate information sharing were also commonly identified themes.
CONCLUSIONS: Physicians are at risk for moral distress especially when providing life-sustaining treatment, dealing with surrogate decision makers and when enduring a high workload. The subjective experience varies among trainees and attending physicians. The etiologies and consequences deserve further study to improve physician satisfaction and patient care.

6-MONTH OUTCOMES OF A RANDOMIZED TRIAL OF A PRIMARY CARE-BASED ADOLESCENT DEPRESSION PREVENTION INTERVENTION
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(Tracking ID # 190185)

BACKGROUND: Prevention of depression in adolescence has emerged as a key public health goal in the United States and other developed countries. Face-to-face interventions led by mental health professionals may reduce risk. However, low cost, easily diseminated and culturally acceptable interventions are needed. We developed a low cost primary care/Intenet based depression prevention intervention for adolescents ages 14–21 based on face-to-face interventions of demonstrated efficacy. We evaluated two versions of this intervention: primary care physician (PCP) motivational interview +internet program (high intensity) versus brief advice + internet program (low intensity).
METHODS: The intervention includes an initial and follow-up interview in primary care, fourteen Internet-based modules based on Cognitive-Behavioral and Interpersonal Psychotherapy, and an accompanying parent program. We recruited 34 physicians within four health care delivery organizations in the Midwest and Southeast. Physicians are trained to perform the intervention using direct instruction and video example. Patients were screened for major depression (depressed mood) and evaluated by phone to confirm inclusion critiera (depressed mood) and exclusion (current major depression or other menal disorder). Adolscents were randomized to one of the two groups.
RESULTS: At the time of submission, 752 adolescents had been screened, 191 identified as at risk, 134 contacted, and 70 enrolled (enrollment rate=76%). The mean age was 17.2 years; the sample is 21% African American, and 53% male, 47% female with a mean Center for Epidemiologic Studies Depression (CES-D) score of 21. Ninety percent of adolescent participants actively engaged with it with a mean time on site of 153 minutes (low intensity group) versus 171 minutes (high intensity group) and changes in depressed mood did not vary meaningfully by group. In terms of depressed mood (all participants), the mean fall in CES-D scores was 21.2 (95% CI 17.7, 24.6) at baseline, 16.2 (12.3, 20.0) at 4 weeks, 15.0 (11.0, 19.0) at 12 weeks and 13.6 (8.6, 18.6) at 24 weeks 8.5 (3.5, 14.0) (all comparisons between baseline and follow-up have P value <0.05 for all groups). The likelihood of experiencing moderate - severe depressed mood (CES-D > 23) dropped by half in both groups and was maintained out to 6-months. For the high intensity group, percieved family social support increased and adolescents rated overal satisfaction with the intervention and trust in physician higher than the low insensitiy group. The incidence of suicidal ideation declined from 20% to 8% at six weeks (comparison p-value 0.096) dropped in both groups. There was trend toward lower incidence of progression to major depression in the high intensity group compared to the low intensity group. Baseline motivation, time on Internet site, high intensity group assignment, and favorable attitudes toward the intervention predicted improvement in depressed mood in linear regression models.
CONCLUSIONS: Primary care/Internet-based depression prevention, including screening for risk, engagement and internet-based behavior change, may be feasible for both physicians and adolescents and may reduce depressed mood in adolescents increase family social support. Outcomes for both groups were similar, but participant in high intensity arm reported greater satisfaction/trust and possibly lower risk progression to MDD compared with the low intensity arm.

9-YEAR CHANGES IN PHYSICAL ACTIVITY AND SUBSEQUENT RISK OF TYPE 2 DIABETES IN MEN.
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(Tracking ID # 190287)

BACKGROUND: Despite the known health benefits of physical activity on reducing the risk of diabetes, the maintenance of an active lifestyle over a lifetime remains an individual and public health challenge with few published studies. We therefore investigated 9-year changes in physical activity among middle-aged and older men and the subsequent risk of diabetes.
METHODS: The Physicians' Health Study (PHS) was a 2×2 clinical trial of aspirin and beta-carotene for the primary prevention of CVD and cancer among male physicians followed since 1982. Among nondiabetic

men for whom data was available at baseline and at 9 years, we collected extensive lifestyle and clinical data from self-reports on questionnaires. We created a dichotomous physical activity variable, defined as vigorous exercise at least weekly, to identify an active group of men at baseline. We used a question on whether participants exercised regularly, asked for the first time at 9 years, to define the active group at the second timepoint. We also considered physical activity changes in the context of WHO-defined body mass index (BMI) categories of normal (<25 kg/m2), overweight (25 to <30 kg/m2) and obese (> or=30 kg/m2) men at baseline. We then used Cox proportional hazards models to calculate the hazard ratios (HRs) and 95% confidence intervals (CIs) of incident diabetes for men who remained physically active at baseline and 9 years follow-up, adjusting for age, BMI, and other diabetes risk factors. We excluded men with diabetes at baseline or by 9 years and men with missing physical activity or BMI variables.
RESULTS: After exclusions, 15,834 remained in the dataset. At baseline, 11,806 (74.6%) reported vigorous activity at least weekly. At 9 years, 63.3% of these remained active. Of the 4,028 who were inactive at baseline, 2,660 (66.0%) remained inactive. The normal BMI group contained the highest proportion of men reporting the most frequent activity at both timepoints, at 26.7%, compared with the overweight and obese groups men, at 20.8% and 16.9%, respectively. Compared with those men who were physically active at both time points, the multivariable-adjusted HR of incident diabetes for men inactive at both time points was 1.51 (95% CI: 1.32, 1.73). For those for men active at baseline but not at 9 years, the HR was 1.58 (95% CI: 1.39, 1.80); and for those men initially inactive but who reported regular physical activity at 9 years, the HR was 1.40 (95% CI: 1.18, 1.67).
CONCLUSIONS: Changes in physical activity over time appear to be influenced in part by initial BMI, and becoming or remaining inactive is associated with higher risk. Conversely, becoming active later in life may confer some benefit. These data on 9-year exercise patterns in physical activity emphasize the importance of maintaining long-term regular exercise on lowering the risk of diabetes.

A COMPARISON OF RESIDENT BURNOUT IN DIFFERENT TRAINING ENVIRONMENTS J. Ripp[1]; R. Fallar[2]; R. David[3]; L. Reich[4]; M. Babyatsky[5]; D.R. Korenstein[1]. [1]Mount Sinai School of Medicine, New York, NY; [2]Mount Sinai School of Medicine, NY, NY; [3]Elmhurst Hospital Center, Elmhurst, NY; [4]Elmhurst Hospital Center, NY, NY; [5]Mount Sinai Medical Center, NY, NY. *(Tracking ID # 190049)*

BACKGROUND: Burnout has been defined as a pathological response to intense and prolonged occupational stress that leads to emotional depletion and maladaptive detachment. (1) Among US resident physicians, burnout rates may rise to be as high as 76% from as low as 4% at the start of training. (2–5) Job burnout is associated with depression and possibly sub-optimal patient care. (3–5) Resident, system, and training setting factors that predispose to the development of job burnout are unclear. Most US studies have explored resident burnout in large academic medical centers; however, the impact of differences in resident pool and training environment in community hospitals remains uncertain.
METHODS: All incoming 2006 and 2007 first-year Internal Medicine residents at the Mount Sinai Hospital (NYC), an academic medical center, and Elmhurst Hospital Center (Queens, NY), a municipal community hospital, were asked to complete a self-administered survey during intern orientation just prior to the start of their residency programs. The survey consisted of an instrument used to measure job burnout (1), a sleep deprivation screen (6) and questions related to duty hours, psychiatric history, social support network, educational debt and demographic information. As an incentive to encourage completion of this voluntary survey, participants who completed the survey were given the opportunity to win one of four $50 gift certificates. Approval from the institutional review board was obtained prior to survey administration. The survey data was tabulated using SAS Statistical software. Multiple comparison tests were conducted to identify statistically significant differences in proportions (p<0.05). Student's T-test was conducted to identify differences in hours of sleep.
RESULTS: The response rate was 94%(145/154). The prevalence of burnout overall was 34%(50/145). At the start of internship, 37%(42/114) of residents from Mount Sinai Hospital were burnt out as opposed to 26%(8/31) from Elmhurst Medical Center. (p=.2011) There was no correlation between burnout rates and marital status, loan debt, history of depression or anxiety, Epworth sleep debt score or estimated need for sleep. Burnt out residents were more likely to not feel confident in their knowledge and skills to become an intern (32% v. 20%, p=0.04))
CONCLUSIONS: We found a higher burnout rate among incoming first-year residents in both academic and community settings than has been previously described in the literature. Confidence in one's knowledge and skills appears to be correlated with burnout among new interns and may serve as a warning sign or a modifiable risk factor for high-risk residents. References: 1.) Maslach C, Schaufeli WB, Leiter MP, Goldberg J.Job burnout: new directions in research andintervention. Curr Dir Psychol Sci. 2003;12:189–192. 2.) Thomas NK. JAMA. 2004 Dec 15;292 (23):2880–9. 3.) Gopal R, Glasheen JJ, Miyoshi TJ, Prochazka AV. Arch Intern Med. 2005 Dec 12–26;165 (22):2595–600. 4.) Shanafelt TD, Bradley KA, Wipf JE, Back AL. Ann Intern Med. 2002 Mar 5;136(5):358–67. 5.) Rosen IM, Gimotty PA, Shea JA, Bellini LM. Acad Med. 2006 Jan;81(1):82–5. 6.) Johns MW. Sleep. 1991 Dec;14(6):540–5.

A COMPARISON OF TWO SPIRITUALITY INSTRUMENTS AND THEIR ASSOCIATION WITH DEPRESSION AND QUALITY OF LIFE D. Bekelman[1]; D. Fairclough[2]; T.E. Yamashita[1]. [1]University of Colorado Denver, Aurora, CO; [2]University of Colorado Health Sciences Center, Aurora, CO. *(Tracking ID # 190237)*

BACKGROUND: Spirituality is a complex, multifaceted construct that is challenging to measure. Few studies beyond original validation work have compared spirituality instruments to understand the specific aspects of spirituality they measure. We compared the Functional Assessment of Chronic Illness Therapy-Spiritual Well-Being (FACIT-Sp) and Ironson-Woods Spirituality/Religiousness Index (IWSRI) to examine which aspects of spirituality they measure and how they relate to depression and quality of life.
METHODS: We conducted a cross-sectional study of 60 outpatients with symptomatic heart failure who were recruited from cardiology clinics at a community and tertiary care referral hospital. Participants completed the FACIT-Sp that includes two subscales, Meaning/Peace and Faith, and the IWSRI that contains four subscales, Sense of Peace, Faith in God, Religious Behavior, and Compassionate View of Others. We also measured depression using the Geriatric Depression Scale-Short Form (GDS-SF) and heart failure-related quality of life using a subscale from the Kansas City Cardiomyopathy Questionnaire (KCCQ). Within- and between-subscale Spearman correlations were used to assess associations between the spirituality instruments. Principal components analyses, with varimax rotation and number of factors determined by scree plots, further elucidated the relationships between the individual spirituality items from the two instruments. Correlations between spirituality subscales with depression and quality of life scores were also examined.
RESULTS: FACIT-Sp Faith was highly correlated with each of the IWSRI subscales: Sense of Peace (r=.72), Faith in God (r=.58), Religious Behavior (r=.63), Compassionate View (r=.48); p<.0001 for all. However, the Meaning/Peace subscale of FACIT-Sp was associated only with the IWSRI Sense of Peace subscale (r=.30, p=.02). Within-subscale correlations were high (range:.52 –.79) and significant (p<.0001) for both FACIT-Sp and IWSRI. The principal components analysis resulted in four factors. One factor loaded with 10 of 12 FACIT-Sp items, separate from the IWSRI items; all Meaning/Peace items were included in this factor. The IWSRI Sense of Peace items loaded together on another factor. The FACIT-Sp subscales were significantly correlated with both depression (Meaning/Peace: r=-.57, p<.0001; Faith: r=-.38, p<.01) and heart failure-related QOL (Meaning/Peace: r=.36, p<.01; Faith: r=.42, p<.001). No significant associations were observed between the IWSRI subscales and depression or quality or life.
CONCLUSIONS: The FACIT-Sp and IWRSI instruments measure different aspects of spirituality. The subscales from both instruments that purport to measure sense of peace were weakly correlated and the items from these subscales formed different factors in a principal components analysis. In addition, the subscales of the FACIT-Sp were associated with depression and heart failure-related quality of life, while the IWSRI subscales were not. Some of these differences may be due to the item wording, such as "I feel peaceful" in the FACIT-Sp contrasted with "My beliefs give me a sense of peace" from the IWRSI. The FACIT-Sp might be more useful in studies that aim to measure aspects of spirituality that are related to depression or quality of life, and the IWRSI for studies that aim to measure spiritual beliefs, faith, or religious behavior.

A CONTROLLED TRIAL OF TEAM BASED LEARNING VS. SMALL GROUP LECTURE IN AN AMBULATORY MEDICINE CLERKSHIP P.A. Thomas[1]. [1]Johns Hopkins University, Baltimore, MD. *(Tracking ID # 189471)*

BACKGROUND: Team-based learning (TBL) is a structured form of small group learning, in which students are required to prepare in advance, be assessed in their preparation and solve application exercises in small teams of 4–6. TBL is gaining popularity in medical education, since it utilizes social learning, and is felt to advance critical thinking and team skills. There is little information, however, on its effectiveness, especially in clinical education.
METHODS: An unblinded crossover trial comparing TBL to usual small group lectures and discussion (SGL) in 2 successive rotations of the required 4-week block Ambulatory Medicine Clerkship at the Johns Hopkins University School of Medicine. Six clerkship training problems were chosen for study; students in rotation 1 received 3 training problems as TBL and 3 as usual SGL; in rotation 2, students received the 3 training problems previously presented as TBL as SGL, and vice versa. Sessions were presented as a mix of TBL and SGL, and the order of problem presentation during the 4 weeks remained the same. All sessions were facilitated by the same faculty member. Outcome measure was student performance on end-of-clerkship written knowledge test items keyed to the six training problems.
RESULTS: 18 students completed rotation 1 and 20 students completed rotation 2 and all took the same written examination. The overall examination consists of 60 items; mean score (proportion of correct answers) overall for these students was 0.74 +.05; coefficient alpha for the test was 0.62. There was no significant difference between student performance in rotation 1 vs. rotation 2 on the overall test (mean score, 0.75 +.09 vs. 0.72 +.07, p=.25). 42 items were keyed to the 6 study training problems. Test scores for these items were 0.79 +.11 for content taught with TBL vs. 0.74 +.11 for content taught with SGL; p<.045, effect size (Cohen's d)=.47. With the exception of the Hypertension training problem, students performed better with TBL in each training problem assessment. The table below shows performance by training problem. Student ratings of the sessions did not differ between SGL and TBL.
CONCLUSIONS: As compared to usual small group lecture method, team based learning method appears to be acceptable to clerkship-level students and a moderately effective educational method for clinical clerkship students on an ambulatory medicine rotation.

Performance Scores on Knowledge Test for Problems Taught with SGL vs. TBL

Clerkship Training Problem:	Cough	Depression	Diabetes	Hypertension	Headache	Back Pain
SGL	.70	.80	.69	.69	.70	.87
TBL	.81	.81	.80	.63	.76	.96
p value (t test)	.02	.93	.002	.23	.20	.12
Effect size (Cohen's d)	.66	.03	1.1	−.39	.43	.51

A COST COMPARISON OF CARE AT RETAIL CLINICS AND OTHER CARE SETTINGS FOR THREE ACUTE CONDITIONS A. Mehrotra[1]; M. Wang[2]; J. Adams[2]; J.R. Lave[1]; E.A. Mcglynn[3]. [1]University of Pittsburgh, Pittsburgh, PA; [2]RAND, Santa Monica, CA; [3]RAND Corporation, Santa Monica, CA. *(Tracking ID # 190630)*

BACKGROUND: Retail clinics are an increasingly popular means of delivering urgent care. Proponents of retail clinics believe that their use of evidence-based guidelines will lead to less-costly, high-quality care. The American Medical Association (AMA) has charged that because retail clinics are owned by pharmacy chains, retail clinic providers will have an incentive to over-prescribe medications. Others are concerned that retail clinics will actually increase health care costs because most patients who visit retail clinics will also visit a physician for the same condition. We compared the costs of care for three acute conditions at retail clinics, physician offices, urgent care clinics, and emergency departments (ED).
METHODS: We obtained claims data from HealthPartners, a large Minnesota health plan that has reimbursed retail clinic visits for its enrollees for over five years. Three years of claims data among enrollees were aggregated into episodes of care using Symmetry's ETG grouper. An episode of care includes all visits, pharmaceutical claims, and ancillary tests over the entire course of an illness. We identified 2100 episodes (700 each) of urinary tract infections (UTI), pharyngitis, or otitis media (OM) where the first visit within the episode was at a retail clinic. These 2100 episodes were matched to episodes for the same condition, in which the first visit was to a physician office (3:1 match), urgent care clinic (3:1 match), and emergency department (ED) (1:1 match). Episodes were matched on patient age, gender, co-morbidities (ACG risk score), and socio-demographic status (income within patient's census block).
RESULTS: Total costs for episodes of care for the three conditions were cheaper at retail clinics compared to urgent care clinics (by an average of 34%, p<0.01), physician offices, (38%, p<0.01), and EDs (83%, p< 0.01). Most of the savings were due to lower charges for the initial visit. There was no increase in the use of prescription drugs at retail clinics and the percentage of patients who had any follow-up appointments after their first visit was almost identical at retail clinics, urgent care clinics, and physician offices.
CONCLUSIONS: Relative to care at physician offices, urgent care clinics, and EDs, care at retail clinics for UTI, URI, or OM is substantively cheaper. We find no evidence to substantiate the AMA's concern that retail clinic providers are more likely to prescribe medications.

A DECISION AID IS MORE EFFECTIVE THAN A LIVING WILL FORM FOR TEACHING MEDICAL STUDENTS ABOUT ADVANCE CARE PLANNING M.J. Green[1]; B.H. Levi[1]; E. Farace[1]. [1]Penn State College of Medicine, Hershey, PA. *(Tracking ID # 189961)*

BACKGROUND: Teaching medical students how to engage patients in the process of advance care planning is an important curricular goal, but the best way to do so is not known. We compared two strategies, and evaluated medical students' knowledge and skills, as well as patients' perceptions of students' performance.
METHODS: In this prospective, randomized, controlled trial, all second year medical students enrolled in a required Ethics & Professionalism course at Penn State College of Medicine (n=133) were assigned to either Standard Group (which used the Pennsylvania Living Will form), or Decision-Aid Group (which used the investigators' computer-based decision aid, "Making your Wishes Known: Planning Your Medical Future") to facilitate an advance care planning discussion. Student knowledge of advance care planning was measured with a 17-item test. Student skill in assisting patients with advance care planning was measured using a self-assessment instrument addressing their confidence, satisfaction, and perceived understanding of patients' wishes. Patient perception of student performance was measured with a 12-item instrument addressing students' communication skills and helpfulness.
RESULTS: Of the 133 eligible students, 89% (118) agreed to participate (60 Standard Group, 58 Decision-Aid Group). There were no differences between groups in terms of age (mean 25 years), gender (~50% female), or prior experience with advance care planning. Likewise, of the 118 patients who engaged in advance care planning, there were no significant differences between groups in age (mean 57 years), gender (57% female), prior advance directive (20%), or computer ownership (92%). A. Knowledge: Students' knowledge of advance care planning increased significantly in the Decision-Aid Group (84% pre-intervention 88% post-intervention, p=0.0016), but not in the Standard Group (86% pre-intervention 85% post-intervention, p=0.99). The change in knowledge was significantly higher (p=0.0024) in the Decision-Aid Group (5%) than in the Standard Group (−1%). B. Skills: Students' confidence in their ability to help patients with advance care planning (1=not at all confident, 4=very confident) increased significantly (p<0.0001) in both groups, with the increase in confidence being significantly higher (p=0.047) in the Decision-Aid Group than in the Standard Group (0.71 versus 0.5). Students' satisfaction with the advance care planning method (1=very dissatisfied, 5=very satisfied) was significantly greater (p<0.001) in the Decision-Aid Group (4.14) than in the Standard Group (3.35). Students' knowledge of patients' wishes did not differ between groups; however, for one of the four items (I feel I know what matters most to this person regarding his/her end-of-life wishes), scores were significantly greater (p=0.046) in the Decision-Aid Group (4.38) than in Standard Group (4.07). C. Performance: Patient satisfaction with student performance (1=not at all satisfied, 10=extremely satisfied)

was significantly higher (p<0.001) in the Decision-Aid Group (9.68) than in the Standard Group (8.77). Further, patient satisfaction with the advance care planning method (1=very dissatisfied, 5=very satisfied) was significantly higher (p<0.001) in the Decision-Aid Group (4.19) than in the Standard Group (3.66).
CONCLUSIONS: As a method for teaching students how to discuss advance care planning with patients, our computer-based decision aid outperformed a standard living will form across all parameters measured.

A DESCRIPTIVE EPIDEMIOLOGY OF LOCUS OF CONTROL (LOC) AMONG PARTICIPANTS IN THE SOUTH BRONX OBESITY REDUCTION INITIATIVE (SOBORI) R. Bernstein[1]; S. Lorenz[1]; G. Sacajiu[1]. [1]Montefiore Medical Center, Bronx, NY. *(Tracking ID # 190064)*

BACKGROUND: Despite the serious consequences associated with obesity, prevention and treatment continue to be difficult to achieve in part because there is little known about the factors affecting engagement in weight loss programs. The objective of this study was to assess beliefs and weight-related attitudes among a group who agreed to participate in a weight reduction program. We used internal-external locus of control as a personality construct to describe engagement in a weight reduction program among obese urban population.
METHODS: Patients at our community health center were referred by their primary care providers and were eligible if: >18 years, body mass index >30, and were excluded if pregnant, had uncontrolled psychiatric disorders, or were on chronic systemic steroids. Eligible patients were consented and referred to the on-site program, SoBORI, which was integrated into their ongoing health care. In addition to demographic description, we intended to measured locus of control using Multidimensional Health Locus of Control (MHLC) scale. The study was IRB approved.
RESULTS: Between February 1st 2005 and December 31st 2006, 436 patients were referred to the program. Of those, 342 expressed interest and 152 consented to participate and came for a first intervention meeting. The mean age was 40.6 years (range 18 – 73 years). The participants were 95% women, 53% African American, 43% Hispanic, and 4% of other ethnic groups. Eighty percent were US born, 61% were single, 22% were married, and 16% were separated or divorced. Eight percent completed middle school or less, 46% completed high school, 32% completed some college, and 10% completed 4 years of college. The MHLC, though a validated tool in other populations, was piloted and found not comprehensible by our participants. Thus, an excerpt of MHLC was used along with items related to Weight Reduction Locus of Control (WRLC). When asked about their ability to make themselves well again when ill, overeating, or lack of regular exercise as the reason for being overweight, participants scored means of 4.8 (SD1.49), 5.2 (SD 1.5), and 4.8 (SD 1.7) respectively on a Likert scale of 1(strongly disagree) to 6 (strongly Agree). Sixty five percent said the cost of exercise equipment makes it difficult to engage in regular exercise, 86% felt they needed structured meal plan to guide their diet, and 52% described their family and friends as not understanding how difficult it is to loose weight.
CONCLUSIONS: In this population we found that the MHLC was not practical. However, the particular items related to WRLC were feasible to administer and revealed that external WRLC was scored highly with regard to family understanding and availability of exercise infrastructure but internal WRLC scored high with regard to understanding of personal behavior as causes of obesity and perceived ability to change their health status. These scores predicted responses to weight-related measures which may point to etiology of obesity, confidence in weight loss behaviors, and behavioral intention. WRLC may be used in planning a new weight reduction program to specifically addressed population needs.

A FLASH OF CONCERN: HOT FLASHES, HORMONE THERAPY, AND CORONARY HEART DISEASE IN POSTMENOPAUSAL WOMEN A.J. Huang[1]; G.F. Sawaya[1]; E. Vittinghoff[1]; F. Lin[1]; D.G. Grady[1]. [1]University of California, San Francisco, San Francisco, CA. *(Tracking ID # 189483)*

BACKGROUND: Hot flashes are a common complaint of women during menopause and persist for 5 or more years past menopause in up to a third of women. A recent analysis from the Women's Health Initiative randomized trials has suggested that older postmenopausal women with persistent hot flashes may be at increased risk of developing coronary heart disease (CHD) in the setting of hormone therapy. However, the relationships between hot flashes, CHD, and hormone therapy have not been examined in detail in postmenopausal women.
METHODS: We analyzed data from the Heart and Estrogen/Progestin Replacement Study, a randomized placebo-controlled trial of 0.625 mg conjugated equine estrogen plus 2.5 mg medroxyprogesterone acetate in 2,763 postmenopausal women with CHD. Hot flash severity was assessed at baseline by self-administered questionnaires, in which women described the degree of bother associated with their symptoms. The primary outcome was time to first major CHD event, defined as either non-fatal myocardial infarction or CHD-related death. We developed Cox regression models to examine 1) the relationship of baseline hot flash severity to risk of CHD events in the first year of treatment among women randomized to estrogen/progestin versus placebo; and 2) the effect of estrogen/progestin on risk of CHD events in the first year of treatment among women with and without clinically severe hot flashes at baseline.
RESULTS: Sixteen percent (n=434) of participants reported clinically severe hot flashes, defined as those that were bothersome "some" to "all" of the time. In the first year of the trial, 95 major CHD events were observed (38 in placebo and 57 in estrogen/progestin groups) over 985,142 days of follow-up. Women in the placebo group with clinically severe hot flashes at baseline were less likely to experience a CHD event in the first year than women without hot flashes, even after adjusting for other CHD risk factors (adjusted HR=0.10, 95%CI=0.01–0.75, P=.03). In contrast, there was no significant association between baseline hot flash severity and risk of CHD events in the estrogen/progestin group (adjusted HR=1.04, 95%CI=0.50–2.15, P=.92). Among women without hot flashes at baseline, no significant increase in risk of CHD events was observed among women randomized to estrogen/progestin versus placebo (HR=1.32, 95%CI=0.86–2.03, P=.21). Among women with severe hot flashes at baseline, however, estrogen/progestin therapy was associated with a 9-fold greater risk of developing coronary heart disease event in the first year (HR=9.01, 95%CI=1.15–70.35, P=.04; P for interaction between treatment assignment and hot flash severity =.06).
CONCLUSIONS: Among postmenopausal women with CHD, hot flashes may be associated with decreased risk of CHD events in those not taking hormone therapy. However, hormone therapy appears to selectively and dramatically increase the risk of CHD events among postmenopausal women with clinically severe hot flashes. Although preliminary, these findings suggest that the negative cardiovascular effects of postmenopausal hormone therapy may be disproportionately concentrated in those women most likely to use it for hot flash treatment.

A LARGE OBSERVATIONAL STUDY OF CARDIOVASCULAR OUTCOMES ASSOCIATED WITH ATORVASTATIN OR SIMVASTATIN THERAPY IN HYPERTENSIVE PATIENTS WITHOUT PRIOR CARDIOVASCULAR DISEASE J.M. Foody[1]; A.T. Joyce[2]; B.W. Jeffers[3]; L.Z. Liu[3]; J.S. Benner[4]. [1]Harvard Medical School, Boston, MA; [2]PharMetrics, Watertown, MA; [3]Pfizer, New York, NY; [4]IMS, Falls Church, VA. *(Tracking ID # 189867)*

BACKGROUND: While atorvastatin has demonstrated benefit in the primary prevention of cardiovascular disease (CVD) in hypertensive patients, it is unclear whether differences in effectiveness exist between atorvastatin and other statins in hypertensive patients seen in clinical practice. If so, the public health implications could be significant. Therefore, we assessed cardiovascular (CV) outcomes in hypertensive patients without CVD who newly initiated atorvastatin or simvastatin, the second most commonly prescribed statin after atorvastatin.
METHODS: Using claims data from 92 US managed care plans, we identified patients with hypertension but without CVD who began therapy with atorvastatin (10 or 20 mg) or simvastatin (20 or 40 mg) between 1/2003 and 9/2005. Only patients who were continuously enrolled in a covered plan for at least 12 months before and at least 1 month after beginning treatment were included. The main outcome was time to first CV event (hospitalization related to myocardial infarction, angina or coronary artery disease, stroke, transient ischemic attack, peripheral or CNS vascular disease, or revascularization).
RESULTS: A total of 98,453 patients were identified, comprising 74,685 atorvastatin users (mean dose 13.6 mg) and 23,768 simvastatin users (mean dose 28.6 mg). Patients were followed for a median 1.5 years. The crude CV event rates were 2.81 and 3.92 per 100 person-years for atorvastatin and simvastatin, respectively (hazard ratio [HR] 0.73; 95% confidence interval [CI] 0.68–0.78, P<0.001). After adjusting for age, gender, type of health plan, payer type, geographic region, calendar year of statin initiation, physician specialty, co-morbidities, concomitant therapies, and prior healthcare cost, use of atorvastatin was associated with

fewer CV events compared with simvastatin (HR 0.91; 95% CI 0.84–0.98, P =0.009).
CONCLUSIONS: Hypertensive patients without CVD who initiated atorvastatin had a significantly lower risk of subsequent CV events compared with those who initiated simvastatin at doses of similar potency.

A LITERACY AND NUMERACY SENSITIVE EDUCATIONAL INTERVENTION FOR PATIENTS WITH DIABETES: A RANDOMIZED TRIAL R.L. Rothman[1]; R. Malone[2]; V. Hawk[2]; J. Joyner[2]; M.M. Huizinga[1]; K. Cavanaugh[1]; K.A. Wallston[1]; D. Dewalt[2]; M. Pignone[2]. [1]Vanderbilt University, Nashville, TN; [2]University of North Carolina at Chapel Hill, Chapel Hill, NC. *(Tracking ID # 190385)*

BACKGROUND: Low health literacy and numeracy are associated with worse diabetes knowledge, self-management, and glycemic control (A1C). We sought to test whether a literacy and numeracy sensitive behavioral intervention could improve diabetes outcomes within an organized, primary care-based program of diabetes care.
METHODS: We are performing a randomized controlled trial using the Diabetes Literacy and Numeracy Education Toolkit (DLNET) in conjunction with literacy-sensitive communication to improve outcomes for patients with Type 2 Diabetes within an organized, primary care based program. The DLNET includes literacy and numeracy sensitive educational materials related to blood sugar monitoring, dietary behavior, medication management, and other diabetes related self-management. Adult patients (18–85), with adequate vision, and baseline A1C >7.5% were eligible for participation. In addition to usual diabetes care, intervention patients receive 2–3 visits over 3 months with a specially trained registered dietician who is supported by a clinical pharmacist. The intervention dietician uses the DLNET and clear health communication skills during patient encounters. Control patients receive usual diabetes care and 2–3 visits with a different registered dietician who is also supported by a mid-level provider, but has received no additional health communication training or DLNET materials. A1C and the use of clinical services are collected at baseline and 3 and 6 months after enrollment. In addition, self-management behaviors, perceived self-efficacy, and treatment satisfaction are collected at baseline and 6 months.
RESULTS: From December 2006 to September 2007, we enrolled and randomized 92 patients. Patient characteristics were similar between control and intervention groups; mean age is 54 years, 51% are female, 64% African American, mean duration of diabetes is 11.1 yrs, and mean A1C at enrollment is 9.7%. Almost 1/3 of patients have < high school education, 58% have < 9th grade literacy skills (on REALM), and mean on our previously validated Diabetes Numeracy Test (DNT-15) was only 39%. To date, 65 patients (71%) have completed 3 month follow up; Control patients have a mean decrease in A1C of 0.7%, while Intervention patients have a mean decrease of 1.5% (Difference: 0.9, 95% CI −0.1, 1.8, p=0.08). To date, 41 patients (45%) have completed 6 month follow up; from baseline, Control patients have a mean decrease in A1C of 0.6%, while Intervention patients have a mean decrease of 1.6% (Difference: 1.0, 95% CI −0.5, 2.4, p=0.18). At 6 months, Intervention patients also appear to have more improvement in self-efficacy but no difference in treatment satisfaction when compared to Control patients.
CONCLUSIONS: A primary care-based, literacy and numeracy sensitive intervention appears to be effective in improving A1C, and possibly self-efficacy in patients with Type 2 Diabetes. Complete results are anticipated by March 2008.

A LONG WAY FROM HOME: COMPARING MENTAL HEALTH MEASURES BETWEEN FOREIGN AND U.S.-BORN LATINOS A. Casillas[1]; A. Kanaya[1]; C. Wassel Fyr[2]; S. Shrager[3]; K. Liu[4]. [1]University of California, San Francisco, San Francisco, CA; [2]University of California, San Francisco, SF, CA; [3]University of Washington, Seattle, WA; [4]Northwestern University, Chicago, IL. *(Tracking ID # 189443)*

BACKGROUND: Studies exploring the relationship between immigration to the U.S. and risks for depression and anxiety have varied in their conclusions, depending on reason for immigration, level of acculturation and languages spoken. We used data from Latinos in MESA (Multi-Ethnic Study of Atherosclerosis), and hypothesized that immigrant status would be associated with an increased risk for depression and anxiety.
METHODS: We examined baseline MESA data on Latinos collected in 2000–2002. MESA is a multicenter prospective cohort study of four ethnic groups between 45–84 years of age who were initially free of cardiovascular disease. Using nonparametric tests, we compared median values of Center for Epidemiologic Studies Depression (CES-D) scale and the Spielberger anxiety and anger scale responses between immigrants and non-immigrants. A CES-D score>16 was used as a validated cut-point for depressive symptoms. We used linear and logistic regression to examine whether immigrant status was associated with these psychological outcomes after adjusting for age, sex, socioeconomic information (education and family income), use of anti-depressant medications, alcohol use, smoking, exercise, BMI, hypertension, diabetes, and LDL-cholesterol. We present adjusted geometric means with 95% confidence intervals (CI) of the adjusted estimates. We determined whether length of time since immigration modified these associations.
RESULTS: Of 1,429 Latinos in our sample, 446 (31%) were immigrants with a mean 29±15 years since immigration. Immigrants were more likely to be women, have less educational attainment, lower income, less smoking and alcohol use, and lower BMI and waist circumference than non-immigrants. Immigrant Latinos had significantly higher median CES-D (8 vs.6, p<0.001) and anger (15 vs. 14, p<0.001) scores and a trend towards higher anxiety (p=0.11) versus U.S.-born counterparts. Compared to U.S.-born Latinos, immigrants had significantly increased scores on CES-D (7.5 (7.1–8.0) vs. 6.3 (5.7–6.9), p=0.003) and anger (14.8 (14.6–15.1) vs. 13.9 (13.5 – 14.2), p<0.001) scales even after adjusting potential confounders and covariates. After adjusting for confounders, a higher proportion of Latino immigrants had depressive symptoms compared to non-immigrants (22.7% vs. 17.7%, p=0.05). Length of time since immigration did not modify these associations.
CONCLUSIONS: Latino immigrants had higher indices of depressive symptoms and anger compared to U.S.-born Latinos. Our findings contrast to the "protective effect" of immigration on mental health that has been described amongst mostly Mexican immigrants. Further research should focus on comparing mental illness within Latinos across different areas of origin to identify populations that are most at risk for mental health disorders.

A MULTI-CENTER SURVEY OF FACTORS INFLUENCING MEDICAL STUDENTS' CAREER CHOICE REGARDING INTERNAL MEDICINE K.E. Hauer[1]; S. Durning[2]; W.N. Kernan[3]; M.J. Fagan[4]; H.E. Harrell[5]; M. Mintz[6]; M. Battistone[7]; M. Elnicki[8]; T. De Fer[9]; S. Reddy[10]; M.D. Schwartz[11]. [1]University of California, San Francisco, San Francisco, CA; [2]USUHS, Bethesda, MD; [3]Yale University, New Haven, CT; [4]Brown University, Providence, RI; [5]University of Florida, Gainesville, FL; [6]George Washington University, Washington, DC; [7]University of Utah School of Medicine, Salt Lake City, UT; [8]University of Pittsburgh, Pittsburgh, PA; [9]Washington University in St. Louis, St. Louis, MO; [10]University of Chicago, Chicago, IL; [11]New York University, New York, NY. *(Tracking ID # 190920)*

BACKGROUND: Residency match data show declining student interest in internal medicine (IM) careers. We sought to study factors influencing medical students' career choices regarding IM.
METHODS: We conducted a cross-sectional descriptive survey of senior medical students at 11 U.S. medical schools in spring 2007. We constructed survey items based on focus groups at 7 institutions and a literature review. Items queried demographics, specialties considered and chosen, and experiences during the IM clerkship. Students were asked about their perceptions of IM careers (5-point Likert scale, 1 = IM is much less, 5 = IM is much more) and items influencing their decision regarding IM as a career choice (5-point Likert scale, 1 = pushed away from IM, 5 = attracted toward IM). We conducted principal components analyses on the 32 items about influences on career choice with Varimax rotation, and calculated Cronbach's alpha and mean scores (range 1 to 5) for each factor.
RESULTS: Survey response rate was 1177/1439 (82%), including 52% women. While 24% of respondents had no outstanding loans, 40% owed at least $130,000. Only 274 (23%) anticipated careers in IM; 24 (2%) in primary care IM. Among the 903 not choosing IM, 494 (55%) had seriously considered IM. Most students made their career choice during (48%) or after (34%) the core clerkship year. 78% agreed that their medical school experience provided enough insight into what an internist does to make an informed decision about IM as a career. Although most (78%) were satisfied with their IM clerkship, only 19% reported that it made a general IM career more attractive whereas 49% reported that it made a subspecialty IM career more attractive. Compared to other specialties chosen or considered, students perceived that IM required more paperwork (68%), breadth of knowledge (62%), time for reimbursement/insurance issues (49%), and

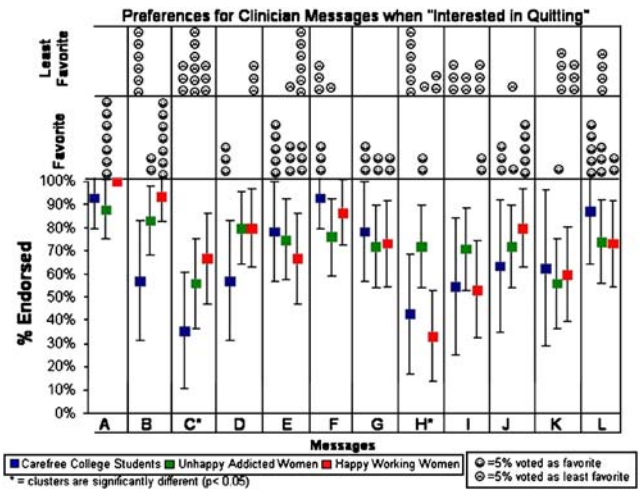
65% felt the income potential was less in IM. Items most strongly attracting students toward IM careers were intellectual challenge (64%), teaching on the IM rotation (63%), continuity of care (61%), and competence of IM residents (61%). Students were most strongly pushed away from IM careers by paperwork and charting (64%), attractiveness of other specialties (47%), need to bring work home as an internist (42%), job satisfaction among IM residents (42%) and time and workload demands of IM residency (40%) and careers (40%). Principal components analysis yielded three underlying factors that accounted for 36% of the variance in responses regarding influences on career choice: educational experiences (alpha=0.80, mean=2.9), lifestyle (alpha=0.80, mean=2.9), and patient care (alpha=0.79, mean=2.5).
CONCLUSIONS: Although medical students rate their IM clerkship experiences favorably, they perceive IM careers as burdensome and poorly rewarded. Students appreciate the teaching on the IM rotation and residents' competency, but perceive IM residency to be demanding and unsatisfying. Our findings suggest that the IM clerkship plays an influential role in students' career decisions and that systems improvements to the work environment would attract more students to IM.

A NEW SURVEY TOOL TO EVALUATE PHYSICIANS' COMMUNICATION STYLES G. Lowrey[1]; R. Mcnutt[1]; K.A. Skarupski[1]; E. Jacobs[2]. [1]Rush University Medical Center, chicago, IL; [2]Cook County Hospital, Chicago, IL. *(Tracking ID # 190682)*

BACKGROUND: Physician-patient communication research has focused primarily on verbal communication- dissection of spoken phrases or language mismatch. Few studies have addressed components of communication that may enhance patient comfort and willingness to talk with their provider. Our objective was to develop a tool to measure patients' assessment of these aspects of physician communication.
METHODS: We conducted interviews with patients, members of a hospital safety group, and nursing staff to identify components of physician behavior and presentation style that influence communication. We then developed 15 initial survey items based on these interviews. We organized these items of physician- patient "non-content" communication into two constructs: Styles of interaction, and the impact these styles have on patient comfort and behavior. We produced three videos of a single physician presenting the same verbal content regarding a patient's hypertension, diabetes, joint pain and rash to validate the survey content. The videos differed in the manner the physician presented the information. In video 1 (V1): the physician was constantly distracted; in V2: the physician presented the information briefly and succinctly with minimal patient interaction; and in V3: the physician behaved in a patient-centered manner with in depth discussion. 148 respondents from a hospital cafeteria were randomly assigned to watch one of the three videos and completed the survey. We used factor analysis to reduce the items and to measure the internal consistency of the final instrument. We also used Cronbach's alpha and logistic regression to measure the relationship between the three videos and the scores on our instrument
RESULTS: The entire survey differentiated between the videos well, and consistently (Cronbach's alpha= 0.91.) We were able to reduce the survey tool from 15 to 6 questions- including one outcome question, and five significant interaction questions (alpha=0.89.) The questions included "Seeing this doctor makes me nervous," "the conversation with this doctor seems rushed," "I would avoid telling this doctor my concerns," "The doctor speaks too fast," and "the amount of time the doctor spent explaining his/her plan is too little through too much," "The Doctor seems interested in me and not just my medical problems," and "The doctor would answer all of my questions." The question "The Doctor seems interested in me and not just my medical problems" was eliminated from the final questionnaire as it had a similar alpha to "the doctor would answer all of my questions," and both were developed as outcome variables. The addition of two questions relating to appearance which will likely be significant in future trials resulted in little loss of explanatory power. The final 8 item survey had an alpha of 0.79. The answers varied as predicted with V1 scoring higher on negatively phrased questions than either V2 or V3, and V3 scoring higher on positively phrased questions. This demonstrates the validity of our tool as a measure of "non-content" aspects of physician- patient communication.
CONCLUSIONS: Our short survey tool provides an easy and valid way to assess patients' opinions about physicians' non-content communication styles and willingness to discuss problems with their physicians. The next step will be to validate the tool with actual patient-physician encounters.

A NOVEL APPROACH TO TAILORING PHYSICIAN-DELIVERED SMOKING CESSATION MESSAGES TO YOUNG WOMEN L. Kuhl[1]; S.N. Keller[2]; M.D. Slater[3]; L. Pbert[4]; E. Chang[5]; S. Druker[6]; C. Ewan Whyte[1]; N.F. Col[1]. [1]Maine Medical Center Research Institute, Scarborough, ME; [2]Montana State University-Billings, Billings, MT; [3]The Ohio State University, Columbus, OH; [4]University of Massachusetts Medical School (Worcester), Worcester, MA; [5]Independent Consultant, Seattle, WA; [6]Universtiy of Massachusetts Medical School, Worchester, MA. *(Tracking ID # 190176)*

BACKGROUND: Smoking rates among young women continue to rise, yet few receive smoking cessation advice from their physicians. In order to tailor smoking cessation messages to the behavioral and attitudinal characteristics of this population, we previously identified three clusters of young female smokers. These clusters are: (1) light-smoking "carefree" college students, (2) "unhappy" addicted smokers with young children, and (3) "happy" working women who enjoy smoking. We propose that these clusters may vary in the types of quitting messages they prefer. The objectives of this study were to evaluate differences in young women's preferences for physician-delivered quitting messages according to their cluster and interest in quitting.
METHODS: Focus groups were conducted among female smokers aged 18–24. Sample messages drawn from the literature and expert panels were read to participants by a trained moderator. Participants were asked to endorse messages and select their most and least favorite messages, first role-playing that they were "interested in quitting" and then that they were "not interested in quitting." Results were analyzed using chi-square tests.
RESULTS: Nine focus groups (3 per cluster) were conducted with 54 women. Their mean age was 21 years, 46% were white, 52% had children, 38% were attending college, and 26% worked full-time. Level of endorsement varied significantly among messages, with some messages widely endorsed (93%), and others endorsed by a minority (30%). Endorsement varied significantly by cluster and/or interest in quitting for 7 of the 12 messages ($p < 0.05$) (Figure). The overall favorite message, "I'm here to help you quit smoking and cut back on drinking when you are ready," was not the favorite message for any cluster, and each cluster had a different favorite message. The messages preferred by "carefree" college students emphasized autonomy, those preferred by "unhappy" addicted smokers emphasized the physician's willingness to help them quit, and those preferred by "happy" working women emphasized health concerns.
CONCLUSIONS: Differences in preferences for physician-delivered quitting messages depended on a smoker's cluster and interest in quitting. Tailoring quitting messages to a woman's cluster and interest in quitting may help physicians deliver more effective smoking cessation advice to young female smokers.



A PATIENT-TAILORED NAVIGATOR PROGRAM FOR COLORECTAL CANCER SCREENING IN A COMMUNITY HEALTH CENTER: A RANDOMIZED CONTROLLED TRIAL S. Percac-Lima[1]; R.W. Grant[2]; A. Green[2]; J. Ashburner[2]; G. Gamba[1]; S. Oo[1]; J.M. Richter[2]; S.J. Atlas[2]. [1]Massachusetts General Hospital, Chelsea, MA; [2]Massachusetts General Hospital, Boston, MA. *(Tracking ID # 189500)*

BACKGROUND: Colorectal cancer (CRC) is the second leading cause of cancer death in the United States. Despite evidence that reductions in

CRC morbidity and mortality can be achieved through early detection and treatment, CRC screening rates are relatively low, particularly for low-income and racial/ethnic minorities. The objective of this study was to evaluate the effect of a culturally tailored intervention designed to increase CRC screening among low-income ethnically diverse patients.
METHODS: We conducted a randomized controlled trial at an urban, academic hospital-affiliated community health center. Patients were eligible if they were 52 to 79 years old and were overdue for CRC screening. All eligible patients were randomized to intervention and control groups in a 1:2 ratio. In the intervention group, patients received a letter with educational material and were contacted by a language-concordant "navigator" by phone or in person during a routine office visit. Navigators (N=5) were community health workers trained to identify and address patient-reported barriers to CRC screening. Individually tailored interventions included patient education, procedure scheduling, translation and explanation of bowel preparation, and help with transportation and obtaining insurance coverage. Patients in the control group received usual care. Rates of CRC screening were assessed for both groups
RESULTS: Among 1,223 eligible patients who were overdue for CRC screening, 409 were randomized to the intervention group and 814 to a control group. There were no significant differences in baseline characteristics among intervention and control patients. Navigators were able to contact 302 of 409 patients (74%). Over a 9-month period, intervention patients were significantly more likely to undergo CRC screening than control patients (27% versus 12%, $p<0.001$). Most of the difference among intervention and control patents was attributable to significantly higher colonoscopy rates (21% versus 10%, $p<0.001$). Over the course of the study 10.5 polyps and 0.24 cancers per 100 patients were identified in intervention group versus 6.9 polyps and 0.12 cancers per 100 patients in the control group. Intervention patients had higher CRC screening rates than control patients regardless of race, language spoken, or insurance status.
CONCLUSIONS: A culturally tailored, language concordant navigator program can significantly improve colorectal cancer screening, especially colonoscopy in a low income, linguistically and ethnically diverse patient population.

A PILOT RANDOMIZED TRIAL OF TWO TYPES OF VALUES CLARIFICATION EXERCISES TO FACILITATE INFORMED DECISION MAKING FOR PROSTATE CANCER SCREENING S.L. Sheridan[1]; C. Golin[1]; R.P. Harris[1]; D. Driscoll[2]; A.M. Deal[1]; E. Enemchukwu[1]; K. Fazekas[3]. [1]University of North Carolina at Chapel Hill, Chapel Hill, NC; [2]Research Triangle Institute, Research Triangle Park, NC; [3]Family Health International, Research Triangle Park, NC. *(Tracking ID # 190460)*

BACKGROUND: Professional organizations recommend that men should participate in decision making about prostate cancer screening because the decision depends on men's values in the face of scientific uncertainty. However, little is known about how to best help men clarify their values and come to a decision.
METHODS: We tested the effect of a prostate cancer screening decision aid alone (DA) or in combination with one of two different values clarification exercises [e.g. social matching (SM), ranking and rating (RR)] in a convenience sample of men, ages 40–80, with no prior history of prostate cancer. After completing a baseline questionnaire measuring their knowledge about prostate cancer screening, decisional conflict, and intent to be screened, men were randomized to one of the three intervention groups. Men in each group watched a video-based decision aid, after which men in the values clarification arms completed their values clarification exercises with the help of a research assistant. Those in the SM group identified their similarity to one of two men who had made opposite choices about prostate cancer screening, while those in the RR group weighed and ordered the importance of various features of prostate cancer screening. All men completed a post-intervention questionnaire to capture changes in decisional conflict, and intent to be screened; and to determine whether they felt they made a decision consistent with their values.
RESULTS: 75 men enrolled in our study. Median age was 58. 59% were African-American, 38% white. 92% had at least some college education. 88% had prior screening for prostate cancer and 85% planned to get a PSA test in the next 12 months. At baseline, 17% had the key knowledge necessary to make a decision. There were baseline differences among intervention groups in race, family history of prostate cancer, prior physician recommendations for screening, and prior prostate cancer screening; these were adjusted for in analysis. Following the interventions, there were no appreciable differences in decisional conflict among groups (adjusted mean absolute differences SM–DA: 0.0, 95% CI −0.35 to 0.35; RR-DA 0.01, −0.39 to 0.37). Men in different groups, however, tended to differ in their intent to be screened (adjusted mean absolute differences SM-DA: −3%, 95% CI −23% to 17%; RR-DA: −21%, −43% to 1%). Additionally, there was a trend toward fewer men in the RR group perceiving a decision consistent with their values (adjusted mean absolute difference RR-DA: −8%, 95% CI −23% to 7%).
CONCLUSIONS: A RR intervention appears to reduce men's intent for screening more than an isolated DA or a SM intervention, but may also reduce men's perceptions that they are making decisions consistent with their values. The effects of RR exercises should be explored further in larger samples and across different potential user groups.

A PRACTICE-BASED RANDOMIZED CONTROL TRIAL OF MOTIVATIONAL INTERVIEWING AND MEDICATION ADHERENCE IN HYPERTENSIVE AFRICAN AMERICANS G. Ogedegbe[1]; W. Chaplin[2]; A. Schoenthaler[1]; D. Statman[2]; D. Berger[2]; T. Richardson[3]; E. Phillips-Caesar[4]; J. Spencer[4]; J. Allegrante[1]. [1]Columbia University, New York, NY; [2]Saint Johns University, New York., Queens, NY; [3]Regional Perinatal System and Associated Programs for San Diego and Imperial Counties - Regional Perinatal Programs of California, San Diego, CA; [4]Cornell University, New York, NY. *(Tracking ID # 190462)*

BACKGROUND: Poor adherence to medication is a significant problem in hypertensive African Americans. Although motivational interviewing (MI) is effective for adoption and maintenance of health behaviors in patients with chronic diseases, its effect on medication adherence remains untested in this population.
METHODS: The objective of this randomized controlled trial was to test the effect of a practice-based MI counseling conducted every 3 months versus usual care (UC) on medication adherence and blood pressure (BP) in a sample of 190 hypertensive African Americans (88% women; mean age 54 years). Patients were recruited from two community-based primary care practices in New York City affiliated with the New York Presbyterian Hospital Ambulatory Care Network. The primary outcome was adherence measured by electronic pill monitors; the secondary outcome was within-patient change in office BP from baseline to 12 months.
RESULTS: Baseline adherence was similar in both groups (56.2% and 56.6% for MI and UC respectively, $p=0.94$). Based on intent-to-treat analysis using mixed regression, a significant time X group interaction with model-predicted post-treatment adherence rates of 43% and 57% were found in the UC and MI groups respectively ($p=0.027$), with a between-group difference of 14% (95% CI, −0.2% to −27%). The between-group difference in systolic and diastolic BP was −6.1 mm Hg ($p=.065$) and −1.4 mm Hg ($p=.465$), respectively, in favor of the MI group.
CONCLUSIONS: A practice-based MI intervention led to steady maintenance of medication adherence over time, compared to significant decline of adherence in usual care patients. This effect was associated with a clinically meaningful net reduction in systolic BP in favor of the MI group.

A QUALITATIVE COMPARISON OF MOTIVATORS AND BARRIERS TO WEIGHT LOSS AMONG AFRICAN AMERICAN MEN AND WOMEN S.H. Ward[1]; A.M. Gray[2]; A. Paranjape[1]. [1]Temple University, Philadelphia, PA; [2]Temple University School of Medicine, Philadelphia, PA. *(Tracking ID # 190787)*

BACKGROUND: Lifestyle and behavior modification remain the cornerstones of management for obesity. To successfully achieve this behavior change several factors including perceived risk, motivators and barriers must be addressed. This study identified motivators and barriers to attempted weight loss among obese, inner-city African Americans including gender differences and similarities. To date, no study has examined gender differences in patient perceptions of obesity.
METHODS: Six focus groups were conducted with obese African American patients receiving care in two urban, academic internal medicine practices; three with men and three with women. Drawing from published literature, a focus group guide was developed and used for all groups. The guide consisted of open-ended questions with follow-up probes with the goal of generating discussion about the perceived health risks associated with obesity, the benefits of weight loss, prior

weight loss experiences, and motivators and barriers to weight loss attempts. Each focus group lasted approximately 75 minutes. All groups were audio-taped and moderated by an African American female nurse practitioner with experience conducting focus groups. Tapes were transcribed and coded independently by the principal investigator and a co-investigator. No new codes emerged after the second group with either gender. Coding conferences were held until consensus was reached. A master code list was generated and the transcripts were then recoded and dominant themes identified.
RESULTS: Eight men and twelve women participated in focus groups. Female participants had a mean age of 48.7 years (range 34–59 years). Men had a mean age of 48 years (range 30–63 years). The mean BMI was 40.3 for women (range 31.7–53.7) and 41.3 for men (range 30.6–57.7). While men and women shared many barriers to weight loss, they also differed significantly in several important areas. Men were more likely to emphasize the role of exercise in decreasing weight and to identify unhealthy eating habits, reduced activity with retirement and anticipated discomfort with exercise as barriers to weight reduction. Women focused more on the role on dietary changes to achieve weight loss, and identified fear of appearing too thin, fatalistic attitudes such as "some of us were born to be thicker", previous failures with weight loss attempts, and a desire to be healthy without losing weight as significant barriers. Both genders perceived emotion driven eating, food cravings, busy lifestyle and access to healthy food and exercise facilities as barriers to weight loss. With respect to motivators, both men and women felt encouragement from a physician or family member, the desire to live longer and be healthier, experiencing less physical discomfort, and having increased physical endurance and ability were all important. While women also cited appearance as portrayed in the media, recognition of small losses by family and family support as additional significant motivators, these opinions were not voiced by the men.
CONCLUSIONS: While urban, obese African American men and women share some motivators and barriers to attempted weight reduction, significant differences are also present. In addition to shared systematic barriers such as the expense of healthier foods and access to exercise facilities, gender specific personal motivators and barriers also exist. Clinicians must be aware of these differences to better encourage and support weight loss efforts in these patients.

A RANDOMIZED COMMUNITY-BASED INTERVENTION TRIAL ASSESSING THE EFFECT OF CHURCH-BASED NURSE REFERRALS ON SYSTOLIC BLOOD PRESSURE A.A. Baig[1]; C.M. Mangione[1]; A. Sorrell[2]; J.M. Miranda[3]. [1]University of California, Los Angeles, Los Angeles, CA; [2]QueensCare, Los Angeles, CA; [3]UCLA Department of Psychiatry and Biobehavioral Sciences, Los Angeles, CA. *(Tracking ID # 189233)*

BACKGROUND: Community-based organizations have demonstrated success in providing care to individuals who are uninsured and underserved. Churches have emerged as a growing site for community health nursing. Unfortunately, there are been no controlled clinical trials of the effectiveness of these programs on the treatment of prevalent and morbid chronic medical conditions such as hypertension. Our goal was to measure the effect of church-based nurse referrals on blood pressure control, knowledge about hypertension, antihypertensive medication intensification, and participation in self-care among persons with hypertension.
METHODS: We recruited community-dwelling adults with hypertension who were 18 years-old and over, non-pregnant, and English or Spanish-speaking. All recruited patients had an average blood pressure reading equal to or above a systolic of 140 mm Hg or a diastolic of 90 mm Hg obtained at a parish nurse led health event in Los Angeles County from October 2006 to June 2007. Participants were interviewed, had blood pressure measured, and were randomized to either telephonic assistance with making primary care physician appointments or direct referral to parish nurse office hours. Patients were followed for 4 months and at that time had blood pressure measured again and completed a second survey. This study was powered to measure a change in systolic blood pressure between study arms of 12.5 mm Hg.
RESULTS: Eight hundred eighty six people were screened at the health events, 187 had elevated blood pressure, and 150 met eligibility criteria. Of these, 100 enrolled in the study: 50 in the nurse intervention arm and 50 in the assisted physician appointment arm. In the enrolled sample, 68% were female and had a mean age of 58±11 years. Ten-percent of the subjects were Caucasian, 20% Asian, 5% African-American, and 60% Hispanic. The average systolic blood pressure was 149±14 mm Hg and diastolic blood pressure was 87±11 mm Hg. Of the people enrolled, 57% were uninsured and 25% were undiagnosed at the time of enrollment. We had an 85% follow-up rate for the 4-month post-randomization measures, with 41 returning patients in the nurse arm and 44 in the physician arm. Patients in the nurse arm had a 7±15 mm Hg drop in systolic blood pressure versus a 14±15 mm Hg drop in the physician arm (p=0.04). Twenty-seven percent of the patients in the nurse arm had medication escalation compared to 32% in the physician arm (p=0.98). The two arms did not differ in increase in knowledge score or self-care score.
CONCLUSIONS: Church health fairs conducted in low-income, multiethnic communities have the capacity to identify many people with elevated blood pressure. Facilitating physician appointments for hypertensives identified at health fairs confers a greater decrease in systolic blood pressure than referral to a church-based nurse at four months. Further studies are needed to evaluate the long-term blood pressure outcomes in these populations and the impact of church-based care on chronic conditions.

A RANDOMIZED CONTROLLED TRIAL OF STRATEGIES FOR WEIGHT LOSS K.G. Volpp[1]; L. John[2]; L. Norton[3]; J. Fassbender[4]; A. Troxel[4]; G.F. Loewenstein[2]. [1]CHERP, Philadelphia VAMC; University of Pennsylvania School of Medicine and the Wharton School, Philadelphia, PA; [2]Carnegie Mellon University, Pittsburgh, PA; [3]CHERP, Philadelphia VA, Philadelphia, PA; [4]University of Pennsylvania, Philadelphia, PA. *(Tracking ID # 190386)*

BACKGROUND: Identifying effective strategies for treating obesity is both a clinical challenge and a public health priority due to the health consequences of obesity and its contribution to health disparities. This study tests the effectiveness of financial incentives in achieving clinically significant weight loss.
METHODS: 57 subjects at Philadelphia VA Medical Center (mean BMI 34.9, 42% African American) enrolled in a 3-arm randomized controlled trial (RCT) in which all subjects were given weight loss targets of 16 pounds in 16 weeks and a counseling session with a nutritionist. Subjects were randomized to receive either: 1) monthly weigh ins; 2) entry into a daily lottery with a 1 in 5 chance of winning $10 and a 1 in 100 chance of winning $100, with earnings paid only if subjects were below target weights at the end of each month; 3) an option to deposit $.01-$3.00 per day of their own money, matched 1:1 by the investigators, in which subjects received the sum of both amounts plus a fixed payment of $3.00 each day if below their target weight, but were paid nothing (and lost their deposit) if not. All incentives were disbursed monthly once weights were confirmed in clinic. Amount of weight loss in each intervention group was compared to the control group using a two-sided t-test. Analyses of weight loss were done using intention-to-treat, with any subjects lost to follow-up assumed to have their weight return to baseline. The incentive programs were designed to take advantage of behavioral economic concepts of prospect theory, loss aversion, and regret.
RESULTS: The study was fully enrolled with 57 subjects. 17/19 (89.4%) of subjects deposited money in their deposit contracts and 14/17 participants who made initial deposits either held constant or increased their contributions each month. All subjects have completed the four months of trial participation, with low lost to follow-up rates (10.5%). Subjects in both incentive groups lost significantly more weight on average than subjects in the control group (4.0 lbs) (lottery 13.1 lbs, p=0.0151; deposit contract 14.0 lbs, p=0.003). Of the subjects not lost to follow-up in the two incentive arms (32 out of 38), all of them lost weight. The low lost to follow-up rates suggest that this approach to providing daily feedback to keep weight loss salient among participants is feasible.
CONCLUSIONS: Results from a randomized controlled trial of financial incentives for weight loss indicate significantly higher weight loss in the incentive arms of the trial than in the control group. This approach could have a major impact in reducing the incidence of obesity-related illnesses and disparities in the US population.

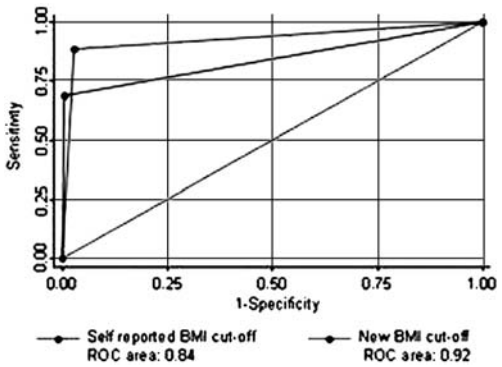
A RANDOMIZED TRIAL OF AN INFORMATICS-BASED INTERVENTION TO INCREASE BREAST CANCER SCREENING IN A PRIMARY CARE NETWORK S.J. Atlas[1]; W.T. Lester[1]; R.W. Grant[1]; J.M. Ashburner[1]; Y. Chang[1]; M.J. Barry[1]. [1]Massachusetts General Hospital, Boston, MA. *(Tracking ID # 189510)*

BACKGROUND: Among women, breast cancer is the most common cancer worldwide and the second leading cause of cancer deaths. Despite recommendations for mammography testing, screening rates

remain sub-optimal. We sought to increase screening in eligible women within our primary care (PC) practice-based research network (PBRN) through an integrated program of population-based surveillance, linkage of patients to their corresponding primary care provider, implementation of a novel informatics tool with "actionable" information and "one-click" ordering, and providing central coordination that permitted variable workflow at the individual practice level.
METHODS: We randomized 12 primary care practices (4 community health centers and 8 affiliated practices) within our PBRN to intervention (n=6) or control (n=6) arms. Women 42 to 69 years of age without prior bilateral mastectomy and with no record of having a mammogram in the prior two years were linked to a specific primary care provider (PCP) or practice (if not able to link to a PCP). In intervention practices, PCPs (for physician-linked patients) and case managers (CMs, for practice-linked patients) received email alerts directing them to a web-based informatics tool that listed their overdue patients. Patients selected from that list ("one-click" ordering) received an automatically-generated letter with information about the value of screening and how to schedule a mammogram within our system. The tool also transferred the list of selected patients to a practice delegate who called patients to schedule tests or document exclusions. A second, updated email alert was sent at month three. Six month outcomes included tool usage, completed mammograms at an in-network site, and time to mammogram completion.
RESULTS: Among 32,688 women 42–69 years old in our PBRN, baseline mammography screening rates in intervention and control groups did not differ (79.5% vs. 79.3%, p=0.73). Of the 6730 (20.6%) eligible patients who were overdue for mammograms at the start of the study (3054 in intervention practices and 3676 in control practices), intervention patients were younger, more likely to be non-Hispanic white, and to have health insurance. Most intervention PCPs (55 of 64, 86%) and all CMs (6 of 6) used the tool. Action was taken in 2607 (85.4%) intervention patients (2216 [85%] contacted and 366 [14%] deferred). After 6 months, mammography rates were significantly higher in the intervention arm (22% vs. 15% in control arm, p=0.01). Intervention patients had higher mammography rates than control patients regardless of linkage to a PCP or CM (practice), (26% vs. 19%, p=0.01, and 17% vs. 11%, p=0.02, respectively). Time to event analysis showed that intervention patients completed screening sooner than control patients (p<0.001).
CONCLUSIONS: We successfully developed and implemented a novel, visit-independent, web-based informatics tool for PCPs and case managers to use for increasing mammography screening rates. At 6 months, intervention patients were significantly more likely to have completed a mammogram than control patients.

A REDUCED BMI CUT-OFF FOR ESTIMATING OBESITY PREVALENCE BASED ON SELF -REPORTED HEIGHT AND WEIGHT: A VALIDATION STUDY M.P. Kossovsky[1]; V. Dauphinot[2]; F. Naudin[2]; H. Wolff[1]; J. Gaspoz[1]. [1]Department of Community Medicine, Geneve 14,; [2]CETAF, Saint-Etienne, France. *(Tracking ID # 189689)*

BACKGROUND: The estimation of obesity prevalence and its temporal trend in the population is important when assessing public health and economic burden. It has already been demonstrated that self-reported heights and weights do not allow a correct estimation of the true prevalence of obesity.
METHODS: A cross sectional study conducted in France in 2002–03 comparing self-reported with measured data showed that obesity prevalence determined by body mass index (BMI) calculated from self-reported weight and height was underestimated: 30.1% of men and 34.3% of women not considered obese according to their self-reports were classified as such by measurements. We proposed to lower the self-reported BMI threshold defining obesity to 29.0 kg/m2 for men and 28.4 kg/m2 for women. This yielded to an estimation of obesity prevalence similar to the one obtained using measurements (15.1% vs. 14.4%, p=0.21) and was the best compromise between sensitivity (83.5%) and specificity (96.4%).
RESULTS: A validation procedure was performed on a different population. From 1993 to 2004, a sample of 13,266 men and women (500 each per year) was recruited in Geneva, Switzerland. Self-reported and measured BMI were routinely collected. As already observed, almost one third (33.6% among men and 27.5% among women) of the subjects not considered obese according to their self-reports were classified as such by measurements. The reduced threshold for obesity based on self –reported data was applied and its performance compared to measured data. The reduced obesity threshold could correctly classify subjects in 95.5% of cases, with a sensitivity of 88.9% and specificity of 96.5% (Figure). Positive and negative predictive values were respectively 78.6% and 98.4%.
CONCLUSIONS: Subjects in population studies tend to underestimate their weight and to overestimate their height. This yields to erroneous obesity prevalence in populations where this estimation is based on self-reports only. Contrasting with corrective equations, this readily applicable reduced threshold does not require collection of additional data. Its applicability to other European or American countries requires further validation.



A TOOL TO MEASURE THE QUALITY OF SMALL GROUP PROCESSES IN MEDICAL EDUCATION P. Haidet[1]; B. Thompson[2]; J. Coverdale[2]; C. Foldes[2]; P.A. Kelly[2]; F. Kennedy[3]; R. Levine[4]; A. Naik[2]; B. Richards[5]. [1]DeBakey VA and Baylor College of Medicine, Houston, TX; [2]Baylor College of Medicine, Houston, TX; [3]Clemson University, Clemson, SC; [4]University of Texas Medical Branch, Galveston, TX; [5]Columbia University, New York, NY. *(Tracking ID # 190586)*

BACKGROUND: Small group teams are increasingly being used in medical education to enhance active learning and foster better team communication skills. In theory, the quality of small group interactions can impact these educational outcomes, and is itself impacted by a number of factors, including characteristics of groups' members, skill of the teacher, and type of educational methods used. Unfortunately, systematic study in this area has been inhibited by a lack of reliable and valid measures of the quality of small group interactions.
METHODS: We assembled a team of educational specialists and clinical educators to review the group process literature and write a pool of instrument items about the quality of small groups' interactions. We intended the items to be completed by students about their own small group at the end of a course or teaching sequence. 30 items were initially written and distributed to 507 students in 15 courses at 4 institutions. We created a "Team Performance Scale" (TPS) from the item pool using factor analysis (which indicated a one factor solution) to retain items with a loading greater than 0.4 on the factor. Next, we distributed the TPS to 157 second-year students completing an Evidence-Based Medicine course that used small groups (of 5–6 students each). This course measured group knowledge outcomes using: a) a group final examination and b) a graded group homework assignment. In addition, we trained observers to capture individual groups' nonverbal configurations during in-class work. We calculated a summary TPS score for each student, and examined a) the factor structure of the TPS using factor analysis, and b) internal consistency using Cronbach's alpha. We also calculated a group TPS score for each group based on the mean of the individual members' summary scores, and tested validity by examining correlations between group TPS scores and knowledge and nonverbal configurations.
RESULTS: The TPS contains 18 items and requires approximately 5 minutes to complete. In the EBM course, 155 students (response rate 98%) completed the TPS. Factor analysis of the TPS revealed a one-factor solution with individual item loadings between 0.70 and 0.91. The 18 items accounted for 70% of item variance. Cronbach's Alpha was 0.97. In our validity analyses, group TPS scores correlated positively with scores on the group final examination (coefficient 0.23) and group homework (coefficient 0.15), and correlated with more favorable group nonverbal configurations ("circle" and "circle leaning in", coefficient 0.26).

CONCLUSIONS: The Team Performance Scale measures the overall quality of small group interactions in medical education settings, and demonstrated good psychometric properties and initial evidence of validity. The TPS makes possible new lines of educational research that impact small group learning processes.

A TRACKING & FEEDBACK REGISTRY TO REDUCE DISPARITIES IN BREAST CANCER CARE N.A. Bickell[1]; K.N. Shastri[1]; K. Fei[1]; S.F. Oluwole[2]; H. Godfrey[3]; A. Srinivasan[4]; K. Hiotis[5]; A.A. Guth[6]. [1]Mount Sinai School of Medicine, New York, NY; [2]Harlem Hospital, New York, NY; [3]North General Hospital, New York, NY; [4]Metropolitan Hospital, New York, NY; [5]Bellevue Hospital, New York, NY; [6]New York University, New York, NY. *(Tracking ID # 189284)*

BACKGROUND: Despite the existence of effective adjuvant treatment for early stage breast cancer, women do not always receive it, particularly, minority women. Primary treatment for breast cancer, surgery and varying combinations of radio-, chemo- and hormonal therapy, is delivered by different specialists and is often fragmented. Underuse of post-surgical adjuvant treatment occurs more commonly among women who do not see a medical oncologist despite surgeons' referral request. To reduce underuse of adjuvant treatment due to failed connections, we tracked and fedback to surgeons information about whether their newly diagnosed breast cancer patients connected with an oncologist.
METHODS: We compared oncology referral rates and underuse among pre-intervention (N=677) and intervention (N=300) patients undergoing breast cancer surgery at 6 NYC hospitals. All surgeons consented to the intervention. Each surgeon chose an office person to verify eligibility and identify patient's oncology referrals. Patients identified upcoming oncology appointment sites and times. Following scheduled visits, oncologists were called to verify patients' connection & these data were fedback to surgeons & their office staff. Six months later, we abstracted in- & outpatient charts. We compared rates of: completed oncology consultations and underuse of radiotherapy after breast conserving surgery, of chemotherapy for ER negative and hormonal therapy for ER positive tumors >=1 cm between pre- and intervention women with newly diagnosed early-stage breast cancer.
RESULTS: There was a significant increase in oncology consultations completed (83% to 97%; p<0.0001) and decrease in underuse of adjuvant treatment (21% to 14%; p<0.001); specifically, underuse of chemotherapy (22% to 11%; p=0.05) and hormonal therapy (20% to 8%; p=0.0004) declined. Among black and Hispanic women, underuse of radiotherapy significantly decreased (23% to 10%; p=0.02). Multivariate models, adjusting for clustering by hospital, patient age, race, stage and insurance, found the intervention increased rates of oncology consultation (OR=5.33; 95%CI: 2.68–10.60), and reduced adjuvant underuse (OR= 0.62; 95%CI: 0.42–0.93). Minority race was no longer a risk factor for an oncology consultation (OR=1.20; 95%CI: 0.69–2.08) or underuse of adjuvant therapy (OR=1.13; 95%CI: 0.73–1.75).
CONCLUSIONS: A tracking and feedback registry which closes the referral loop between surgeons and oncologists appears to improve rates of medical oncology consultation, reduces rates of adjuvant treatment underuse and eliminates the racial disparity in treatment.

ABILITY TO PERFORM REGISTRY FUNCTIONS AMONG PRACTICES WITH AND WITHOUT ELECTRONIC HEALTH RECORDS. E.A. Mcglinchey[1]; A. Wright[1]; E.G. Poon[1]; C.A. Jenter[1]; D.W. Bates[1]; S.R. Simon[2]. [1]Brigham and Women's Hospital, Boston, MA; [2]Havard University, Boston, MA. *(Tracking ID # 189845)*

BACKGROUND: To manage panels of patients, physicians and practices need access to "registry functions," namely the ability to identify groups of patients by clinical factors such as problems and diagnoses, lab results or medications. The degree to which electronic health records (EHRs) enable physicians to carry out registry functions is unknown.
METHODS: Data was obtained from a mail survey of a random sample of physicians (N=1,884) in Massachusetts on the presence and use of EHRs, as well as the ability to generate a list of patients according to medication, lab result and/or diagnosis.
RESULTS: A total of 1,345 physicians completed the survey (response rate=71%). Table 1 shows the proportion of practices with and without EHRs that have the ability to generate a list of patients by current medications, laboratory results, or by diagnosis and health risks. In all three categories, there was a statistically significant positive relationship between presence of an EHR and ability to perform registry functions. Among physicians with EHRs, 85.9% can identify patients by diagnosis as compared to 78.0% of physicians without EHRs, 66.7% of physicians with an EHR can identify patients by laboratory test results as compared to 52.9% without EHRs, and 71.6% of physicians with an EHR can identify patients by medication prescribed as compared to 51.1% without EHRs.

Table 1. EHR Vs. Registry Function. All comparisons between physicians with and without EHRs were significant (<0.05) using chi-square tests.

	Medication Registry		Lab Registry		Diagnosis Registry	
	Impossible	Possible	Impossible	Possible	Impossible	Possible
Has EHR	28.4%	71.6%	33.3%	66.7%	14.1%	85.9%
No EHR	48.9%	51.1%	47.1%	52.9%	22.0%	78.0%

CONCLUSIONS: EHR adoption is strongly associated with the ability to implement registry functions in a practice. Consequently, EHRs have the potential to improve not only the care of individual patients but also, through the use of registry functions, the management of panels and populations enabling physicians to identify and intervene on at-risk subsets of patients. Expanding EHR adoption and ensuring that practices with EHRs utilize them for registry functions should be parallel policies that will improve health care quality and population health.

ACCURACY OF ELECTRONIC HEALTH RECORD-BASED CARDIAC RISK ASSESSMENT AND IDENTIFICATION OF UNMET PREVENTIVE CARDIOLOGY NEEDS IN PRIMARY CARE S. Persell[1]; A. Dunne[1]; D.M. Lloyd-Jones[1]; D. Baker[1]. [1]Northwestern University, Chicago, IL. *(Tracking ID # 189480)*

BACKGROUND: Computer-based cardiac risk calculators that require manual data entry may be too time-consuming to be widely adopted. If electronic health record (EHR) data could identify patients needing preventive therapies, automatic prompting could alert clinicians, or clinic-wide system changes could be made.
METHODS: We compared automated assessment with full chart review to determine the accuracy of automated risk estimation and determination of patients who should be offered antiplatelet medication or lipid-lowering interventions. Patients from a primary care practice using a commercial EHR, aged 20 to 79 years, with at least 2 visits between 7/1/04 and 6/30/06 were eligible. Automated assessments used coded demographic, vital sign, diagnosis, laboratory, medication list and smoking history data. We classified patients into four groups based on Framingham Risk Score (FRS) and disease diagnoses: FRS < 5%; FRS 5 to <10%; FRS 10 to 20%; or FRS >20% or diagnosed coronary heart disease (CHD), peripheral arterial disease (PAD) or diabetes. Patients without CHD, PAD or diabetes that did not have total and HDL cholesterol levels documented were considered unclassifiable. We determined candidates for two interventions: lipid lowering (LDL cholesterol above guideline goal and no lipid lowering medication prescribed) or antiplatelet therapy (antiplatelet therapy recommended by guidelines and no antithrombotic medication listed). For full physician review, we randomly sampled 100 patients from each risk group and the unclassified group (500 total). A physician unaware of the automated results collected data on clinical atherosclersosis, risk factors, and medications from free text portions of notes and test reports. This full review which included electronically searchable data and data obtained only through manual review constituted the "gold standard." We calculated kappa statistics to measure agreement between the two classification schemes. To determine sensitivity and specificity of the automated determination of candidates for the interventions we accounted for unequal sample weights and estimated accurate 95% confidence intervals using the Taylor series expansion method (SAS version 9.1, PROC SURVEYFREQ).
RESULTS: 23,111 patients were eligible. 62% were female; 38% were white, 19% were black, and 43% were of other or unknown race. Mean age was 45.0 years. By automated methods, the percentage of patients in the 4 risk groups was: 51%, 6.7%, 4.7%, and 15.1%. The remaining 23% were unclassifiable. 2117 (9.2%) patients were candidates for lipid

lowering, of whom 1611 had no previously diagnosed CHD, PAD or diabetes. 1840 (8.0%) patients were candidates for antithrombotic medication including 844 without CHD, PAD or diabetes. There was good agreement between automated risk classifications and full review (kappa 0.91 [95% CI, 0.88–0.93]). Automated methods accurately identified candidates for antiplatelet therapy (sensitivity 0.81 [0.73–0.89], specificity 0.98 [0.96–0.99], positive predictive value 0.86 [0.78–0.94], negative predictive value 0.98 [0.97–0.99]) and lipid lowering (sensitivity 0.92 [0.87–0.96], specificity 0.99 [0.98- >0.99], PPV 0.94 [0.89–0.99], NPV 0.99 [0.98->.99].
CONCLUSIONS: Automated risk stratification and identification of patients in need of antiplatelet and lipid-lowering interventions can be performed using data from and EHR. This time-saving measure could be used to provide decision support at the point of care or enable outreach directly to patients.

ACCURACY OF SELF-ASSESSED SPANISH LANGUAGE PROFICIENCY AMONG MEDICAL STUDENTS D.S. Reuland[1]; P.Y. Frasier[1]; M.A. Aleman[1]; L.M. Slatt[1]; M.D. Olson[1]; A. Fernandez[2]. [1]University of North Carolina at Chapel Hill, Chapel Hill, NC; [2]University of California, San Francisco, San Francisco, CA. *(Tracking ID # 190528)*

BACKGROUND: The accuracy of Spanish language proficiency self-assessment among US physicians and medical students is unknown. Knowing if self-assessed fluency is accurate is important for two reasons. First, Spanish speaking patients report that interpreters are underused by clinicians during clinical encounters. An important causal factor in this may be that providers overestimate of their own Spanish language capabilities. Second, self -assessment of language skills, if known to be accurate, may be an efficient way to determine Spanish language capacity within a clinical workforce, an increasingly important need of health systems. We aimed to determine the accuracy of self-assessed Spanish proficiency in medical students.
METHODS: Students matriculating at the University of North Carolina School of Medicine in consecutive years 2004 through 2007 assessed their own Spanish proficiency as none, novice, intermediate, advanced, or native on a written questionnaire. Students with self-assessed proficiencies of intermediate or above who also applied to participate in a medical Spanish program subsequently took a validated, oral language proficiency test using the Spoken Language Evaluation TM administered by a language testing service. The test was scored from 1 (total beginner) to 12 (native speaker). Using previously established guidelines provided by the testing service, we grouped students into three proficiency test categories based on their test scores: 1–5 = novice; 6–8 = intermediate; and 9–12= advanced/native. We determined the proportion of students whose test scores were at or above their self-assessment level, i.e. the positive predictive value (ppv) of self-assessment for predicting having at least that proficiency on the language test.
RESULTS: Self-assessments were available for 637 (99%) of the 644 students who matriculated during the four- year period. Of these, 45% reported speaking no Spanish, 22% rated their fluency as novice, 21% as intermediate, 10% as advanced, and 0.8% as native. Of the 203 students with self-assessed proficiencies of intermediate or greater, 103 (51%) applied to participate in the medical Spanish program and underwent proficiency testing. We used data from these subjects to examine the accuracy of self-assessment. Self-assessed intermediate speakers (n= 52) had test scores ranging from 3 (novice) to 10 (advanced) with a mean (SD) of 7.6 (1.4). Self-assessed advanced/native speakers (n=51) had test scores that ranged from 7 (intermediate) to 12 (native speaker) with a mean (SD) of 9.6 (1.1) ($p<.0001$ for difference). Of the self-assessed intermediate speakers, 67% (35/52) tested at the intermediate level and 25% (13/52) tested above that level, yielding a ppv for having at least intermediate proficiency of 92%. Of the 51 students who self-assessed as advanced/native speakers, 84% tested at the advanced/native level (ppv=84%), and the remaining 16% tested at the intermediate level.
CONCLUSIONS: Spanish proficiency self-assessment among medical students is highly predictive of scores on a standardized language exam, though 1 in 12 overestimated their language skills. More research is needed to correlate language proficiency test score with communication capability in the clinical setting, as well as to extend results to practicing physicians and to other survey contexts. However, these preliminary results suggest that self-assessment skills may be an efficient way to measure Spanish language capacity within a provider workforce.

ACHIEVING RECOMMENDED TARGET BLOOD PRESSURE AMONG PATIENTS WITH DIABETES MELLITUS AND UNCONTROLLED HYPERTENSION USING THE DIABETES REGISTRY. R.S. De Jesus[1]; D. Leutink[2]; R. Stroebel[1]; S. Cha[3]. [1]Mayo Foundation for Medical Education and Research, Rochester, MN; [2]Mayo Foundation, Rochester, MN; [3]Mayo Clinic, Rochester, MN. *(Tracking ID # 189528)*

BACKGROUND: Cardiovascular disease is the leading cause of premature mortality among patients with diabetes, with heart disease accounting for more than half of these deaths. Hypertension is present in 40–60% of patients with type 2 diabetes over the age range of 45 to 75 and contributes to doubling their risk of cardiovascular disease. The diabetes registry is a powerful tracking tool and had been previously utilized to evaluate effectiveness of multiple interventions aimed at improving diabetes care. Our study used the registry to identify diabetic patients in the division of Primary Care Internal Medicine (PCIM) with uncontrolled hypertension and evaluate care delivery models aimed at achieving recommended target blood pressure.
METHODS: During this six month prospective randomized control trial, active PCIM patients with DM type 2 and uncontrolled hypertension (BP of >140/90) identified by the registry were randomized to one of three groups, with two arms using practice care models and the third arm serving as control group. Group A was asked to attend a class focusing on hypertension in diabetes; Group B was asked to attend the same class but was also given an automated BP device with instruction to record BP readings at home in a logbook; Group C served as the control group (usual care). Fifty four patients consented to participate. After stratification based on gender, age (</= 60 years, >60 years) and hemoglobin A1C level (</=7%, >7%), 17 were randomized to Group A, 19 to Group B and 18 to Group C. After 6 months, all study participants were asked to return for blood pressure recheck. Group B patients were also asked to bring back their booklet with home BP readings. Primary outcome measure is the percentage of study subjects who achieved blood pressure goal of <130/80 within 6 months.
RESULTS: Twenty four participants completed the study. Only 5 subjects in Group A, 7 in Group B and 12 in Group C returned after 6 months for BP recheck. After six months, only 17% (N=4) of the 24 subjects who completed the study, achieved the target BP of <130/80. There was no statistical difference in mean systolic and diastolic blood pressures among the three groups of study participants (p-value >0.05). Interestingly, those in Group C had the lowest mean SBP and DBP. (Table 1) Using an intention to treat analysis may have resulted in underestimation of group practice model effect on achieving target BP as only half of the consented subjects completed the study. Our study was also limited by the small sample size which reduced its power and external validity.
CONCLUSIONS: Our study failed to prove a statistically significant improvement in blood pressure control among patients with type 2 DM and uncontrolled hypertension who were randomized to a specific intervention compared to those who received conventional care. We are not aware of any previously reported study that has compared BP control among patients with DM and uncontrolled hypertension by randomly assigning them into different delivery care models. Despite its negative outcome, our study is the first of such kind. Hence, it would be interesting to compare the results of this study to a similar study with larger sample size.

BP readings after 6 months

	GROUP A	GROUP B	GROUP C	MEAN	F STAT	P VALUE
SYSTOLIC BP	143.83	141.7	141.06	142.71	0.43	0.65
DIASTOLIC BP	77.33	72.70	71.12	72.78	0.50	0.61

ACTIVATING PATIENTS TO PROMOTE EVIDENCE-BASED HYPERTENSION CARE: THE VETERANS ADMINISTRATION PROJECT TO IMPLEMENT DIURETICS (VAPID) P.J. Kaboli[1]; A. Ishani[2]; J. Holman[1]; M. Vanderweg[1]; B.L. Carter[1]; A.J. Christensen[1]. [1]Center for Research in the Implementation of Innovative Strategies in Practice (CRIISP), Iowa City VAMC, Iowa City, IA; [2]Minneapolis VAMC, Minneapolis, MN. *(Tracking ID # 190072)*

BACKGROUND: Evidence-based guidelines recommend thiazide diuretics (thiazides) as first-line therapy for uncomplicated hypertension;

however, thiazides remain under-utilized. The role of patients and financial incentives in promoting evidence-based guidelines and overcoming clinical inertia is not well studied. The objective of our study was to test the efficacy of a patient-activation intervention to initiate thiazides.
METHODS: The study enrolled hypertensive patients from 13 VA clinics not taking a thiazide and either previously not at their blood pressure (BP) goal (uncontrolled HTN) or at goal and taking a calcium channel blocker (controlled CCB), which is not considered first-line therapy. Patients were randomized to a control group (usual care) or three intervention groups designed to activate patients to talk to their providers about thiazides. Group A received an activation letter, Group B the letter plus financial incentives, and Group C the letter, financial incentives, plus a reminder phone call. Outcomes were: 1) patient-provider hypertension discussion, 2) thiazide prescribing, and 3) BP control. Rates were determined by chart review and/or return of a card signed by the patient's provider.
RESULTS: To date, 479 patients have been randomized (uncontrolled HTN group=338, controlled CCB group=141). Mean age was 64 years, 98% were male, and mean baseline systolic BP was 141 mmHg. Table 1 shows rates of discussion and thiazide prescribing by their primary care provider. All intervention groups were significantly greater than the control group (P<.01) with significant differences across intervention groups (P<.01). Patients not at their BP goal were more likely to be prescribed thiazides than those at goal (OR 3.1; 95% CI 1.9–5.0). Of note, 33% of previously uncontrolled HTN patients while only 75% of controlled CCB patients had controlled BP at their clinic visit without a change in their hypertension treatment. To date, 130 patients have had 6 month follow-up with sustained rates of thiazide use (overall 30% vs. 15% in controls; P=.04) and no thiazide-related adverse drug events. Systolic blood pressure fell by 2 mmHg in the control group and 6 mmHg in the intervention groups at 6 months (P=.29).
CONCLUSIONS: Providing patient-activation information about thiazides for hypertension resulted in two-thirds of patients having discussions and nearly a third starting or switching to a thiazide; the intervention was more effective in those with uncontrolled HTN. Adding a financial incentive and reminder phone call to the letter resulted in incremental, though inconsistent increases in both outcomes. This low-cost, low-intensity, patient-activation intervention resulted in high discussion rates and thiazide prescribing and may be a useful intervention to promote evidence-based guidelines and overcome clinical inertia.

Table 1. Rates of Discussion and Thiazide Prescribing at Clinic Visit (*P<.001, **P<.01);

	All Patients		Uncontrol HTN		Control CCB	
	(N=479)		(N=338)		(N=141)	
	Discuss*	Thiazide*	Discuss*	Thiazide**	Discuss**	Thiazide**
Control	6.5%	6.9%	7.9%	10%	0%	0%
Group A	58%	22%	60%	28%	54%	8.6%
Group B	65%	27%	58%	24%	83%	35%
Group C	80%	37%	82%	37%	77%	40%

ACUTE CARE PROGRAMS, POLICIES, AND PRACTICES RELEVANT TO END-OF-LIFE CARE: A SURVEY OF PENNSYLVANIA HOSPITALS
C.Y. Lin[1]; M.H. Farrell[1]; R.M. Arnold[1]; J.R. Lave[1]; D. Angus[1]; A.E. Barnato[1]. [1]University of Pittsburgh, Pittsburgh, PA. *(Tracking ID # 189895)*

BACKGROUND: Nearly forty percent of Americans still die in the acute-care setting. However, little is known about the prevalence and reasons for implementation of acute care hospital programs, policies, and practices relevant to the quality of end-of-life (EOL) care.
METHODS: Cross-sectional mixed-mode (web-based and computer-assisted telephone) survey of Chief Nursing Officers (CNO) of Pennsylvania acute care hospitals between June 2005 and May 2006. Hospital programs, policies, and practices were identified through a structured literature review and interviews with national experts in EOL care, who subsequently reviewed the survey prior to field testing and formal administration. Statistical analyses included comparisons of the characteristics of respondent and non-respondent hospitals using the chi-square and Student t-tests, descriptive statistics of reported hospital programs, policies, and practices and their reasons for implementation, and multivariable logistic regression analyses of the hospital structural characteristics associated with the presence of each initiative.
RESULTS: 129 of 174 (74%) hospitals responded to the survey. The respondent CNOs had a mean of 15.8 (SD 11.3) total years of service and 6.3 (SD 5.5) years in their current positions. Respondent and non-respondent hospitals were not significantly different in hospital structural characteristics including size, resident-to-bed ratio, and urban location, but were significantly different in proportion of county market share (mean Herfindahl-Hirschman index 0.445 v. 0.337; p-value 0.03). Prevalence of hospital initiatives ranged from 95% for having a formal code policy or code form to 16% for having a formal futility policy. Prevalence of ICU initiatives ranged from 87% for having case managers to 6% for having regularly scheduled family meetings with an attending physician. Eleven of the 21 programs, policies, or practices relevant to EOL care had less than 50% implementation. Most initiatives were primarily implemented for quality improvement or keeping up with the standard of care. Patient/family/community demand was a primary motivator for pastoral care visits to the ICU, regularly scheduled family meetings with an attending physician, and a hospital bereavement program; it played a large role in implementation of palliative care consults, a private conference room for family meetings, and designated or "flex" palliative care beds. The only hospital structural characteristic that predicted the presence of one or more hospital initiatives, after multivariable adjustment for other structural characteristics, was hospital size, which associated with the presence of an ethics consult service (adjusted p-value 0.02, 95% CI 1.40–26.96), a hospitalist program (adjusted p-value 0.02, 95% CI 1.11–3.97), and a private conference room in the ICU for family meetings (adjusted p-value <0.001, CI 1.98–10.40).
CONCLUSIONS: There is wide variation in prevalence and primary reasons for implementation of hospital initiatives relevant to EOL care in Pennsylvania acute care hospitals. Since existing hospital quality measurement and public reporting mechanisms that focus on reducing disease-specific morbidity and mortality are largely irrelevant to EOL care, the presence of particular programs, policies, and practices shown to improve EOL care should be adopted to complement existing hospital quality measures that currently focus on life-prolongation.

ADOLESCENT ATTITUDES TOWARD DEPRESSION PREVENTION INTERVENTIONS
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BACKGROUND: Prevention of depression in adolescence has emerged as an key public health goal in the United States and other developed countries. Low cost, easily disseminated and culturally acceptable interventions are needed. However, little is known about the attitudes or motivations of today's adolescents toward depression risk assessment and intervention.
METHODS: We recruited adolescents from ten primary care sites in the southeast and midwest in two studies of primary care-based depression prevention intervention. Consecutive patients were screened for risk of major depression (depressed mood) and evaluated by phone to confirm inclusion critiera (depressed mood) and exclusion (current major depression or other mental disorders). Adolescents answered questions with regard to four core areas relevent to engaging youth with early intervention to prevent disorder: 1) primary motivations for participation, 2) acceptability of various forms of intervention and risk assessment, 3) preferences, and 4) the degree to which they felt such interventions were valuable/important.
RESULTS: Forty-seven adolescents (of planned 110 when study is completed December 2007) recruited from 12 primary care practices by active screening evaluated the resultant intervention (enrollment rate was 76%). The mean age was 17.2 years; the sample is 29% ethnic minority, 53% male, and 47% female with a mean Center for Epidemiologic Studies Depression (CES-D) score of 21.8. The top three rated reasons for participating in a preventive intervention were 1) "reducing depressed mood," 2) "reduce risk of major depression," and 3) "achieve goals." Adolescents rated the following interventions definitely or probably acceptable: "get over it naturally" = 67%; "take medications" = 39%; individual counseling = 79%; "group counseling" (at clinic or

school) = 26%; "exercise program" = 73%; "talk to primary care physician" = 79%; "enjoyable activity scheduling" = 73%; and "Internet-based program" = 63%. Preferences for future interventions include the opportunity to participate in a message board, pod-casting for those with low literacy, and opportunities to continue with a follow-up program. In terms of ratings of importance, 53% reported participating in a "depression prevention intervention is important" and 63% reported the "benefits outweighed the costs".
CONCLUSIONS: Adolescents with sub-threshold depression symptom in primary care are motivated and willing to consider a range of interventions to reduce current depressed mood or risk of MDD episode. Group based counseling was the least acceptable intervention while talking to their primary care physician, activity scheduling, exercise and individual counseling and internet based learning were preferred.

ADULT MEDICINE PROVIDERS' OPINIONS OF EDUCATIONAL NEEDS REGARDING THE CARE OF YOUNG ADULTS WITH SPECIAL HEALTH CARE NEEDS M.E. Brown[1]; A.R. Gonzaga[1]; D. Ploof[1]. [1]University of Pittsburgh, Pittsburgh, PA. *(Tracking ID # 190902)*

BACKGROUND: Children with special health care needs are surviving into adulthood due to medical advances. It important to transition their care to adult providers who have knowledge and comfort in caring for this population. Our objective is to describe adult health care providers' comfort and attitude in caring for adult patients with childhood-onset chronic conditions (COCC) and their perceived need for education in those areas.
METHODS: We surveyed 44 General Internal Medicine faculty at the University of Pittsburgh regarding their experiences, comfort and attitudes about providing primary care to adults with COCC and the need for additional training about those conditions. A 14-item list of COCC was generated with input from senior pediatric and internal medicine faculty, and included the following conditions: ADHD, asthma, autism, cerebral palsy, congenital heart disease, cystic fibrosis, Down syndrome, genetic syndrome, g-tube dependent, mental retardation, muscular dystrophy, sickle cell disease, spina bifida, and ventilator-dependent. Comfort was rated for each condition on a 4-point scale (1=very uncomfortable, 4=very comfortable) and attitudes on a 5-point scale (1=strongly disagree, 5=strongly agree).
RESULTS: Among 26 respondents (59% response rate), 92% self-identified as adult primary care providers (A-PCPs). For 13 of the 14 COCCs, most (range 65–96%) agreed that A-PCPs should provide primary care to patients with all conditions except one (ventilator-dependence). Fewer (range 27–65%) reported comfort in providing this care. Most respondents agreed that A-PCPs should manage ADHD, asthma, congenital heart disease, g-tube dependence, mental retardation, and sickle cell disease. For all these conditions except sickle cell disease, fewer respondents reported comfort in managing those conditions than those who agreed they should be managed by A-PCPs. Most respondents agreed that adult A-PCPs should receive education about all 14 conditions.
CONCLUSIONS: By identifying childhood-onset chronic medical conditions with which internal medicine faculty are uncomfortable, appropriate education can be included in training so that more adult providers are prepared to care for this unique population.

ADULT PATIENTS WITH SICKLE CELL DISEASE REPORT MORE NEGATIVE HOSPITAL EXPERIENCES DURING VASO-OCCLUSIVE CRISIS THAN A NATIONAL SAMPLE OF U.S. ADULTS L. Lattimer[1]; C. Haywood[1]; S. Lanzkron[1]; N. Ratanawongsa[1]; S.M. Bediako[2]; M. Massa[1]; N.R. Powe[1]; *M.C. Beach*[1]. [1]Johns Hopkins University, Baltimore, MD; [2]University of Maryland Baltimore County, Baltimore, MD. *(Tracking ID # 190220)*

BACKGROUND: Adults with sickle cell disease (SCD) have reported adversarial relationships with health professionals and poor quality medical care during vaso-occlusive crisis (VOC) in qualitative studies, but there is little quantitative data. We examined the experiences of patients with SCD receiving in-hospital care for VOC and compared these experiences with a national sample of hospitalized adult patients.
METHODS: We interviewed 45 individual adult patients with VOC upon discharge from the hospital at an urban academic medical center. We measured patients' hospital experiences using a validated instrument, the Picker Patient Experience Questionnaire (PPE-15). Each PPE-15 item was coded dichotomously indicating the presence or absence of a problem (i.e. an aspect of the patients' health care that could be improved upon). The percentages of SCD patients reporting a problem for each item were compared to published percentages from a sample of 44,493 U.S. adults using the Fisher's Exact Test. We measured patient demographic and clinical characteristics with patient interview and chart abstraction, and used non-parametric methods to examine their associations with the number of reported problems on the PPE-15.
RESULTS: The mean age of patients was 30.7 years, 53% were female, 54% had no education beyond high school, 70% had SS disease, 78% had a history of acute chest syndrome and 41% had a history of pulmonary hypertension. During the past 12 months, 30% had only 1 hospitalization, 37% had 2–3 hospitalizations and 33% had > 3 hospitalizations. Most patients (86%) had no history of substance abuse. A greater percent of patients with SCD compared to the national sample reported that doctors' answers to questions were not clear (64.9% vs. 23.9%, $p<0.000$), nurses answers to questions were not clear (61.4% vs. 28.7%, $p<0.000$), doctors did not always discuss their fears/anxieties (68.4% vs. 15.9%, $p<0.000$), nurses did not always discuss their fears/anxieties (64.9% vs. 12.5%, $p<0.000$), doctors sometimes talked as if they weren't there (38.6% vs. 23.6%, $p<0.013$), it was not always easy to find someone to discuss their concerns (71.9% vs. 36.9%, $p<0.000$), they had insufficient involvement in decisions about care and treatment (89.4% vs. 32.4%, $p<0.000$), they were not always being treated with respect and dignity (52.6% vs. 33.5%, $p<0.000$), staff gave conflicting information (70.1% vs. 17.9%, $p<0.000$), staff did not do enough to control pain (57.9% vs. 17.3%, $p<0.000$), family didn't get the opportunity to talk to a doctor (42.1% vs. 27.6%, $p<0.018$), and family was not given enough information to help with recovery (43.8% vs. 25.5%, $p<0.003$). There were no differences in the number of patient-reported problems based on patient age, sex, education, type of hemoglobinopathy, history of SCD complications, history of substance abuse, or frequency of hospital utilization.
CONCLUSIONS: SCD patients hospitalized with VOC reported significantly worse experiences when compared to a U.S. sample of hospitalized patients. Further research is needed to determine the extent of these disparities, their causes and consequences, and to improve these poor experiences.

ADVANCED PHYSICAL DIAGNOSIS: AN INNOVATIVE CURRICULUM FOR TEACHING CLINICAL SKILLS TO SENIOR MEDICAL STUDENTS D.D. Berg[1]; K. Berg[2]; J. Majdan[2]. [1]Thomas Jefferson University, Philadelphia, PA; [2]Jefferson Medical College, Philadelphia, PA. *(Tracking ID # 190523)*

BACKGROUND: Physical examination remains a centerpiece in medical education. Every medical school has a course in the pre-clinical years in which the fundamentals of physical diagnosis are taught. There is, however, little systematic reinforcement of these skills during the clinical years of a student's training. Thus the skills learned in second year often plateau, remain at that level, or even deteriorate during their clinical years. To address this need we describe an innovative curriculum for teaching physical examination in a structured systematic fashion for senior medical students. This Advanced Physical Diagnosis (APD) course is based on our pilot work at the Medical College of Wisconsin and is now an established course for senior students at Jefferson Medical College (JMC) and Harvard Medical School (HMS).
METHODS: This one month course for senior medical students is an elective offered 3 months per year at JMC and one month per year at HMS. It consists of 20 seperate symptom-based sessions of physical exam teaching. Each 4 hour teaching sesion consists of a didactic review of the basic exam, a context of history, a description and then demonstration of more advanced techniques followed by a demonstration of pathologic outcomes using standardized and simulated patients. In each teaching session there is discussion of the evidence to support the physical exam techniques and manuevers. The didactic session is followed by a 1–2 hour session of interactive practice using advanced checklists on standardized patients, under the tutelage of faculty. Furthermore, there are standardized practice seessions scheduled in follow-up to reinforce these skills. Finally, the skills are practiced on patients with real findings either by inpatient physical exam rounds or with patients with real findings who come to the Clinical Skills Center. Evaluation is performed by an Objective Structured Clinical Examiantion (OSCE) using standardized and simulated patients with findings before and after the course. Students also complete a course evaluation

survey. A final component is that each student must present a paper on a physical exam technique of interest and discuss its origin and validity.
RESULTS: Over the past 18 years the course has been at 4 different medical schools and now has over 700 alumni. This academic year 71 student physicians at JMC and 17 students at HMS have completed the course. Each student receives 85 hours of didactic teaching, 20 hours of practice time and 20 hours of bedside faculty teaching. A subset of 175 students have taken the pre and post course OSCE. The overall rate of correctly detecting and identifying physical findings simulated and real stanadrized patients improved from a precourse 39.1%, to a post course 63.2% ($p<0.01$). The OSCE has not been performed on all sessions of the course. In addition, the students subjectively found the course to be of benefit their learning and retaining physical examination skills.
CONCLUSIONS: We herein describe a course that has made and will continue to make a positive impact on physical examination skills. It uses an evidence-based approach to teach one of the most fundametal of clinical skills, physical examination. This course has been, and is, exportable and has been well received. We beleive that it is part of the answer to the problem of the observed plateau effect in physical exam skill acumen in students during their clinical years.

AFRICAN AMERICANS' PERCEPTIONS OF PHYSICIAN ATTEMPTS TO ADDRESS OBESITY IN PRIMARY CARE S.H. Ward[1]; A.M. Gray[2]; A. Paranjape[1]. [1]Temple University, Philadelphia, PA; [2]Temple University School of Medicine, Philadelphia, PA. *(Tracking ID # 190762)*

BACKGROUND: Obesity has reached epidemic proportions in the United States. Internists strive to address the rising prevalence of obesity during office visits through counseling and referral, however little is known about patients' perceptions of these attempts. Education and counseling that is not well received will likely be ineffective. This study sought to gain insight into how obese African American men and women perceive clinician attempts to address the issue of weight management.
METHODS: Six focus groups were conducted with obese African American patients receiving care in an academic internal medicine practice. Each group consisted of either men or women, was moderated by an African American female nurse practitioner with prior qualitative research experience, and lasted approximately 75 minutes. A focus group guide consisting of open-ended questions and pre-specified probes was developed for this study based on existing literature. Questions aimed to elicit discussion about the health risks of obesity, benefits of weight loss, the role of the physician in weight management, and motivators and barriers to weight reduction. All focus groups were audio-taped. The tapes were transcribed and coded by the principal investigator and a co-investigator independently. No new codes emerged after the second group with either gender. Coding conferences were held until consensus was reached and a master code list was generated. The transcripts were then recoded with identification of emerging dominant themes.
RESULTS: A total of twenty patients participated in the 6 focus groups (8 men and 12 women). The mean age of female participants was 48.7 years (range 34–59 years). The mean age of men was 48 years (range 30–63 years). Mean BMI was 40.3 (range 31.7–53.7) and 41.3 (range 30.6–57.7) for women and men respectively. There were no significant gender differences in how the physician role is perceived. The dominating theme regarding the role of clinicians in weight management was the manner in which their weight was discussed, specifically how messages were delivered. All participants identified repeated messages focusing on the positives of weight loss and the health consequences of obesity as important motivators for weight loss attempts. Participants also cited physician expression of concern for their wellbeing and a personalized approach with a specific plan for weight loss as motivators. However, providers who attribute a patient's current complaints to their weight were perceived to be blaming all symptoms on obesity without addressing specific challenges. Further, repeated "scolding" or negative statements by clinicians were significant barriers to weight loss attempts. Both genders had mixed reactions to statements intended to scare. While these methods were thought to be effective for some patients, participants favored a non-judgmental, direct approach with advice and encouragement being delivered respectfully.
CONCLUSIONS: The manner in which clinicians communicate with patients about obesity is a significant factor in the efficacy of attempts to address obesity. A direct, respectful approach focused on the positives of weight reduction, with repeated messaging is an effective motivator for obese, inner-city African Americans. Scare tactics are perceived as threatening by African Americans and may act as a barrier to weight loss. Internists must be cognizant of such unintended consequences of these statements.

AGE-BASED VS. COMORBIDITY-BASED ADULT PNEUMOCOCCAL POLYSACCHARIDE VACCINATION: A COST-EFFECTIVENESS ANALYSIS K.J. Smith[1]; R.K. Zimmerman[1]; C.J. Lin[1]; M.P. Nowalk[1]; M.C. Mcellistrem[1]; M.S. Roberts[1]. [1]University of Pittsburgh, Pittsburgh, PA. *(Tracking ID # 190025)*

BACKGROUND: Pneumococcal polysaccharide vaccination (PPV) of all adults aged 50–64, rather than just those with comorbid conditions (as currently recommended), could decrease the burden of invasive pneumococcal disease (IPD). Adherence to comorbidity-based PPV recommendations is low compared to age-based PPV coverage.
METHODS: We used a Markov model to estimate the effectiveness and incremental cost-effectiveness of eight PPV vaccination strategies: no vaccination, one vaccination (ages 50 or 65), two vaccinations (50/65 or 65/80), three vaccinations (50/65/80), four vaccinations (50/60/70/80), and the current US policy of vaccination at age 65 unless a comorbid condition in present, in which case PPV is recommended when the comorbidity presents and again either at age 65 or five years after the first PPV. We used US data to segment cohorts into comorbid illness groups and to model IPD rates; costs and utilities were obtained from US databases and the medical literature. An expert panel supplied age-and comorbidity based estimates of PPV effectiveness. Costs are 2003 US$; cost and effectiveness values were from the societal perspective and were discounted at 3%/yr. One-way, two-way, and probabilistic sensitivity analyses were performed.
RESULTS: The current vaccination policy cost $3,341 per quality adjusted life year (QALY) gained. Compared to this policy, age-based vaccination at 50/65 prevented more IPD and cost $23,120/QALY gained. Four vaccinations (50/60/70/80) was the most effective strategy but also the most expensive, costing $54,451/QALY. The other strategies were eliminated by simple or extended dominance. Results were sensitive to variation of PPV effectiveness estimates, but insensitive to variation of PPV side effect, tolerance, and cost values. Baseline cost-effectiveness results were supported by the probabilistic sensitivity analysis, where parameter values were simultaneously varied over distributions 3000 times. In the baseline analysis we assumed 100% PPV coverage and equal likelihood of age- and comorbidity-based PPV uptake; relaxing this assumption and imputing current values for age-based (57.1%) and comorbidity-based (32.5%) PPV coverage resulted in age-based PPV strategies becoming more strongly favored over the current policy.
CONCLUSIONS: Routine PPV at age 50 with one or more revaccinations at 10–15 year intervals may prevent more IPD cases than the currently recommended PPV policy, and do so at economically reasonable cost-effectiveness ratios. Accounting for actual PPV uptake in the US further decreases the favorability of current PPV recommendations.

AM I DIFFERENT? A QUALITATIVE STUDY ON BARRIERS TO COLORECTAL CANCER SCREENING IN PATIENTS WITH CHRONIC MENTAL ILLNESSES A. Aggarwal[1]; A. Pandurangi[1]; M. Scherer[1]; A. Kuzel[1]. [1]Virginia Commonwealth University, Richmond, VA. *(Tracking ID # 190797)*

BACKGROUND: At any given time, more than one-fourth of US population has a diagnosable mental illness. Despite recent attention given to enhance colorectal cancer screening in the general population, little is known about the perceptions of barriers to screening among patients with chronic mental illnesses. The principal purpose of this study was to explore psycho-social and behavioral barriers to colorectal cancer screening in this vulnerable population
METHODS: We conducted in-depth, face-to face qualitative interviews using a semi-structured interview guide to explore barriers to colorectal cancer screening. Chronic mental health patients were recruited from an urban, hospital based outpatient mental health clinic in Virginia. Selection criteria included age (>50 years), diagnosis of chronic mental illness, and psychiatric care for more than one year. Mental illnesses were selected to represent three categories: anxiety, mood and psychotic disorders. Interviews with 15 patients were audio-taped, transcribed

and the text was methodically coded. Data were analyzed generating common themes within theoretical categories and contrasts between categories.
RESULTS: In this random group of mentally ill patients, colorectal screening rates were similar to the general population but varied significantly in the three mental illness categories. Anxiety, mood and psychotic patients were very different in their health seeking behaviors. Five patients with anxiety disorders (except one with post traumatic stress disorder) stated no barriers and were seeking more frequent screening than recommended. Barriers in all five mood disorder patients echoed those seen in the general population: access, fear of cancer diagnosis and myths related to cancer. The majority of psychotic patients were afraid of personal harm and generally suspicious of physician intent and actions.
CONCLUSIONS: This exploratory study suggests there may be unique and clinically significant obstacles to colorectal cancer screening in patients with anxiety disorders and psychoses. One size, one approach does not fit all. Primary care clinicians may consider tailoring their approach to colorectal cancer screening in patients with these disorders to take these differences into account.

AMBULATORY MICROSYSTEMS FOR RESIDENT BASED CARE: SUFFICIENT OR PROFICIENT? S.F. Babbott[1]; B.W. Beasley[2]; S. Reddy[3]; D. Duffy[3]; E.S. Holmboe[3]. [1]University of Kansas, Kansas City, KS; [2]University of Missouri-Kansas City, Kansas City, MO; [3]American Board of Internal Medicine, Philadelphia, PA. *(Tracking ID # 190347)*

BACKGROUND: The quality and organization of ambulatory microsystems in internal medicine residency training are thought to be highly variable. Residents need to train in efficient and effective ambulatory microsystems to prepare them to lead and change systems in their future clinical practice. We sought to assess specific aspects of ambulatory microsystems where residents conduct longitudinal outpatient care as part of their education.
METHODS: Investigators from ABIM, ACGIM, APDIM and SGIM surveyed medical directors of ambulatory clinics where residents receive education and provide longitudinal outpatient care. For this analysis, we used a section of a web-based (Grapevine) survey instrument developed by the ABIM, harmonized with the NCQA's practice systems readiness survey, which assesses nine system characteristics of the clinic. Clinic directors were identified by their program directors. Results are presented as percentages of residency clinics possessing the specific system characteristic; all analyses were performed with SPSS.
RESULTS: Clinic Directors (CD): A total of 206 clinic directors from 174 programs responded. 89% of CDs reported spending the majority of their time in the clinic and 30% of CDs had been associated with the clinic five or fewer years. The majority of clinics, 56%, were classified as residency teaching clinics, but other practice structures such as community health centers (10%), academic faculty practice (13%) and institutional/VA (11%) were noted. Patients: Respondents defined diabetes (32%), hypertension (30%) and cardiovascular disease (19%) as the most important conditions in their practice, and obesity, smoking and hypertension as their patients' top three risk factors. Data Systems and Tracking: 63% of clinic practices used electronic data systems that included at least some patient clinical information and 51% report using an electronic prescription writer. However, much fewer practices used electronic systems to generate lists of patients needing follow up care (28%), tracking patients needing preventive services (23%) and tracking patients whose conditions required visits to multiple physicians (16%). Finally, 44% of CDs reported they cannot track all labs done until results are available and 33% could not track follow-up for patients with abnormal lab results. Access and Coordination: 46% of CDs reported that personal physician assignment processes worked well, as well as 41% for triage and 44% for same day scheduling. However, only 15% of CDs reported that coordination of visits worked well. Measuring clinic performance for access against written standards for scheduling with a personal physician occurred in 42% of the clinics and for returning urgent calls in 38% of the clinics.
CONCLUSIONS: This is one of the first comprehensive examinations of microsystems in internal medicine residency ambulatory training. On the positive side, a substantial portion of residency clinic sites have some form of electronic data system and electronic prescribing, at percentages substantially above those reported among practicing internists. On the opportunity side, clinics struggled with tracking labs and abnormal tests and also in the area of access and care coordination. Limitations of this study include a response rate among all residency programs at less than 50%. These results suggest areas for improvement in current ambulatory training practices.

AMI CARE IN SPECIALTY CARDIAC AND GENERAL HOSPITALS: ARE DATA FROM MEDICARE BENEFICIARIES GENERALIZABLE? P. Cram[1]; L. Bayman[1]; M.S. Vaughan-Sarrazin[2]. [1]University of Iowa, Iowa City, IA; [2]VAMC Iowa City, Iowa City, IA. *(Tracking ID # 190126)*

BACKGROUND: Hospital performance is often assessed using administrative data from Medicare enrollees. These data are attractive because they are widely available, but their generalizability to non-Medicare patients and other administrative data sources is unclear. We used all-payor data to compare the characteristics and outcomes of Medicare enrollees and non-Medicare enrollees admitted to specialty and general hospitals acute myocardial infarction (AMI).
METHODS: We used State Inpatient Data (SID) from Arizona, California, and Texas to identify physician owned specialty cardiac hospitals (N=9) and competing general hospitals within the same markets (N=40) with full revascularization capabilities. We then identified two separate cohorts of patients admitted with AMI (ICD-9-CM code 410.XX) between 2000–2004: 1) Medicare enrollees; and 2) non-enrollees (i.e., patients with other insurance). For each cohort, we compared demographics, comorbidity, admission source, and in-hospital mortality for patients in the specialty and competing general hospitals, and compared risk-adjusted in-hospital death for specialty and general hospitals using logistic regression to control for patient demographic and clinical characteristics, and hospital fixed effects.
RESULTS: Specialty and general hospitals admitted 4,174 and 18,426 Medicare enrollees respectively and 3,492 and 15,771 non-Medicare enrollees. In both the Medicare and non-Medicare cohorts, patients admitted to specialty hospitals were more likely to be male and white than patients admitted to general hospitals. In both cohorts, patients admitted to specialty hospitals had lower rates of diabetes and renal failure, but higher rates of depression (P<.001 for each). Specialty hospitals admitted a smaller proportion of patients from the emergency department and higher proportion of patients as transfers from other hospitals (P<.001). Unadjusted in-hospital mortality was lower in specialty than general hospitals in the Medicare cohort (5.9% vs. 10.6%; P<.001) and non-Medicare cohort (3.0% vs. 4.5%; P<.001). In multivariate analysis, the risk-adjusted odds of in-hospital death were lower for specialty hospitals as compared to general hospitals among both Medicare (OR=0.68; 95% CI 0.58–0.80) and non-Medicare patients (OR=0.65; 95% CI 0.51–0.83).
CONCLUSIONS: Patients admitted to specialty and general hospitals differed substantially and in similar ways whether insured by Medicare or other payors. In-hospital risk adjusted mortality in specialty hospitals was significantly lower than general hospitals for both Medicare and non-Medicare patients. These data suggest that behavior of specialty hospitals is similar whether assessed using Medicare enrollees or non-enrollees.

AN ELECTRONIC HEALTH RECORD-BASED INTERVENTION TO IMPROVE TOBACCO TREATMENT IN PRIMARY CARE: A RANDOMIZED CONTROLLED TRIAL J.A. Linder[1]; N.A. Rigotti[2]; L.I. Schneider[1]; J.K. Kelley[1]; P. Brawarsky[1]; J.S. Haas[1]. [1]Brigham and Women's Hospital, Boston, MA; [2]Massachusetts General Hospital, Boston, MA. *(Tracking ID # 190420)*

BACKGROUND: Providing consistent, evidence-based tobacco dependence treatment in routine clinical practice is a major challenge in primary care. Ideally, every patient's smoking status would be documented and every smoker would be offered tailored cessation assistance, including cessation counseling and medications. To improve the documentation and treatment of tobacco use in primary care, we developed a three-part enhancement to our electronic health record (EHR): 1) a smoking status icon and reminder; 2) enhanced smoking status documentation; and 3) a Tobacco "Smart Form" that facilitates medication ordering, referral to a tobacco counselor, and documentation of actions.

METHODS: We randomly assigned 25 primary care practices to receive the intervention or to control status between December 19, 2006 and September 30, 2007. The enhancement was introduced in intervention practices using email and a single presentation at each practice. The primary outcome was the proportion of smokers who made contact with a smoking cessation counselor, including on-site counselors as well as the state tobacco control program. Secondary outcomes included the proportion of patients with smoking status documented; the prescription of smoking cessation medications, including nicotine products, bupropion, and varenicline, to smokers; and the proportion of documented smokers at the start of the study who were recorded as non-smokers by the end of the study. To assess differences between groups, we used the chi-squared test. To assess the primary outcome, we used generalized estimating equations to adjust for clustering by practice.
RESULTS: During the 9-month study period, 141,867 patients made 455,088 visits to study practices. Patients had a mean age of 48, were 62% female, 63% White, and 15% Latino. Sixty-seven percent of patients had private insurance, 16% had Medicare, and 10% had Medicaid. At the end of the study, smoking status was documented for 51.6% of patients in the intervention practices and 43.5% in the control practices ($p<.0001$). From the start to the end of the study, there was a greater increase in the documentation of smoking status in the intervention practices (8.1% increase versus 3.5% increase in control practices; $p<.0001$). Among the 12,967 documented smokers, more in the intervention practices achieved the primary outcome, contact with a cessation counselor (4.5% versus 0.5% in control practices; $p<.0001$). Smokers in the intervention practices were no more likely to be prescribed smoking cessation medication (2.0% versus 2.0% in control practices; $p=.99$). Among the 11,378 patients who were documented smokers at the start of the study, more in the intervention practices were recorded as non-smokers by the end of the study (4.8% versus 2.1% in control practices; $p<.0001$).
CONCLUSIONS: This EHR-based intervention was effective in improving rates of smoking documentation. Among documented smokers, the intervention increased the delivery of counseling assistance to smokers and increased physician-recorded smoking cessation rates. While the absolute rates of change were modest, this system-level intervention was simple to implement and provides a model for improving the management of tobacco users that is generalizable to other primary care sites using an EHR.

AN EVALUATION OF MISSED OPPORTUNITIES IN COLORECTAL CANCER DIAGNOSIS H. Singh[1]; L.A. Petersen[1]; K. Daci[2]; C. Collins[2]; N.J. Petersen[1]; A. Shethia[1]; H. El-Serag[1]. [1]Houston Center for Quality of Care and Utilization Studies, Michael E. DeBakey Veterans Affairs Medical Center and Baylor College of Medicine, Houston, TX; [2]Baylor College of Medicine, Houston, TX. *(Tracking ID # 190497)*

BACKGROUND: Delays in colorectal cancer (CRC) diagnosis have been described, but few modern studies addressed the determinants of delays. Understanding process breakdown in terms of potential opportunities missed however, could inform interventions to reduce delays in CRC diagnosis. We aimed to understand the origin and types of missed opportunities in CRC diagnosis.
METHODS: We identified patients with a new pathology-based CRC diagnosis between 1/1/2000 and 6/30/2007 at an urban tertiary care VA facility. The availability of an integrated electronic medical record facilitated the review of care processes related to patient presentation, test ordering and follow-up. We excluded patients who were diagnosed or received their diagnostic care outside our setting, as well as patients with a previous primary CRC diagnosed within the past 5 years. Each case was reviewed independently by two investigators using a standardized pre tested data-collection form. Missed opportunities were defined as (1) episodes of care when endoscopic evaluation was not requested in the presence of a predefined clinical clue (Class 1), or (2) failure to perform an endoscopic diagnostic evaluation within 60 days after the first request for predefined indications (Class 2).
RESULTS: We identified 515 patients who met the inclusion and exclusion criteria. Both reviewers agreed on the presence of at least one missed opportunity in 337 (65.4%), and on the absence of any missed opportunities in 80 (15.5%) cases. We further analyzed only the 337 cases both agreed involved missed opportunities. Class 1 missed opportunities were present in 169 (50.2%) cases. We then evaluated predefined clinical clues on which both reviewers agreed at least "substantially" as indicated by κ=0.60–0.79. We found positive fecal occult blood test (56.4% of patients) to be the most common missed clue, followed by presence of iron deficiency anemia (47.5%), bright red blood per rectum (31.5%), worsening constipation (15.4%), a CT scan suspicious for colon cancer (11.3%), abnormal barium enema (9.8%) or flexible sigmoidoscopy (5.9%), suspected rectal or abdominal mass (4.8%), family history of colon cancer (4.8%), and intestinal obstruction (4.2%). Each of the 337 cases had a mean of 4.3 clues. Class 2 missed opportunities were present in 215 (63.8%) cases and were associated with a median time from referral to diagnosis of 92 days. Overall, the most common setting where missed opportunities occurred was primary care followed by endoscopy service. However, patients were found responsible in at least 8% of cases.
CONCLUSIONS: Missed opportunities in the diagnosis of CRC are common, with both failures as well as delays in requesting appropriate endoscopic evaluation, as well as performing the endoscopic evaluation. Interventions targeting patient-related missed opportunities and the systems and cognitive breakdowns in care processes involved are needed in order to reduce delays in CRC diagnosis.

ANTIBIOTIC UTILIZATION AMONG HEALTH PLANS IN THE UNITED STATES: IMPLICATIONS FOR QUALITY, COST, AND PUBLIC HEALTH M. Steinman[1]; K. Yang[2]; S.C. Byron[3]; J. Maselli[2]; R. Gonzales[2]. [1]San Francisco VA Medical Center/UCSF, San Francisco, CA; [2]University of California, San Francisco, San Francisco, CA; [3]National Committee for Quality Assurance, Washington, DC. *(Tracking ID # 189638)*

BACKGROUND: Antibiotics are often overused in community settings, and resistance levels among community bacterial pathogens vary in direct proportion to local rates of antibiotic utilization. As such, outpatient antibiotic utilization is an important marker of health care quality and of public health. The goal of this study was to examine the variation in antibiotic utilization across commercial US health plans participating in the National Committee for Quality Assurance HEDIS® program, and to examine the implications of this variation on cost and public health.
METHODS: We measured per member per year (PMPY) rates of antibiotic utilization for persons age 0–64 years enrolled in commercial health insurance plans that submitted data to HEDIS in 2006. Because the frequency of antibiotic-responsive disease varies substantially by age and sex, we adjusted for the age and sex distribution of the health plans when relevant. To calculate drug costs, we used the median Average Wholesale Price and estimated duration of therapy for each drug to estimate the mean cost of a course of antibiotics for each major antibiotic class. For each plan, we multiplied this average cost per prescription by actual usage data to estimate antibiotic costs for each health plan.
RESULTS: We compared 229 health plans, mostly HMOs, which represented 43 million persons in the US. First, we evaluated patterns of antibiotic utilization. The mean rate of antibiotic utilization was 0.88 (SD 0.15) prescriptions PMPY; 47% of these prescriptions were for broad-spectrum antibiotics. Antibiotic utilization varied markedly between plans, from 0.64 prescriptions PMPY at the 5th percentile of plans to 1.09 at the 95th percentile. Thus, a plan with 300,000 members in the 95th percentile of prescribing would create 135,000 more antibiotic prescriptions per year than a similar plan in the 5th percentile. Next, we evaluated plan characteristics that may predict high rates of antibiotic utilization. In multivariable analysis, US census region was the strongest predictor of antibiotic utilization rates ($P<.0001$), with corresponding bivariate analyses showing 19% greater use of antibiotics among plans in the South compared with plans in the West. Finally, we evaluated cost implications of variation in prescribing practices. Across all plans, the mean cost of antibiotics per member per year was $49 (SD $10). Costs varied substantially, from $34 PMPY at the 5th percentile of plans to $64 PMPY at the 95th percentile. If all health plans reduced their prescribing costs to the 25th percentile of costs - $43 PMPY - annual savings would be $329 million among the 42 million health plan members available for this analysis. If plans further reduced their prescribing costs to the 10th percentile, total savings would be $554 million.
CONCLUSIONS: There is substantial variation in antibiotic utilization between commercial health plans that is not accounted for by differences in patient case-mix, and which likely exerts a significant toll on public health and health care costs. Public reporting of antibiotic utilization may encourage health plans, particularly those at the high end of the prescribing spectrum, to focus quality improvement efforts on understanding and reducing inappropriate antibiotic prescribing.

ANTIVIRAL AND ANTIBIOTIC PRESCRIBING FOR INFLUENZA IN PRIMARY CARE J.A. Linder[1]; H. Reyes Nieva[1]; W.A. Blumentals[2]. [1]Brigham and Women's Hospital, Boston, MA; [2]Roche Pharmaceuticals, Nutley, NJ. *(Tracking ID # 190549)*

BACKGROUND: Anti-influenza antiviral medications cost-effectively reduce influenza-related morbidity, but nationally, antivirals are used infrequently. A major barrier to antiviral use is the requirement that they be started within 2 days of symptom onset. Antibiotics are not routinely indicated for patients with influenza. We sought to identify factors associated with antiviral and antibiotic prescribing for influenza in primary care.
METHODS: We performed a retrospective analysis of visits by patients to primary care clinics during influenza seasons from October 1999 to May 2007 with a primary claim diagnosis of influenza (International Classification of Disease-9 [ICD-9] code, 487; n=4,993) or an associated electronic antiviral prescription (n=860). For visits in which the treating clinician diagnosed the patient with influenza in the visit note (n=958), we performed electronic chart review and abstracted sociodemographic information, information about presenting signs and symptoms, and whether the clinician prescribed an antiviral or antibiotic. We used multiple logistic regression to evaluate independent predictors of antiviral and antibiotic prescribing.
RESULTS: The sample had a mean age of 40 and was 62% women. The race and ethnicity of the sample was 63% White, 19% Latino, 8% Black, and 11% other. Clinicians prescribed one of the four approved antivirals in 557 (58%) visits – amantadine (16%), rimantadine (22%), oseltamivir (60%), and zanamivir (1%) – and prescribed antibiotics in 104 visits (11%). The symptom duration prior to presentation was shorter for patients who received antivirals (median 2 days versus 3 days for patients who did not receive antivirals; p<.0001) and longer for patients who received antibiotics (median 3 days versus 2 days for patients who did not receive antibiotics; p=.01). In multiple logistic regression modeling, independent predictors of antiviral prescribing were a symptom duration of 2 or fewer days (odds ratio [OR], 11.97 compared to more than 2 days; 95% confidence interval [CI], 8.15 to 17.59), patient age (OR, 1.21 for each increasing decade; 95% CI, 1.07 to 1.37), Latino race and ethnicity (OR, 0.50 compared to Whites; 95% CI, 0.30 to 0.84), Medicaid insurance (OR, 0.60 compared to private insurance; 95% CI, 0.37 to 0.99), other insurance (OR, 2.11; 95% CI, 1.27 to 3.50), myalgias (OR, 1.61; 95% CI, 1.08 to 2.41), and having an influenza test done (OR, 8.85; 95% CI, 6.02 to 13.00). Independent predictors of antibiotic prescribing were sore throat (OR, 0.62; 95% CI, 0.40 to 0.98), headache (OR, 0.53; 95% CI 0.33 to 0.85), otoscopic abnormality (OR, 3.16; 95% CI, 1.72 to 5.79), abnormal lung examination (OR, 3.95; 95% CI, 2.10 to 6.13), and having a chest x-ray performed (OR, 2.44; 95% CI, 1.48 to 4.04).
CONCLUSIONS: Among patients diagnosed with influenza in primary care, clinicians prescribed antivirals to patients who were older and presented within 2 days of symptom onset, although non-clinical factors such as race and ethnicity and insurance status were associated with reduced antiviral prescribing. Clinicians prescribed antibiotics to patients with influenza who had otoscopic or lung abnormalities. To benefit from antivirals, systems need to be in place to enable patients to present for evaluation and treatment in primary care when they are likely to have influenza and within 2 days of symptom onset.

APPOINTMENT ADHERENCE AND DISPARITIES IN OUTCOMES AMONG PATIENTS WITH DIABETES J.M. Schectman[1]; J.B. Schorling[1]; J.D. Voss[1]. [1]University of Virginia, Charlottesville, VA. *(Tracking ID # 190098)*

BACKGROUND: Successful control of diabetes mellitus requires lifelong adherence to multiple self-management activities in close collaboration with health professionals. We examined the association of such control with nonadherence to primary care appointments in a health system serving a large predominantly lower SES rural population in central Virginia.
METHODS: Of 4922 diabetic patients served by the University of Virginia Health System, complete data were available on 4253 included in the final analyses. The association of metabolic control (most recent A1c <7% or >9% in two models of respectively 'good' and 'poor' control) with appointment-keeping behavior (operationalized as the 'no-show rate' of each patient over most recent 3 year period) was examined using multiple logistic regression models controlling for socio-demographic variables (age, gender, race, income, insurance) as well as number of attended primary care visits and clinic location.
RESULTS: The mean no-show rate during the study period was 11% and the mean A1c was 7.7%. The table confirms that age, no-show rate, and insurance status independently predicted both good and poor metabolic control, while race was associated with good but not poor control. Older, white patients with health insurance tended to have significantly better metabolic control. For each 10% increment in no-show rate, the odds of good control decreased 1.13×(p<0.0001) and the odds of poor control increased 1.25× (p<0.0001). There was no independent association of metabolic control with patient income, gender, or the number of completed primary care visits during the 3 year study period.

Independent Variable	Dependent Variable: A1c<7%		Dependent Vriable: A1c>9%	
	WaldX2	P-value	Wald X2	P-value
Age	6.7	0.01	73.5	<0.0001
Gender	0.04	0.85	0.13	0.72
Race	5.3	0.02	1.8	0.18
Income	0.6	0.44	0.15	0.70
Insurance	12.9	0.005	12.4	0.006
No-show rate	19.0	<0.0001	54.0	<0.0001
# of visits	2.7	0.10	2.0	0.16
Clinic site	12.6	0.002	3.0	0.22

Independent association of diabetes metabolic control and patient characteristics

CONCLUSIONS: Adherence to appointments, independent of actual visit frequency, is a strong predictor of diabetes metabolic control. We hypothesize that 'no-show behavior' may serve as an indicator for other diabetes adherence behaviors and the associated barriers that serve to undermine successful diabetes self-management.

ARE HOSPITALIZED US MEDICAL PATIENTS RECEIVING APPROPRIATE VTE PROPHYLAXIS? A. Amin[1]; J. Lin[2]; G. Yang[3]; S. Stemkowski[3]. [1]University of California, Irvine, Orange, CA; [2]sanofi-aventis US, Inc., Bridgewater, NJ; [3]Premier Inc, Charlotte, NC. *(Tracking ID # 190614)*

BACKGROUND: Hospitalized medical patients with well-defined risk factors for venous thromboembolism (VTE) should receive VTE prophylaxis. However, although evidence-based guidelines providing specific VTE prophylaxis recommendations in at-risk patients are available, recent data suggest that the use of appropriate VTE prophylaxis in medical patients remains low. We therefore used an acute-care, hospital administrative records database to asses the level of appropriate VTE prophylaxis in a large, real-world population of US medical patients at risk of VTE.
METHODS: A retrospective review of patient discharge records from between January 2005 and December 2006 in Premier's Perspective™ inpatient database was conducted. Medical discharges aged ≥40 years, identified as at risk of VTE by the 7th American College of Chest Physicians (ACCP) guidelines, and without contraindications for anticoagulation were included. Additionally, discharges were required to have a minimum length of stay of 6 days, a criterion based on the MEDENOX trial and designed to select a cohort at high risk of VTE. Data on the use of prophylaxis were collected, and the rates of any prophylaxis (discharges receiving at least one inpatient order for an ACCP-recommended VTE prophylaxis type) were calculated for a number of different medical diagnosis groups. Furthermore, the rates of appropriate VTE prophylaxis, defined as meeting the ACCP-guideline recommendations for prophylaxis type (pharmacological or mechanical), dosage, and duration, were also calculated for each medical diagnosis group.
RESULTS: A total of 201,224 medical discharges at risk of VTE were included in the analysis. Although 65.9% of all medical patients received at least one order for VTE prophylaxis during hospital stay, only 12.7% received appropriate prophylaxis, defined as meeting the guideline-recommended daily prophylaxis type, dose, and duration. Variation was observed in the rates of appropriate prophylaxis between the different medical diagnosis groups, with the highest rate being 17.5% in medical trauma discharges and the lowest rate being 4.7% in burn injury discharges. Other appropriate prophylaxis rates were

15.8% in heart failure discharges, 12.5% in cancer discharges, 10.5% in severe lung disease discharges, and 10.0% in acute spinal injury discharges.
CONCLUSIONS: The real-world level of appropriate VTE prophylaxis in hospitalized US medically ill patients is low. Although nearly two-thirds of discharges were identified as requiring some form of VTE prophylaxis during their hospital stay, only one in eight received prophylaxis that was consistent with the evidence-based recommendations for their medical diagnosis. In order to reduce the current US healthcare burden of VTE, improvement is required in VTE prophylaxis practices. Such an improvement is currently the focus of national quality initiatives, and the creation of VTE prophylaxis hospital protocols will likely reduce the frequency of hospital-acquired, preventable VTE events.

ARE INTERNISTS PREPARED TO TREAT THE OBESITY EPIDEMIC? M.D. Landry[1]; E.I. Rosenberg[2]; C. Fung[3]; I.A. Chen[4]; T.S. Caudill[5]; J.P. Block[6]; K.B. Desalvo[3]. [1]Tulane University School of Medicine/Southeast Louisiana Veran Healthcare System, New Orleans, LA; [2]University of Florida, Gainesville, FL; [3]Tulane University School of Medicine, New Orleans, LA; [4]Eastern Virginia Medical School, Norfolk, VA; [5]University of Kentucky, Lexington, KY; [6]Harvard School of Medicine, Jamaica Plain, MA. *(Tracking ID # 190187)*

BACKGROUND: Internists have an increasingly critical role in treating obesity as the epidemic has grown rapidly over the last 20 years. We sought to understand whether internists in training are better prepared for their role in treating obesity compared with prior cohorts.
METHODS: We surveyed residents concerning their knowledge and attitudes regarding obesity. We administered a validated, anonymous, web-based survey to all internal medicine residents in 2 university-based, residency programs. We compared responses to those from a prior administration of the survey in 2003
RESULTS: One hundred residents (60% completion rate) responded: 60% were male, 46% PGY1, 22% PGY2 and 33% > PGY3. Ninety percent of respondents accurately estimated a BMI from provided data compared to only 60% in 2003. Nearly all residents recognized the medical consequences of obesity such as hypertension and diabetes. They also were able to identify standard goals for weight loss and exercise activity to manage obesity. Twice as many (80%) knew the minimum BMI for diagnosing obesity than in 2003 (40%). One-third did not recognize that waist circumference was a reasonable measure of obesity which was similar to the prior cohort. As in 2003, nearly all residents agreed that treating obesity was important (95%), yet still only 1/3 reported success in treating obesity. Thirty percent of respondents felt treating obesity was futile which was unchanged from 2003 (31%). Only 8% of responding residents reported prior formal training on obesity and related topics. Despite this lack of reported training, 65% felt qualified to treat obesity which was significantly improved (44%) while 55% were confident in their obesity treatment skills compared to 2003 (67%). Knowledge and attitudes about obesity were not correlated as in the prior cohort.
CONCLUSIONS: An overwhelming majority of residents still have not received formal training in obesity treatment. Though knowledge and skills at identifying and treating obesity have improved since 2003, many residents still report negative experiences with and attitudes towards obesity. Internal medicine training programs must develop targeted educational programs concerning obesity treatment to improve skills and attitudes for internal medicine residents.

ARE PHYSICIANS READY TO PRACTICE IN A CONSUMER-DRIVEN ENVIRONMENT? C. Pollack[1]; G. Mallya[2]; D. Polsky[3]. [1]Philadelphia VA Medical Center, RWJ Clinical Scholar, University of Pennsylvania, Philadelphia, PA; [2]University of Pennsylvania, Philadelphia, PA; [3]Philadelphia VAMC/CHERP, Philadelphia, PA. *(Tracking ID # 189556)*

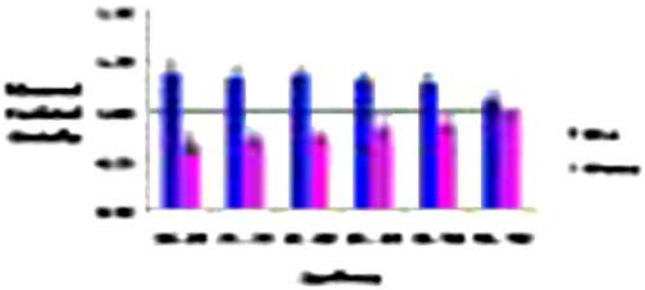
BACKGROUND: Consumer-directed health plans (CDHPs) play a prominent role in health reform and comprise a growing part of the health insurance market. CDHPs attempt to help patients control health care spending through high-deductible insurance, health savings accounts, and comparison shopping based on cost and quality. As an initial point of contact in the medical system, primary care physicians are likely to be confronted with new challenges; however, little is known concerning physicians' readiness to care for patients in CDHPs.
METHODS: A cross-sectional, national sample of 1500 primary care doctors were mailed a survey to quantify physician knowledge regarding CDHPs, attitudes towards the plans, and readiness to assist patients with cost and quality information. Results were analyzed using descriptive statistics. Multivariable models tested whether physicians who report having patients enrolled in CDHPs in their practice have higher knowledge of the plans.
RESULTS: Overall, 528 (49%) of 1076 eligible physicians responded to the survey. Forty-one percent of physicians took care of patients enrolled in CDHPs. Overall, physicians reported low knowledge of plan design (43%), out-of-pocket costs (43%), and medical spending accounts (21%). While physicians with patients enrolled in these plans were significantly more likely to have higher knowledge of plan design, 21% reported low knowledge. Seventy-three percent of physicians felt ready to advise patients regarding the costs of medical care but less than half felt ready to assist patients with medical budgeting. Physicians with patients enrolled in CDHPs were more ready to discuss the costs of medical care (adjusted odds ratio [AOR] 2.33, 95% confidence interval [CI] 1.48–3.68) and medical budgeting with patients (AOR 1.99, CI 1.35–2.92). Twenty one percent of physicians believed patients could trust quality-of-care data available from government websites and 8% believed patients could trust the data from insurance websites.
CONCLUSIONS: Many physicians report low knowledge concerning the design of CDHPs. Limited readiness to assist in medical budgeting and lack of trust in quality data may create difficulties for patients enrolled in these plans. As CDHPs expand, educational interventions and decision-support tools may be required to facilitate optimal patient care.

ARE PRIMARY CARE PHYSICIANS MORE LIKELY TO ADDRESS PAINFUL SYMPTOMS IN SERIOUSLY ILL PATIENTS? K.A. Lorenz[1]; C. D. Sherbourne[2]; L.R. Shugarman[2]; L.S. Meredith[2]; L.V. Rubenstein[1]; L. Wen[3]; A. Cohen[4]; J. Goebel[5]; A. Lanto[4]; S.M. Asch[1]. [1]UCLA; RAND Corporation; VA of Greater Los Angeles, Los Angeles, CA; [2]RAND Corporation, Santa Monica, CA; [3]VA of Long Beach, Long Beach, CA; [4]VA of Greater Los Angeles, Los Angeles, CA; [5]School of Nursing, CSULB, Long Beach, CA. *(Tracking ID # 190537)*

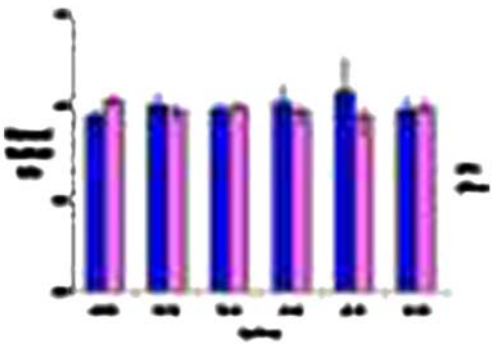
BACKGROUND: Among patients with palliative needs, pain is a common, multi-dimensional, often undertreated problem; therefore, we evaluated provider factors associated with provider intention to address spiritual, emotional, and physical aspects of pain.
METHODS: To evaluate technical and interpersonal aspects of care, we used a clinical vignette, because vignettes produce better scores than chart abstraction and are closer to the gold standard of scores obtained for standardized patients with regard to practice behavior. We surveyed all clinicians with responsibility for pain management working in 19 hospital and community-based primary care, oncology, and cardiology clinics in two large VA systems (November 2005 – March 2007). Our vignette described an elderly patient with advanced hormone-refractory metastatic prostate cancer, depression, and pain not on analgesic therapy. Endpoints were the provider's intention to deliver guideline-concordant care, specifically: opioids, antidepressants, assess spiritual wellbeing, and mental health referral. Independent factors included age, gender, specialty status, and variables drawn from the theories of reasoned intention and planned behavior.
RESULTS: Of practitioners, 56%, 38%, and 34% endorsed as 'very' and 29%, 39%, and 33% as 'somewhat likely' prescribing opoioids, antidepressants, or assessing spiritual pain. Greater intent to prescribe opioids and antidepressants was associated with primary vs. specialist provider status (opioids β=0.475, p=0.005; antidepressants β=0.434, p=0.027) and provider confidence in pain management (opioids β= 0.361, p=0.004; antidepressants β=0.481, p=0.001). Factors associated with greater intent to assess spiritual aspects of pain included greater perceived time contraints (β=0.204, p=0.016), female gender (β=0.451, p=0.014) and trust in the validity of pain rating (β= 0.594, p=0.002). Similar results were found for mental health referral.
CONCLUSIONS: Primary care vs. specialists were more likely to report their intention to deliver recommended care to alleviate the pain and suffering of a seriously ill cancer patient, possibly because of a greater accountability for pain and mental health management. Female physicians appear more sensitive to spiritual pain concerns. Prior experience most likely explains the association between time as a barrier and intention to assess spiritual concerns. These findings suggest that better models of cross-specialty collaborative pain management are needed, as is more attention to spiritual pain.

ARE THERE GENDER DIFFERENCES IN RISK ADJUSTMENT PREDICTION FOR COSTS AND MORTALITY? A.C. Kronman[1]; K.M. Freund[1]; A. Hanchate[1]; A. Ash[1]. [1]Boston University, Boston, MA. *(Tracking ID # 190897)*

BACKGROUND: Health care utilization is strongly related to patients overall illness burden (comorbidity). Understanding health care utilization requires risk adjustment for comorbidity. Statistical risk adjustment methods extract comorbidity profiles from administrative data, and used to compare patients and healthcare providers. Risk adjustment may have a gender-related bias, in that acute expensive conditions are given more weight than chronic disabling diseases, which are more common in aging women than men. We asked if there are gender differences in predicting future costs and mortality.
METHODS: Retrospective analysis of a random national sample of 640,000 Medicare beneficiaries aged 66+, enrolled in the fee-for-service system 2000–2001. We used the Charlson Comorbidity Index and Diagnostic Cost Groups (DCG) to calculate comorbidity from ICD-9 diagnoses in 2000: Outcomes were total expenditures and mortality in 2001.We stratified each gender into 6 age groups and used multivariate regression to predict each outcome from comorbidity. We calculated the ratio of the observed outcome to the expected predicted outcome to evaluate accuracy of each risk adjustment method.
RESULTS: Sample characteristics: Of 643,250 beneficiaries, 59% were women, 27% men died, 24% women died. Mean costs were $17,877 per capita for men, $15,962 for women. When stratified by age, men had higher average comorbidity, mortality, and costs. The observed/expected outcome ratios for mortality differed between genders in every age stratum except 91+ ($p<.05$), while gender differences for costs were not significant.



All differences between men and women are statistically significant P <.05 except group 91+



Differences between men and women are not statistically significant.

CONCLUSIONS: Elderly men have higher mortality, costs, and overall comorbidity than women. Although risk adjustment predicts healthcare costs equally in men and women, it under-predicts mortality in men, and over-predicts mortality in women. Incorporating gender-specific factors may improve the accuracy of risk adjusting clinical outcomes.

ASIAN AMERICAN SMOKING BEHAVIOR AND THE EFFECTS OF SMOKE-FREE HOMES WITH IMMIGRATION E.K. Tong[1]; T.T. Nguyen[2]; E. Vittinghoff[2]; E.J. Perez-Stable[2]. [1]University of California, Davis, Sacramento, CA; [2]University of California, San Francisco, San Francisco, CA. *(Tracking ID # 190784)*

BACKGROUND: Asian American smoking prevalence differs by acculturation and gender, with higher acculturation associated with smoking prevalence decreasing in men and increasing in women. California has the largest Asian American population and long-standing smoke-free regulations (statewide since 1995). Smoke-free environments are considered a social norm change that encourages a reduction or cessation of smoking, and are not widespread in Asia which has over 1 in 3 of the world's smokers. We analyzed the impact of social norm changes on former and lighter smoking behaviors of Asian Americans by examining the interaction of having a smoke-free home and immigrating to the U.S. We hypothesized that a smoke-free home rule would be associated with former smoking. We also hypothesized that the longer immigrants were in the country, the more likely they were to have a smoke-free home rule and report smoking less.
METHODS: We compared former and current Asian American smokers using the 2003 California Health Interview Survey, a population-based household telephone survey that oversampled Koreans and Vietnamese and was conducted in-language for Chinese, Koreans, and Vietnamese. We compared proportions of former and current smokers who reported a smoke-free home rule, which we defined as never allowing smoking inside the house. Current smokers' smoking intensity was defined as moderate-heavy (10+ cigarettes per day, reported to reflect ethnic minority smoking patterns) or light-intermittent (<10 cigarettes per day or not daily). Multivariate logistic regression models were used to assess the variables associated with 1) former smoking compared to current smoking and 2) light-intermittent smoking compared to moderate-heavy smoking. Demographic variables included age, gender, education, marital status, income, and Asian national origin. We created a dichotomous variable to represent more recent immigration (<10 years in the U.S.) and longer-term residence (born in the U.S. or 10+ years in the U.S.). Due to significant effect modification, both models were set up to estimate the effect of having a smoke-free home stratified by years lived in the U.S. (recent immigrant vs. long-term resident). All analyses were performed with Stata 8.0 to account for the complex survey design.
RESULTS: The survey included 212 moderate-heavy, 267 light-intermittent, and 571 former Asian American smokers. In reporting a smoke-free home rule, former smokers (men 54.7%, women 60.8%) led light-intermittent smokers (men 28.2%, women 26.6%) and moderate-heavy smokers (men 17.1%, women 12.5%). In the multivariate regression models, having a smoke-free home rule was associated with former smoking for recent immigrants (OR=14.19, 95% CI 4.46–45.12, $p<0.0001$) and longer-term residents (OR=3.25, 95% 1.79–5.90, $p<0.0001$), which was significantly different ($p=0.02$ for interaction comparing these effects). Having a smoke-free home rule was associated with lighter smoking only for longer-term residents (OR=5.37, 95% CI 2.79–10.31, $p<0.0001$).
CONCLUSIONS: Smoke-free home rules may encourage Asian American smokers, particularly recent immigrants, to quit, and longer-term residents to reduce consumption. This represents a promising behavioral cessation strategy. The relationship between smoke-free home rules, immigration to the U.S., and smoking patterns requires further investigation with prospective studies.

ASSESSING FOR THE MISUSE OF OPIOIDS PRESCRIBED FOR THE MANAGEMENT OF CHRONIC NON-MALIGNANT PAIN N.M. Brim[1]; C. Smitas[2]; M. Maher[2]; M.J. Fagan[2]. [1]Brigham and Women's Hospital, Boston, MA; [2]Brown University, Rhode Island Hospital, Providence, RI. *(Tracking ID # 190044)*

BACKGROUND: In response to increasing concerns about opioid misuse, an academic general internal medicine clinic in Providence, RI instituted pain medication agreements and routine urine toxicology screening for patients on chronic opioids for non-malignant pain. The purpose of our study was to describe the results of urine toxicology screening, the prevalence of substance abuse and diversion, and the characteristics associated with opioid misuse.
METHODS: We performed a chart review on the 177 patients on chronic opioids for non-malignant pain conditions identified by review of urine toxicology tests between February and August 2006. Patients were also identified by review of a log recording violations of the pain medication contract. Violations were considered to be: threats, refusal to submit urine for testing, having multiple providers of opioids, current heroin or cocaine use, and urine toxicology results negative for the prescribed opioid, or positive for a non-prescribed opioid, non-prescribed benzodiazepine, or cocaine/amphetamines. Urine toxicology was performed by immunoassay, results negative for the expected opioid were confirmed with gas chromatography/mass spectrometry.

RESULTS: The average patient age was 50 years, 62% were male and 60% had the diagnosis of low back pain. Long acting opioids were most commonly prescribed, with 33% on long acting morphine and 36% on methadone. Psychiatric conditions were recorded in 68% of patients. A substance abuse history was self-reported by 50%. The average reported pain score on opioid therapy was 7 of 10 in severity. Ultimately, 51% of patients were discontinued from their pain medication agreement due to opioid misuse. Behavioral concerns were cited in 6.8%, and urine toxicology was inappropriate in 49%. Of the inappropriate urine toxicology screens, 69% were negative for the prescribed opioid, suggesting diversion. Overall, 18% of toxicology screens were positive for cocaine and 11% were positive for non-prescribed benzodiazepines. Of patients who were no longer prescribed opioids due to contract violations, 56% continued to visit the clinic. For this subset, the average pain score was the same or improved for 74% of patients after being weaned from opioids. Bivariate analysis revealed the following risk factors for opioid misuse: male gender (OR 1.9, p=0.04), current alcohol abuse (OR 3.9, p=0.03), prior cocaine use (OR 2.3, p=0.04), prior heroin use (OR 3.3, p=0.02), multiple early refill requests (OR 4.5, p=0.01), 3 or more missed appointments within the last year (OR 3.0, p<0.01) and a prior violation of the pain contract (OR 4.2, p<0.01). There was a decreased likeliness of misuse with two or more pain diagnoses (OR 0.50, p=0.03) and the use of adjunctive therapy (OR 0.44, p=0.02). There was no significant relationship between the risk of misuse and the type of opioid, equianalgesic dose, length of treatment, psychiatric conditions or age.
CONCLUSIONS: There was a high rate of opioid misuse among clinic patients with chronic non-malignant pain. Surprisingly, most patients with pain management contract violations who were no longer prescribed opioids continued to follow up in the clinic; the majority reported no change or an improvement in their pain score after opioids were discontinued. Routine urine toxicology screening provided a practical way of identifying patients who were not abiding by the pain management contract and/or who may not have been benefiting from opioid pain management.

ASSESSING PATIENT-CENTERED CARE AMONG MEDICAL STUDENTS: ONE APPROACH TO CULTURAL COMPETENCY L. Wilkerson[1]; C. Fung[1]; W. May[2]; D. Elliott[2]. [1]University of California, Los Angeles, Los Angeles, CA; [2]University of Southern California, Los Angeles, CA. *(Tracking ID # 190943)*

BACKGROUND: Since Kleinman, Eisenberg, and Good's landmark paper, Culture, illness and care (1978), patient-centered communication strategies have been taught as one approach to improving cross-cultural exchanges between physicians and patients. As defined in the IOM's Quality Chasm Report (2001), patient-centered care involves "providing care that is respectful of and responsive to individual patient preferences, needs, and values and ensuring that patient values guide all clinical decisions" (p.6). The current study investigates the feasibility of developing and using a patient-centered subscale as part of an objective-structured clinical examination (OSCE) to produce a reliable estimate of medical students' use of culturally responsive history taking, communication, and counseling skills.
METHODS: Beginning senior medical students at a single institution participated in a multi-station clinical performance examination (OSCE) consisting of eight cases developed by the California Consortium for the Assessment of Clinical Competence and scored by standardized patients using a combination of a yes/no checklist and a rating scale. For the purposes of this study, two of the authors (WM, DE) developed a patient-centered scale (PCC) consisting of 8 checklist items in a single case in which the patient's cultural beliefs have prompted him to mistrust the medical profession and 20 additional items embedded in 5 other cases to assess the use of history taking, communication, and counseling approaches that elicit and respond to individual patient's preferences and beliefs. In 2006, the PCC scale consisted of 28 items. In 2007, the scale was revised resulting in minor wording changes and the deletion of one item. The sample consisted of 336 senior medical students at a single institution over two years (100%), 160 in 2006 and 176 in 2007. The two samples were analyzed separately to determine the feasibility and reliability using descriptive statistics, Cronbach's alpha, and independent sample t-tests. The study was determined to be exempt by IRB review.
RESULTS: Students achieved a mean score of 62% (sd=10%) in 2006 and 58% (sd=10%) in 2007 with individual item means ranging from 40% to 84%. An independent samples t-test revealed that the difference in mean scores for these two years was significant (t=3.549, df=334, p<.01). The scale demonstrated an acceptable level of reliability for a low-stakes assessment, alpha=.65 (28 items) in 2006 and alpha=.58 (27 items) in 2007.
CONCLUSIONS: The patient-centered scale allowed us to identify both curricular effects and individual performance characteristics. Based on the reliability of the scale, we determined that feedback on the use of a patient-centered communication approach would be helpful to the students. For this purpose, we grouped students into low, medium, and high utilization, with each student receiving a notification of the patient-centered skills characteristic of his/her performance group along with specific suggestions for improvement. The use of both a culturally-challenging case along with embedded items related to eliciting and responding to individual patient perspectives provides a consistent measure of students' ability to apply patient-centered communication strategies. This tool can be added to the growing set of measures useful in assessing culturally sensitive patient care.

ASSESSING THE VALIDITY OF SELF-REPORTED MEDICATION ADHERENCE AMONG INNER CITY ASTHMATIC ADULTS J.L. Cohen[1]; D.M. Mann[1]; J.P. Wisnivesky[1]; H. Leventhal[2]; T.J. Musumeci[2]; E.A. Halm[3]. [1]Mount Sinai School of Medicine, New York, NY; [2]Rutgers University, New Brunswick, NJ; [3]Mount Sinai School of Medicine, Mamaroneck, NY. *(Tracking ID # 190137)*

BACKGROUND: Use of daily inhaled corticosteroids (ICS) is the cornerstone of evidence-based management of persistent asthma. Clinicians and researchers would benefit from a validated tool to assess ICS adherence which could help determine if poor asthma control is occurring despite good medication adherence or because of poor medication adherence. We examined the validity of the Medication Adherence Report Scale (MARS), a 10 item self-reported measure of adherence largely studied in the context of oral medications, as a tool for measuring inhaled medication use.
METHODS: Sociodemographic, clinical, and medication data were collected in English and Spanish as part of a prospective observational cohort study of inner city adults with persistent asthma. In a subset of patients, adherence to ICS was measured for 1 month after enrollment using: 1) Self-reported adherence (S-Adh) via the MARS 2) Electronically using an electronic monitoring chip attached to their ICS inhaler (MDI-Log). Electronic Adherence (E-Adh) was defined as the percent of days in which the ICS inhaler was used. Patients with a MARS score >4 or E-Adh>70% were classified as good adherers. Internal validity was assessed with Cronbach's alpha and scree plots. Associations between S-Adh and E-Adh were assessed using Spearman correlations and chi square tests. Construct validity was examined by correlating S-Adh with knowledge and beliefs about regular ICS use.
RESULTS: Of 318 patients in the parent study, 53 were selected for the electronic adherence substudy. Mean age was 47, 85% female, 40% Hispanic, 40% Black, 18% White, 53% had prior asthma hospitalization, 13% prior intubation, and 70% used oral steroids. All patients had ICS prescribed. Those in the substudy were similar to the rest of the cohort in age, sex, race, and asthma severity. The MARS had good inter-item correlation in English and Spanish (Cronbach's alpha=0.85 and 0.86) and good test-retest reliability (r=0.65, p<.0001). Principal components analysis supported a single factor solution suggesting that all items of the MARS measure a unique domain-adherence. Mean E-Adh was ICS use on 52% of days. Mean S-Adh was a MARS score of 4.3 (equivalent to skipping ICS rarely/never). Overall S-Adh was correlated with continuous E-Adh (R=0.42, p<.002) as well as with binary, good E-Adh (R=.40, p<.003). Good S-Adh also predicted good E-Adh (OR=5.4, CI 1–30, p<.03). Alternate analyses modeling E-Adh as percent days used in the first v. last 15 days of monitoring, or as the percent of prescribed doses, yielded similar results. S-Adh was higher among patients who knew ICS were to be taken daily, knew ICS were controller medications, and believed it was important to use ICS daily even when not having symptoms (p<.05).
CONCLUSIONS: The MARS scale performed well as a self-reported measure of adherence with ICS among English and Spanish-speaking, low income, minority asthmatic patients. Being able to identify and then target interventions towards poor ICS adherers will hopefully improve disease outcomes.

ASSESSMENT OF DOCTORS' MEDICAL AND CULTURAL COMPETENCE USING VIRTUAL PATIENTS N. Junod Perron[1]; T.V. Perneger[2]; V. Kolly[2]; P. Hudelson[1]. [1]Department of community medicine and primary care, Geneva,; [2]Quality of Care Unit and Groupe de Recherches et d'Analyses en Systèmes et Soins Hospitaliers, Geneva,. *(Tracking ID # 190451)*

BACKGROUND: As patient populations become increasingly diverse, physicians need not only to master biomedical aspects of care, but also to be sensitive to the ways in which culture and language can influence clinical communication and care. The goal of our study was to examine physicians' use of appropriate biomedical and cultural skills during clinical encounters with migrant patients, and the relationship between the two skill sets.
METHODS: We developed two detailed patient "stories" or scenarios and incorporated them into an interactive, computer-based program (VIPS) designed to test clinical skills. Participants (doctors and medical students in their clinical years) could ask any number of questions to arrive at their diagnosis. For each scenario, we constructed two scores to assess whether physicians asked questions that were appropriate from a biomedical and from a cultural standpoint. These scores were based on an a priori determination of appropriateness of each question.
RESULTS: Each virtual patient was assessed by 111 and 99 participants; 92 participants assessed both. The participants asked on average 8.4 (SD 2.6) and 7.9 (SD 3.5) medically indicated questions and 1.4 (SD 1.0) and 2.3 (SD 1.4) culturally appropriate questions. Correlations of the medical scores ($r=0.49$, $p<0.001$) and of the cultural scores ($r=0.46$, $p<0.001$) were moderate but statistically significant. Within each virtual patient, the medical and cultural scores were less correlated ($r= 0.26$ and 0.39, both $p<0.005$). No respondent characteristics were consistently associated with higher or lower scores.
CONCLUSIONS: The VIPS program appears to be reliable. However, we found little correlation between physicians' use of appropriate biomedical and cultural skills, whatever their level of clinical experience. These results raise several questions regarding the operationalization of biomedical and cultural skills in this study and the relationship between the two skill sets.

ASSESSMENT OF MEDICAL STUDENTS: CAN ONE QUESTION TELL ALL? K.D. Pepper[1]; E.D. Brownfield[1]. [1]Emory University, Atlanta, GA. *(Tracking ID # 190811)*

BACKGROUND: There are a number of methods currently used to evaluate students; however many are time-consuming and unreliable for capturing true student performance. Many evaluators inflate ratings and avoid any documentation of less than average performance, even though honest evaluation is critical to student growth and curriculum change. In order to shorten evaluations and truly capture evaluators' opinions of students, we propose one question can tell all.
METHODS: One question, "Would you want this student participating in the care of a loved one?" was added to the traditional evaluation of students on the Internal Medicine Clerkship. Faculty and residents working with students answered this question, along with the traditional questions related to medical knowledge, clinical skills, and professionalism. Responses to this one question were grouped as "yes", "no" "n/a" or no response. These subgroups were then compared to ratings (on a Likert scale from 1–5 with 1 being poor and 5 excellent) of knowledge, skills, and professionalism on the traditional evaluation.
RESULTS: 6 months of data on 52 students were analyzed using the Wilcoxon rank-sum test. Because only 2 students received a negative (no) evaluation, these observations were combined with all responses other than a positive (yes) one. (Table 1) Even though statistical analysis was not plausible with 2 students who received a negative evaluation, the following ratings suggest a difference in student performance: (Table 2)
CONCLUSIONS: "Yes"-only responses to the question "would you want this student participating in the care of a loved one?" suggested higher scores in medical knowledge, clinical skills, and professionalism compared to "No" or other responses. Although the numbers are small, "no"-only responses indicate a trend towards lower performance in traditional areas of evaluation. This question has been added to the evaluation forms of all clinical clerkships. With more data, we will try to see if this question can potentially be used either as an adjunct to or in replacement of traditional evaluations.

Table 1

Subgroup	# Students	Knowledge (median)	Skills (median)	Professionalism (median)
All yes	35	4.3	4.5	4.8
All others	17	3.9	4.1	4.6
P value		0.004	<0.001	<0.001

Table 2

Subgroup	# Students	Knowledge	Skills	Professionalism
All no	2	3.2	3.3	4.1

ASSESSMENT OF PATIENT COUNSELING TIME AND INDEPENDENT PATIENT FORM COMPLETION USING A LOWER LITERACY ADAPTATION OF PACE+ IN AN URBAN PRIMARY CARE CLINIC E.L. Seeholzer[1]; D. Kaiser[2]; M. Adams[1]; M. Lemieux[1]. [1]Society of General Internal Medicine, Cleveland, OH; [2]Case Western Reserve University, Cleveland, OH. *(Tracking ID # 189882)*

BACKGROUND: PACE + is one of few validated tools to counsel patients on activity and eating choices in a primary care setting. With the help of a trained PACE+ coach, participants complete structured forms and counseling that: 1) assess readiness to change, 2) create tailored plans for change, and 3) assess patient self-efficacy for change for both physical activity and diet. Beginning in April, 2006, obese patients at an urban primary care clinic were offered PACE+ counseling at regular medical visits through the support of a local grant. After counseling over 600 patients, coaches found patients liked the counseling but few could complete the forms independently due to low literacy levels. Low patient literacy levels are associated with poorer health outcomes and adherence to recommended medical treatments. We designed a lower literacy version, called PACE+ for All. Our objectives were to 1) compare literacy characteristics and administration times of the original and new versions PACE+ and to 2) screen counseled patients for risk of limited health literacy skills.
METHODS: Literacy level of the original and new forms was evaluated using the word count and the Flesch-Kincaid grade level through Microsoft Word software. The time for assessment and counseling portions was compared for both PACE+ versions by alternately administering PACE+ (n=18) or PACE+ for All (n=17) to patients. The ability to complete PACE+ forms independently was noted. Since July 2007, 276 patients completing PACE+ or PACE+ for All were screened using a 3 item tool (Wallace et.al.). Data were analyzed using the Student's TTest. An alpha level of 0.05 was used as the threshold for significance.
RESULTS: ADAPTED FORM EDUCATIONAL LEVEL: Compared to the original forms, the word counts in PACE+ for All were reduced by 54–68% and grade levels were reduced by 0.5–2.7 grades to an average of seventh grade. FORM COMPLETION: The time to assess and counsel patients was compared. The mean assessment time was not quite significantly different between versions ($p=0.11$), (original version: 7.79min., SD=5.05; PACE+ for All 5.67 min., SD 2.30). The average total time counseling was significantly reduced, ($p=0.02$) (original version: 32.33 min., SD 7.45; PACE+ for All 25.94 min., SD 7.91). When PACE+ for All was administered, patients were less likely to require total assistance to complete the forms (n=0 vs n=5 – 28%) and more likely to complete forms independently (n= 15 – 88% vs n=13–72%). Literacy level screening: Between 21–28% of counseled patients (n=276) stated they needed complete or some assistance to fill out medical forms or to understand medical information about their health conditions.
CONCLUSIONS: The adapted version of PACE+, PACE+ for All has fewer words and a lower reading grade level. Changes from the original tool were sufficient to decrease administration time. Rates of independent form completion improved using PACE+ for All. For patients at this clinic, a screening tool showed that 25% of patients were at a moderate or high risk of a low health literacy level. The lower literacy form of PACE+ made coaching more efficient and made materials more accessible to patients. In settings with high rates of low health literacy, patient materials need to be designed and adapted to work across literacy levels.

ASSESSMENT OF SIGN-OUT SKILLS AMONG HOUSE-STAFF: A MATTER OF CONCERN! B. Gakhar[1]; S. Sekhon[1]; J. Reilly[1]; J. Kolodziej[1]; A.L. Spencer[1]. [1]Allegheny General Hospital, Pittsburgh, PA. *(Tracking ID # 190701)*

BACKGROUND: Sign-out (S/O) is a key process in the transfer of care of hospitalized patients; if not done properly, adverse clinical outcomes may occur. Although the frequency of S/O is increasing with work hour regulations, no formal training has been incorporated into residency education. Our primary aim was to perform a needs-assessment for a formal S/O curriculum by evaluating medical interns on their verbal and written S/O skills and assessing their views of the current S/O process.
METHODS: Our assessment of intern S/O skills consisted of multiple components. First, we designed a 26-item survey targeting views about current S/O practices. The survey asked interns to indicate on a Likert Scale their level of agreement with statements about their satisfaction, level of formal training, and comfort with current S/O practices. Next, we conducted an objective assessment of the verbal S/O process by observing and rating interns on a ward rotation (n=14) during S/O rounds. We observed each intern "sign-out" 8 patients for a total of 112 observations. Interns were graded using an 8-item checklist of important components of a proper verbal S/O which was based on the YALE "SIGN-OUT" pneumonic described in the table. Interns received a "yes" or "no" for each item on the check-list for each patient presented. Percentages of interns achieving a "yes" for each item were calculated. Interns' written S/O sheets were then assessed for completeness using an 8-item checklist and were scored on a scale from 1 to 8 for each patient. The items included: identification, attending, code status, problem list, medications, allergies, task list, and legibility. Lastly, we assessed the accuracy of the interns' S/O sheets for 28 randomly selected patients. This was accomplished by reviewing the patients' charts within 30 minutes of collecting the S/O sheets to verify if documented items were accurate.
RESULTS: All 24 interns responded to the survey. While 70% of interns reported that they never received any formal education on the S/O process, 56% reported satisfaction with the S/O system. Interestingly, 88% of interns reported that they routinely give accurate and complete S/Os to their co-interns, but only 48% reported that they receive a complete S/O. Only 12% of interns have ever received feedback on their verbal or written S/O. Results for the verbal S/O ratings are described in the table. The average score for written S/Os was 5.8/8. The validity assesment revealed that the accuracy rate for medication list was 4%, identification data was 68%, code status was 82%, and allergies was 96%.
CONCLUSIONS: Our study revealed multiple deficiencies in verbal and written S/O skills, especially pertaining to medications and identifying data. Our results highlight the need for the development of a S/O curriculum emphasizing the importance of the content and process necessary for a complete and accurate sign-out. Only then can we be more confident that our patients are well-cared for in our absence.

Objective Assessment of Interns' Verbal Sign-Out Skills

Objective Assesment Rating Scale	"YES" Observation Percentage
S: Sick/DNR	16
I: Identification data	26
G: General hospital course	92
N: New events	39
O: Overall health	21
U: Upcoming possibilities with plan	37
T: Tasks	50

ASSOCIATION BETWEEN 4-YEAR MORTALITY RISK AND COLONOSCOPY USE AMONG MEDICARE BENEFICIARIES D. Koya[1]; G.J. Chen[1]; W.P. Moran[1]. [1]Medical University of South Carolina, Charleston, SC. *(Tracking ID # 190162)*

BACKGROUND: Because of competing causes of mortality in the elderly, the net mortality benefits from cancer screening depend on life expectancy. Since, benefits from colon cancer screening do not accrue until at least 5 years after screening begins, physicians should consider life expectancy when making screening decisions. However, it is unclear whether screening colonoscopy is targeted to healthy older patients who would benefit the most and avoided in those with limited life expectancies. We determined the relationship between 4-year mortality risk and use of colonoscopy in a cross-sectional study using Medicare Current Beneficiary Survey 2003 (MCBS) data.
METHODS: Using MCBS 2003 data, we analyzed colonoscopy use in the previous 5 years, across 4 strata of mortality risk in Medicare beneficiaries, 65 years and older. Beneficiaries with colorectal cancer history were excluded. 4-year mortality risk was derived from a published and validated prognostic index with 4 strata of increasing probability of death in four years (risk groups 1, 2, 3 and 4 with 4%, 15%, 42% and 64% risk of 4-year mortality, respectively). The prognostic index includes 12 predictors of mortality (age, sex, BMI, smoking status, co morbid conditions and functional status) obtained from self-report. Multivariate logistic regression was used to assess the independent association between mortality risk and colonoscopy use.
RESULTS: Of the 11,982 surveyed, 41.8% (53% female, mean age=75 yrs) reported receiving colonoscopy in the last 5 years. There was a significant decreasing trend in the rate of colonoscopy with risk groups 1, 2, 3 and 4 (45.6%, 43.8%, 39.7% and 35%, respectively; trend test $p < 0.001$). Within the low mortality risk group, no significant differences were found in colonoscopy between 65–69 yr age and other age groups. The adjusted odds of colonoscopy use were highest in the low mortality risk group and show a gradual decline with increasing mortality risk ({OR (CI) for risk groups 1,2,3 and 4 were 1.00, 0.91(0.82 – 1.00), 0.73 (0.65 – 0.82) and 0.59 (0.50–0.69) respectively}). Other factors significantly associated with higher colonoscopy use were being married, black race, higher education, higher income, number of office visits, and HMO coverage.
CONCLUSIONS: The use of colonoscopy was inversely associated with 4-year mortality risk among Medicare beneficiaries suggesting that current colonoscopy patterns among Medicare patients include consideration of their mortality risk. Prospective studies are needed to explore the use of the 4-year mortality risk prognostic index as a colon cancer screening decision tool among older adults in the clinical setting.

ASSOCIATION BETWEEN CHRONIC PAIN AND PRESCRIPTION DRUG ABUSE: ANALYSIS OF A VA COHORT W.C. Becker[1]; R.M. Gallagher[1]; J.T. Ross[1]; D.W. Oslin[1]. [1]Philadelphia VAMC, Philadelphia, PA. *(Tracking ID # 190322)*

BACKGROUND: Most recent studies of the clinical correlates of prescription drug abuse lack data about subjects' chronic pain. Accordingly, we sought to investigate the association between chronic pain and self-reported prescription drug abuse in a cohort of patients with behavioral health needs who are at higher-than-average risk for prescription drug abuse.
METHODS: We performed a cross-sectional analysis of responses to a telephone assessment administered to primary care patients referred for behavioral health evaluation from April 25, 2005 until October 31, 2007 (N=6378). We defined current prescription drug abuse as a positive response to the question, "In the last six months have you intentionally misused prescription medications (misused means taking more medication than you're supposed to or taking prescription medication not prescribed to you)." We defined chronic pain with functional impairment as a response of 'moderately,' 'quite a bit,' or 'extremely' to the question, "During the last month, how much has pain interfered with your normal work (including work outside and inside the home)." Simple frequencies, bivariate and multivariable associations were investigated. Multivariable analysis adjusted for age, gender, race, financial situation, employment status, current smoking, alcohol abuse, illicit drug use, depression and chronic pain with functional impairment.
RESULTS: Mean age of the sample was 56.5 with 90.7% men. Nearly 50% of the sample was white, 41.9% black, 5% Hispanic and 3.7% Asian/other. The proportion of patients reporting current abuse of prescription drugs was 4.8%. On unadjusted analysis, being unmarried (OR 1.3; 1.03–1.7); having a poor financial situation (OR 2.1; 1.6–2.6); smoking (OR 2.3; 1.8–2.9); illicit drug use (OR 4.0; 3.2–5.1); depression (OR 2.2; 1.7–2.8); and chronic pain causing significant functional impairment (OR 2.6; 2.0–3.4) were associated with prescription drug abuse. On multivariable analysis, having a poor financial situation (OR 1.4; 1.1–1.9); smoking (OR 1.6; 1.2–2.1); illicit drug use (OR 3.1; 2.3–4.4); and depression (OR 1.6; 1.2–2.0) and chronic pain causing significant functional impairment remained associated with prescription drug abuse (OR 2.2; 1.7–2.9).
CONCLUSIONS: The observed association between chronic pain and prescription drug abuse suggests a possible causal relationship where-

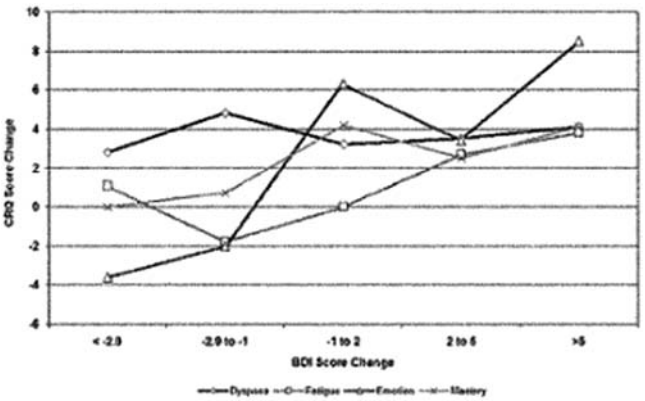
in undertreated pain leads to misuse of prescription drugs. This phenomenon has previously been termed "pseudoaddiction." Although heretofore there has been little empiric evidence in support of this phenomenon, chronic pain as a possible explanation for aberrant drug-taking behavior should be considered in high-risk populations.

ASSOCIATION BETWEEN EXPOSURE TO DEGRADING SEX IN POPULAR MUSIC AND SEXUAL EXPERIENCE AMONG ADOLESCENTS
B. Primack[1]; E. Douglas[1]; D. Wickett[1]; M.J. Fine[1]. [1]University of Pittsburgh, Pittsburgh, PA. *(Tracking ID # 189863)*

BACKGROUND: Adolescents are currently exposed to popular music for 2.4 hours per day. Current popular music contains more references to sexual activity than any other entertainment medium; over one-third of popular songs portray sexual activity. Research shows that when sexual activity is portrayed, two-thirds of the time the reference is considered "degrading" in nature, and social cognitive theory supports the fact that exposure to degrading sexual references in popular music may lead to early sexual activity. The purpose of this study was to determine if adolescents' self-reported exposure to degrading sexual references in popular music is independently associated with sexual experience, even after controlling for a comprehensive array of demographic, environmental, and intrinsic factors that are associated with early sexual initiation.
METHODS: In 2006–2007 we surveyed all ninth grade health classrooms at three Pittsburgh area public high schools regarding media exposures and sexual experience. The study was approved by the University of Pittsburgh Institutional Review Board and the school administrators. We measured exposure to degrading sexual references by computing a score based on (1) self-reported hours of music exposure; (2) participants' favorite musical artists; and (3) degrading sexual content of those artists' songs over 2005–2006. "Degrading" sexual content was determined by two independent coders using predetermined criteria for this construct. Our outcome measures included (1) ever having had sexual intercourse; and (2) progression of non-coital sexual experience along an ordered categorical scale. We also assessed and controlled for covariates including age, race/ethnicity, gender, parental education, authoritative parenting, depression, self-esteem, rebellious behavior, sensation seeking, stress level, and school achievement. We used logistic regression (for outcome 1) and ordered logistic regression (for outcome 2) to determine whether exposure to degrading sex was independently associated with sexual experience.
RESULTS: The mean age of the 713 respondents was 14.5 years, 46.1% (N=329) were male, and 39.6% (N=282) were white. Of the sample, 32.3% reported having ever had sexual intercourse. Participants reported average music exposure of 4.4 hours a day (SD=3.0), and 71.3% reported having a favorite artist who sang about degrading sexual content. In the fully-adjusted models, there was a significant, dose-response relationship between the degrading sex exposure score and each of the outcome variables. Compared with adolescents with the lowest degrading sex exposure, those with the highest exposure had odds of 2.12 of having had sexual intercourse (95% CI=1.30–3.45). Similarly, compared with adolescents with the lowest degrading sex exposure, those with the highest exposure had odds of 1.92 of increased activity along the non-coital sexual experience scale (95% CI=1.23–2.99).
CONCLUSIONS: Our findings suggest independent associations between increased exposure to degrading sexual content in popular music and increased sexual experience among young adolescents. Although it is theoretically plausible that exposure to degrading sexual content in popular music leads to increased sexual activity, it is also possible that those with more sexual experience seek out music with more degrading sexual content. Future research will be necessary to determine the temporal nature of this relationship.

ASSOCIATION OF CHANGE IN DEPRESSION AND ANXIETY SYMPTOMS WITH FUNCTIONAL OUTCOMES IN PULMONARY REHABILITATION PATIENTS
P.A. Pirraglia[1]; B. Casserly[2]; R. Velasco[3]; L. Nici[1]. [1]Providence VA Medical Center/Brown University, Providence, RI; [2]Brown University/Providence VA Medical Center, Providence, RI; [3]Brown University, Providence, RI. *(Tracking ID # 189765)*

BACKGROUND: Depression and anxiety are common in chronic lung disease (CLD). We examined how depression and anxiety symptom change relate to QoL outcomes following pulmonary rehabilitation (PR).
METHODS: We evaluated 61 CLP patients in PR. PR consisted of supervised exercise training and education twice weekly for 8 weeks. The Beck Depression and Anxiety Inventories (BDI & BAI) assessed symptom burden pre- and post-PR. Chart review determined depression and anxiety treatment. Outcomes were change in the dyspnea, mastery, emotion, fatigue domains of the Chronic Respiratory Questionnaire (CRQ) pre- to post-PR. Multivariable regression models evaluated each CRQ domain change by change in BDI and in BAI, controlling for age, FEV1, and depression or anxiety treatment.
RESULTS: Participants were 68±9 years and all male. FEV1 was 1.2L±0.4. Overall, QoL improved: dyspnea (p=.0003), mastery (p=.007), emotion (p=.03), fatigue (p=.004). Mean BDI and BAI scores did not improve significantly (baseline BDI=14.0±10.3, BAI=15.8±10.9; follow-up BDI=11.8±8.9, BAI=13.4±12.0). However, multivariable models showed reduction in depressive symptoms was associated with improvement in mastery (p=.02), emotion (p=.004), and fatigue (p=.004).



CONCLUSIONS: Addressing depression and anxiety symptoms in PR patients may be indicated as these did not improve with PR alone and because COPD-specific QoL improvement may be associated with mood.

ASSOCIATION OF WORK-RELATED AND RELATIONSHIP STRESS WITH WEIGHT CHANGES IN THE NATIONALLY REPRESENTATIVE MIDUS COHORT OF U.S. ADULTS
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BACKGROUND: Stress has an important role in physical health and has been associated with coronary heart disease, pain, functional gastrointestinal disorders, and progression of HIV/AIDS. The effect of stress on weight change is less clear. We used data from the Midlife Development in the US (MIDUS) cohort to assess the relation of baseline stress to subsequent weight change over a 9 to 10 year period for adults.
METHODS: During 1995, a baseline survey was conducted in the MIDUS cohort, a nationally representative sample of 3,485 people aged 25 to 76; 2257 surviving subjects (71% response, adjusted for mortality) were re-surveyed in 2004–05. We excluded 201 respondents age *65 at baseline (because of limited weight change in this age group), and 35 women who were pregnant at baseline or follow-up, yielding a study cohort of 2021. We calculated BMI from self-reported height and weight at baseline and follow-up. Scales were created for work-related stress due to job demands (5 items), decision authority (6 items), and skill discretion (3 items) and for relationship stress due to friend strain (4 items), family strain (4 items), and spouse strain (4 items). We also evaluated a general scale of perceived life constraints (8 items), and a single item for financial stress. We assessed the adjusted association of stress with change in BMI from baseline to follow-up by including each stress scale in a separate gender-stratified linear regression model, controlling for self-reported health, medical and psychiatric conditions, smoking, race, income, age, and baseline BMI. We subsequently tested interaction effects of each stress scale with baseline BMI on change in weight. All analyses were weighted to account for the complex survey design.
RESULTS: Mean age was 44.5 at baseline (range 20–65); mean change in BMI over 9–10 years was 1.37 (range −32.8 – 26.7). Among men, work stress was associated with increasing BMI between surveys among

those with high baseline BMI and decreasing BMI for those with low baseline BMI, with stress measured by high job demands (p=.03 for interaction with baseline BMI), low job skill discretion (p=.08 for interaction), and low decision authority (p=.01 for interaction). Other covariates independently associated with increasing BMI were younger age, anxiety, or cardiac diagnosis at baseline. Among women, stress had mixed relationships with weight gain. Women with high baseline BMI experienced more weight gain if they felt constrained (p<0.001 for interaction) and if they had high job demands (p=0.002 for interaction). However, women with high baseline BMIs lost weight when they had low job skill discretion (p=0.007 for interaction) and more stress in relationships with friends (p=0.004 for interaction). Women gained weight regardless of baseline BMI if they had financial stress (p=0.01). Younger age and panic disorder were each independently associated with increasing BMI among women, whereas diabetes at baseline was associated with decreasing BMI.
CONCLUSIONS: Work stress is associated with weight gain among men with high baseline BMI, but relationship stress has limited impact. For women of high baseline BMI, job demands and general constraints in life are associated with weight gain while low job skill discretion and high relationship stress with friends are associated with weight loss. Interventions designed to address work-related stress due to job demands may prevent weight gain in overweight and obese men and women.

ASTHMA FAMILY HISTORY AS A POTENTIAL RISK FACTOR FOR CARDIOVASCULAR DISEASE IN THE UNITED STATES T.A. O'Bryan[1]. [1]Pennsylvania State University, Hershey, PA. *(Tracking ID # 190552)*

BACKGROUND: Several papers have associated asthma with increased risk of cardiovascular disease (CVD), stroke, and peripheral atherosclerosis. Systemic inflammation plays a key role in the pathogenesis of asthma and atherosclerosis, suggesting both diseases may share common genotypes. This study examines a possible relationship between CVD and a history of asthma in biological relatives.
METHODS: In a cross-sectional study, subjects aged >/=50 years participating in the National Health and Nutrition Examination Survey 2003–2004 were analyzed. Subjects indicating having a living or deceased biological relative (including parents, grandparents, brothers, or sisters), ever diagnosed with asthma by a health care professional were compared with subjects reporting no history of asthma in a biological relative. CVD was defined as indicating ever having been diagnosed with coronary artery disease, angina/angina pectoris, or heart attack. Logistic regression model analyzed the association of CVD and asthma family history controlling for traditional CVD risk factors and socioeconomic variables. A second model examined the relationship between asthma family history and high sensitivity C-reactive protein (CRP).
RESULTS: Among 2,440 subjects, those reporting a history of CVD (n= 433) were more likely to indicate asthma among relatives (22.2% vs. 17.7%, OR 1.33, 95% CI 1.03–1.71, p=.029). This association remained significant when controlled for age, gender, smoking history, body mass index (BMI), ethnicity, household poverty income ratio, education, history of hypertension, elevated cholesterol, diabetes mellitus, and a personal history of asthma (p=.028). Asthma family history was associated with higher CRP levels (geometric mean 0.28 mg/dl vs. 0.25 mg/dl, p=.021). However, this association weakened (p=.18) when adjusted for age, gender, BMI, ethnicity, smoking history, household poverty income ratio, and education.
CONCLUSIONS: Asthma in a biological relative may be an independent risk factor for atherosclerosis regardless of a personal history of asthma. These observations support the hypothesis that the pathogenesis of asthma and CVD share common genotypes or environmental factors. Prospective studies will need to confirm this association.

ATORVASTATIN SAFETY IN PATIENTS AGED 75 YEARS AND OLDER R.E. Laskey[1]; A. Breazna[1]; J. Hey-Hadavi[1]. [1]Pfizer Inc., New York, NY. *(Tracking ID # 190110)*

BACKGROUND: Although older patients benefit significantly from statin treatment, they may be less likely to receive treatment due to safety concerns. This pooled analysis evaluated atorvastatin safety in patients aged 75 years and older.
METHODS: Patients aged 75 years and older receiving placebo or atorvastatin (10–80 mg dose range) were identified from 45 randomized completed atorvastatin trials (1994–2005) in the analysis of treatment-associated adverse events, serious adverse events and enzyme elevations, and from 54 trials (1992–2005) in the analysis of albuminuria, hematuria, and myalgia.
RESULTS: Pooling identified 3145 patients aged 75 years and older (placebo=834, atorvastatin 10 mg=531, 20 mg=125, 40 mg=216, 80 mg= 1439). The proportion of patients with adverse events was similar in all groups. The most frequently reported treatment-associated adverse events were related to the digestive system (4–15% in atorvastatin groups; 19%, placebo). Treatment-associated adverse events seldom led to withdrawal in any group. Persistent elevation of liver function tests (>3× upper normal limit) were seen in 2 (0.2%), 2 (0.4%), 0, 0, and 14 patients (1.0%) in the placebo, atorvastatin 10 mg, 20 mg, 40 mg, and 80 mg groups, respectively. Persistent creatine phosphokinase elevations (>10× upper normal limit) were not seen in any group. Among 2128 patients available for analysis of muscle and liver-related adverse events (placebo = 419, atorvastatin 10 mg=433, 20 mg=119, 40 mg=154, 80 mg= 1003), the incidence of treatment-associated myalgia was low (<2.5%), no cases of rhabdomyolysis were reported, and treatment-related cases of albuminuria and hematuria were rare.
CONCLUSIONS: The incidence of adverse events in atorvastatin-treated patients aged 75 years and older did not increase with dose and was similar to that seen with placebo. These results support the favorable safety profile of atorvastatin across the dose range and should be considered when managing cardiovascular risk, including stroke, in patients aged 75 years and older.

ATTITUDES AND UPTAKE OF THE HPV VACCINE AMONG ADOLESCENT GIRLS AND YOUNG WOMEN: RESULTS OF A NATIONALLY REPRESENTATIVE SURVEY R. Caskey[1]; S. Lindau[1]; G.C. Alexander[1]. [1]University of Chicago, Chicago, IL. *(Tracking ID # 190610)*

BACKGROUND: Human Papillomavirus (HPV) is the most common sexually transmitted infection in the United States. In 2006 the Advisory Committee on Immunization Practices (ACIP) made a recommendation for universal routine HPV vaccination of all females 9 to 26 years of age, with the goal of targeting girls at age 11–12 years old. We sought to evaluate knowledge, attitudes, and current vaccination rates in a diverse, nationally representative sample of adolescents and young women.
METHODS: Based on a review of the existing literature and consultation with experts, we developed a survey that included several domains, including individuals' knowledge of the transmission of HPV and other sexually transmitted diseases, attitudes towards mandatory vaccination, beliefs regarding the level of protection provided by the vaccine, and vaccine uptake. We also assessed sources of information regarding HPV as well as risk factors for sexually transmitted diseases and cervical cancer, such as number of lifetime sexual partners and tobacco use. After piloting and pretesting to maximize validity and reliability, the survey was fielded in December 2007 among a sample of 1159 females 13 to 26 years of age, drawn from a research panel of more than 60,000 U.S. households developed and maintained by Knowledge Networks. Responses were weighted to reflect the demographics of the U.S. population.
RESULTS: The survey reveals 27% of teens (13–17 years old) and 13% of adults (18–26 years old) reported having received the HPV vaccine. The most common reason unvaccinated individuals report forgoing the vaccine were concerns regarding the safety of the vaccine (33%) and that the cost was too high (19%). There was considerable heterogeneity among subjects regarding knowledge of HPV prevention, diagnosis, and treatment. Although nearly 90% of respondents reported a health care visit during the previous 12 months, fewer than 30% reported their health care provider ever talking to them about HPV or the HPV vaccine. Further, over 70% of the sample report that they would be likely to get the vaccine if their health care provider recommended the vaccine.
CONCLUSIONS: These data provide some of the first nationally representative estimates of adolescents' and young womens' attitudes, beliefs, and experiences with the HPV vaccine. Analyses suggest that despite recommendations for universal vaccination of girls and young women, many individuals in this target population remain unvaccinated thus far. This may be in part because although these girls and women reported regular contact with a health care provider, only approximately one in three report receiving information about the HPV vaccine.

BARRIERS AND FACILITATORS TO ROUTINE HIV TESTING IN VA PRIMARY CARE B.G. Bokhour[1]; J.L. Solomon[1]; H. Knapp[2]; S.M. Asch[2]; A.L. Gifford[1]. [1]ENRM VA Medical Center, Bedford, MA; [2]Greater Los Angeles VA Health Care System, Los Angeles, CA. *(Tracking ID # 190157)*

BACKGROUND: In 2006 the Centers for Disease Control and Prevention released recommendations that all patients in care aged 13–64 be offered HIV testing. Approximately 25% of those infected with HIV are unaware of their status. Neither the CDC recommendations nor the broader literature on HIV testing offers patient-centered strategies that primary care providers can use for communicating with patients about the potentially sensitive, and in some cases inflammatory, topic of HIV testing. We sought to understand how VA providers view their roles and abilities to screen patients, what VA patients think about routine screening, and how providers and patients communicate about HIV screening.
METHODS: We conducted four focus groups with primary care patients, and two focus groups with providers, at two VA primary care clinics in Massachusetts and California. Focus groups used a semi-structured guide to inquire about participant views on routine HIV testing, past experiences with testing, barriers to HIV testing, communicating about HIV during appointments, and the utility of VA and CDC written materials to encourage routine HIV testing. Full transcripts of the focus groups were analyzed by two team members using grounded theory coding methodology, and consensus on themes was reached by the entire research team.
RESULTS: Both patients and providers stated a desire to make HIV testing part of routine blood work. They advocated viewing HIV "like everything else: diabetes, tuberculosis, anything else that we test for. When they do the blood screening, do the whole thing." Some patients indicated that although testing should be routine, they it shouldn't "be automatic. It should be up to the individual." Patients and providers identified current informed consent guidelines and forms to be a substantial barrier to testing, and yet they still believed that patients should have to give verbal consent to be tested. Patients indicated that waiting for HIV results and guidelines requiring return to the clinic in person to receive results made the decision to HIV test more difficult. A major barrier for providers was inadequate time in the clinical encounter to address patient concerns about HIV testing. Patients, however, indicated that they did not believe it was necessary to provide extensive pre-or post-test discussion about HIV unless results were positive. Written materials were viewed positively by both providers and patients, both of whom indicated that the use of such materials would facilitate discussion of HIV testing in the clinical encounter.
CONCLUSIONS: Routine HIV testing is viewed by both patients and providers as important. To improve rates of routine HIV testing several barriers must be addressed. Consent forms that are mandated in VA and in several states are viewed as significant barriers to testing. Nonetheless, it remains important for patients to be able to verbally consent to any HIV tests. Thus, communication about HIV testing should be streamlined while still allowing patients to make an informed choice about whether to be tested. Describing HIV as a treatable chronic disease may encourage testing and the use of written materials for patients may facilitate conversations and improve HIV testing rates. Providers may need additional communication tools to effectively discuss routine testing with patients in within limited time constraints of busy primary care practice.

BARRIERS AND FACILITATORS TO SHARED DECISION-MAKING AMONG AFRICAN-AMERICANS WITH DIABETES M.E. Peek[1]; S. Wilson[2]; R. Gorawara-Bhat[1]; M. Quinn[1]; A. Odoms-Young[3]; M.H. Chin[1]. [1]University of Chicago, Chicago, IL; [2]The University of Chicago, Chicago, IL; [3]Northern Illinois University, DeKalb, IL. *(Tracking ID # 190766)*

BACKGROUND: Shared decision-making (SDM) between patients and their doctors is associated with several health outcomes, including improved diabetes control. African-Americans have lower levels of shared decision-making and patient-centered care than do non-Hispanic whites, and this may be an important contributor to the existing disparities in diabetes outcomes among this population. However, there has been little research on SDM among African-Americans. We sought to explore the barriers and facilitators for SDM among African-Americans with diabetes.
METHODS: We conducted five focus groups (n=27) and a series of in-depth interviews (n=24) among a purposeful sample of African-Americans with diabetes. All patients had insurance and received their care at an academic medical center. Interviews and focus groups were conducted by trained race-concordant interviewers with experience in discussing health and communication issues. Each interview/focus group was audio-taped, transcribed verbatim and analyzed using the qualitative software package of Atlas.ti. Coding was conducted using an iterative process and each transcription was independently coded by two members of the research team.
RESULTS: Patients identified a number of barriers and facilitators to engaging in shared decision-making with their providers. Reported patient-related factors include self-efficacy, health information/ knowledge, and experience with diabetes self-management. Other factors cited as having an impact on communication and SDM include physician deference/power imbalance issues, fear/denial, and emotional vulnerability. Importantly, patients reported issues pertaining to race, such as cultural barriers and perceived discrimination as obstacles to communication. Reported physician-related factors encompass support/empathy, validating patient experiences, interpersonal skills, medical knowledge/skills, addressing patient concerns, valuing patient opinions/preferences and not rushing patients.
CONCLUSIONS: Although shared decision-making is an important part of patient/provider communication, African-Americans experience SDM less often than whites. The present research identifies a number of barriers and facilitators to SDM in African-American diabetes patients and suggests that enhanced sensitivity to interpersonal SDM barriers, due to issues of race, may account for some of the observed decision-making disparities in this population. Developing interventions that reduce SDM barriers and enhance facilitators among African-Americans, particularly those with chronic diseases such as diabetes, is an important area for future research.

BARRIERS TO AND FACILITATORS OF COLORECTAL CANCER SCREENING IN THE ELDERLY: A SYSTEMATIC REVIEW I. Guessous[1]; C. Dash[1]. [1]Department of Epidemiology, Atlanta, GA. *(Tracking ID # 189999)*

BACKGROUND: Identifying factors related to colorectal cancer (CRC) screening participation in the elderly is important because they are at increased risk of CRC. Although there have been many studies evaluating factors related to CRC screening, little is known about the barriers to, and facilitators of, CRC screening participation among the elderly.
METHODS: We conducted a systematic literature search in Medline (1995 to March 2007) and scanned reference lists of reviews to identify studies that reported barriers to or facilitators of CRC screening uptake, compliance or adherence specifically for the elderly population (65 and older). We extracted information on study interventions, baseline characteristics, and assessed whether barriers and facilitators were related to subjects, healthcare provider, policy or screening tests.
RESULTS: 74 studies met the eligibility criteria. The majority (65/74) reported subject specific barriers/facilitators, 17 reported barriers/facilitators related to healthcare providers, 26 reported policy barriers/facilitators, and six reported screening test specific barriers. Low level of education (13/65 citations), black race (9/65), low socioeconomic status (9/65), female gender (8/65), and lack of insurance (8/65) were the most frequently reported barriers related to elderly. Twelve studies reported co-morbidities (diabetes, another illness of greater concern, cognitive impairment, prior cardiovascular event, deteriorating health) and perceived health status as "good" as barriers to CRC screening in the elderly. Being married or living with partner was the most frequently reported facilitators related to elderly (8/65). Having a family history of CRC and a positive attitude towards screening were also reported as facilitators (in 4/65 and 3/65 studies, respectively). Most cited barriers related to healthcare provider were physician recommends/believes in stopping screening at a certain age (9/17) and lack of screening recommendation by physician (8/17). Physician's beliefs about whether screening is beneficial, higher proportion of primary care providers in county (vs. specialists) were reported as barriers as well. Lack of health care insurance coverage (8/26), rural residence (5/26), and dual coverage with Medicare and Medicaid (3/26) were the most frequent reported barriers related to finances, access and policy, whereas 2001 Medicare coverage of colonoscopy (5/26) and having a usual source of care (5/26) were consistently reported as a facilitators. We found little information on elderly preferences for screening tests.

CONCLUSIONS: Numerous subject, healthcare provider, policy and test specific barriers to and facilitators of CRC screening in the elderly were identified. They might be used to better tailor interventions to increase CRC screening participation rates in the elderly.

BARRIERS TO PROVIDERS CONSIDERING MEDICATION COSTS TO PATIENTS WHEN PRESCRIBING C. Tseng[1]; C.M. Mangione[2]; E. Keeler[3]; A. Hixon[4]; D. Lee[5]; E. Jackson[6]; R.A. Dudley[7]. [1]University of Hawaii Dept of Family Medicine and the Pacific Health Research Institute, Honolulu, HI; [2]University of California, Los Angeles, Los Angeles, WY; [3]RAND, Santa Monica, CA; [4]University of Hawaii JABSOM Dept. of Family Medicine and Community Health, Honolulu, HI; [5]University of Hawaii Dept of Family Medicine and Community Health, Honolulu, HI; [6]U Connecticut School of Medicine, Farmington, CT; [7]University of California, San Francisco, San Francisco, CA. *(Tracking ID # 189814)*

BACKGROUND: Many patients turn to providers to ask for help with drug costs, yet anecdotally, providers say they often do not know how much patients pay for medications. We examined 1) providers' reports of whether they know patients' cost-sharing for medications at the time of prescribing, 2) providers' descriptions of barriers to knowing costs, and 3) whether use of information technology (e.g., electronic prescribing) in clinical practice is associated with better provider knowledge of medication costs.
METHODS: We conducted a 2007 cross-sectional survey of all community providers of out-patient adult primary care in Hawaii (general internists, family practitioners, general practitioners, physician assistants, nurse practitioners. Providers were eligible if they reported seeing more than 20 patients per week. Kaiser, military, and academic teaching clinics were excluded. Main outcomes included providers' self-report of how often they knew medication copays and retail prices at the time of prescribing, barriers to obtaining this knowledge, and any regular use of four types of information technology in clinical care (internet, PDA, electronic prescribing, electronic health records). Multivariate logistic regression was used to determine if any of the information technologies were associated with better self-reported knowledge of medication costs after controlling for provider and practice characteristics.
RESULTS: A total of 262 providers completed surveys and were eligible (60% response rate). Participants were on average 50 years old, 65% were male, two-thirds were in private practice, and 41% were solo practitioners. Nearly all (98%) said it was important to consider medication costs for their patients. Many providers reported regularly using the internet (61%), electronic prescribing (53%), electronic health records (42%), or PDAs (39%) in clinical practice. The great majority of participants said they rarely or only sometimes knew drug copays (82%) and retail prices (81%) and that it was difficult to know how much a drug would cost their patients (83%). The main barriers to considering medication costs for patients were not knowing formularies (95%) and copays (92%), and lack of time (82%). Use of any of the four information technologies measured was not associated with more frequent knowledge of copays or retail prices or with greater ease in knowing coverage. Providers who faced a higher number of formularies in practice (6 or more vs. 5 or less formularies) were more likely to report difficulty knowing whether a drug was covered for their patients. (OR 2.0 95% CI 1.1 – 3.7).
CONCLUSIONS: The great majority of providers encountered difficulty knowing how much prescriptions would cost their patients, even with the use of information technology in clinical care. These findings demonstrate the that there is still a need to improve providers' access to medication costs and their ability to use such cost information from numerous plans in a practical way at the point of prescribing.

BE FIT WORKSITE WELLNESS PROGRAM TO PROMOTE WEIGHT LOSS AND PHYSICAL ACTIVITY A.N. Thorndike[1]; E. Healey[2]; L. Sonnenberg[2]; K. Brill-Daley[2]; S. Regan[2]. [1]Massachusettes General Hospital and Harvard Medical School, Boston, MA; [2]Massachusetts General Hospital, Boston, MA. *(Tracking ID # 190122)*

BACKGROUND: The prevalence of obesity and poor fitness continues to rise despite being a public health priority. A worksite provides the opportunity to address obesity and sedentary lifestyle in a large population. We conducted a voluntary 12 week intensive lifestyle modification program (Be Fit) to promote weight loss and physical fitness for employees at Massachusetts General Hospital.
METHODS: All full-time employees were eligible to participate. Employees formed teams of 25 members from hospital departments; 6 teams participated every 12 weeks. The program was offered during work hours and at no cost to employees. Each team met once a week with a nutritionist and a trainer, and all participants were given a free gym membership and the option of working individually with a personal trainer and a nutritionist. Teams competed on a weekly basis for weight loss, duration of exercise, and number of food records completed. Each participant completed a physical assessment and a survey at baseline and at 12 weeks. We analyzed change in behavioral (eating patterns and exercise hours), physical (weight, blood pressure, heart rate), and serological (cholesterol, glucose, and C-reactive protein) outcomes from baseline to the end of the program. We used multivariate linear regression to assess the effects of age, sex, and change in activity level, fruit and vegetable intake, and fat consumption on the percent of body weight lost during the program.
RESULTS: From December 2006 through September 2007, we enrolled 586 subjects; 91% were female, and the mean age was 42. At baseline, 65% of subjects were overweight or obese (BMI>25) and 59% spent less than 2 hours per week doing recreational physical activity. At the end of the program (12 weeks), 41% (95% CI: 37–45%) of subjects increased their physical activity levels by more than 2 hours per week. Fruit and vegetable intake increased in 37% (95% CI: 32–42%) of subjects, and fat intake decreased in 33% (95% CI: 28–38%). Changes from baseline to 12 weeks in physical and serum measurements are shown in the table. In a multivariate analysis, older age (p=.001), increase in physical activity (p<.001), and decrease in fat consumption (p=.02) were significant predictors of weight loss during the program.
CONCLUSIONS: A voluntary worksite lifestyle modification program resulted in significant decrease in weight and cardiovascular risk factors of employees at a large hospital. Weight loss at the end of the program was associated with increased physical activity and decreased consumption of fats. Future research should focus on worksite interventions to maintain these changes in order to prevent chronic diseases associated with obesity and sedentary lifestyle.

Changes in measurements from baseline to 12 weeks

Measure	Baseline	Week 12	Change	P
Mean weight (lbs)	175.1	168.6	−6.4	<.001
Mean systolic BP (mm Hg)	125	121	−4	<.001
Mean diastolic BP (mm Hg)	74	72	−2	<.001
Mean waist (inches)	34.5	32.5	−2.0	<.001
Mean total cholesterol (mg/dL)	192	183	−9	<.001
Mean LDL cholesterol (mg/dL)	108	103	−5	<.001
Median glucose (mg/dL)	90	91	1	NS
Mean C-reactive protein (mg/L)	3.3	3.1	−0.2	NS

BEING THERE WHEN NOBODY ELSE IS THERE: SOCIAL ISOLATION, CHRONIC ILLNESS AND THE IMPACT OF CASE MANAGEMENT E. Davis[1]; A. Fernandez[1]; A. Tamayo[2]; M.E. Schneidermann[1]. [1]University of California, San Francisco, San Francisco, CA; [2]University of Washington, San Francisco, CA. *(Tracking ID # 190934)*

BACKGROUND: Case management programs for people with a history of homelessness and frequent hospitalizations use an array of medical and social interventions to increase access to housing and medical care. These programs are usually designed without input from target populations. Often, what participants in these programs value and believe helpful in improving health is not known. This study was done to explore the perceptions of marginally housed, chronically ill patients who participated in a case management program previously shown to improve health outcomes.
METHODS: This qualitative study used in-depth, face-to-face interviews with participants in a social work based, assertive case management program for patients who had three or more admissions per year to a public hospital. The interdisciplinary program had a social worker to patient ratio of 1:15. Enrollment in the study was stopped when thematic saturation was achieved, which occurred after interviews with 14 participants. The interview guide probed experiences with the

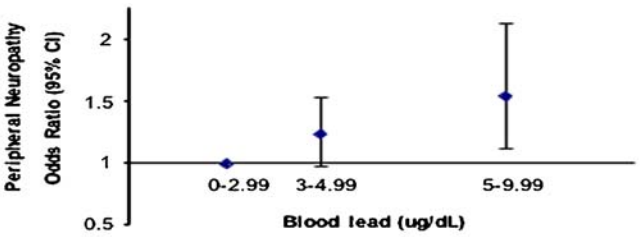
program, perceptions of causes of recurrent hospitalization, and beliefs about factors influencing health and illness. Data analysis of interview transcripts was conducted using grounded theory. Techniques used to ensure rigor included double coding by members of the research team, resolution of coding disagreements via group consensus, maintenance of an audit trail to document analytic decisions throughout the study, and participant validation of findings.
RESULTS: A set of beliefs about the interplay between social isolation and health emerged from the interviews: 1) Social isolation caused worsening of disease "Blood pressure up high didn't have anybody to turn to. I stayed sick." 2) Relationships with program staff decreased this isolation and created a social network that patients could access when they needed help. "I had more comfort knowing that I can call and that I can get a hold of Leslie. Even if she can't do anything about it, you know, it's good to at least know that somebody understands what you are saying." 3) Having these relationships decreased stress and improved health. "It brings my life together because I probably would be strung out really bad on crack if it wasn't for [case manager]." 4) Mutual respect within these relationships led patients to assume personal responsibility for their own self management. "They try and help me; I'm going to try and help myself too." 5) Having knowledgeable, easily accessible advocates increased access and successful navigation of a complex medical and social service system. "These guys smooth the way for me to get de-clotted or get antibiotics and I just find it extremely helpful" 6) "Graduation" from the program was seen as a personal loss with a negative impact on health. "I wouldn't have what – the support system that they have I need somebody to look out for me. I need somebody that watches what's going in my favor."
CONCLUSIONS: Marginally housed patients enrolled in a case management program perceived the decrease in social isolation stemming from their individual relationships with program staff as a significant factor in improving their health. Programs and providers targeting this population should consider linking mechanisms to increase access to health and social services with interventions to reduce social isolation.

BISPHOSPHONATES AND THE RISK OF ATRIAL FIBRILLATION: A SYSTEMATIC REVIEW AND META-ANALYSIS V. Jeevanantham[1]; Y. Loke[2]; S. Singh[1]. [1]Wake Forest University, Winston Salem, NC; [2]School of Medicine, Health Policy and Practice, University of East Anglia, Norwich,. *(Tracking ID # 190271)*

BACKGROUND: Recent trials have raised concerns about an association between bisphosphonate use and atrial fibrillation. Our study aims to determine the risk of atrial fibrillation (primary outcome) and cardiovascular adverse events (secondary outcome) with bisphosphonate use in patients with osteoporosis or fractures.
METHODS: We searched MEDLINE, regulatory authority websites, pharmaceutical company trial registers and product information sheets for randomized controlled trials through October 2007. Study Selection: We included randomized controlled trials of bisphosphonates versus placebo for osteoporosis or fractures. Study duration had to exceed 6 months, with explicit reporting of atrial fibrillation or cardiovascular adverse events. Data Analysis: We calculated pooled relative risk (RR) using the fixed effects and random effects model, and estimated statistical heterogeneity with the I-square (I2) statistic.
RESULTS: Twelve datasets were available for analysis. There was a statistically non-significant increase in the risk of overall atrial fibrillation, (5 datasets, n=295/17,351 vs 256/16,335) RR 1.14 (95% confidence interval CI 0.96 – 1.34, p=0.13), with no heterogeneity (I2=0%). Fixed-effects meta-analysis of serious atrial fibrillation (5 datasets, n=146/17351 vs. 97/16335) showed a statistically significant increase in serious atrial fibrillation (RR of 1.48,95% CI confidence interval 1.15–1.92; p=0.002), with moderate heterogeneity (I2=49%), but random effects meta-analysis for serious atrial fibrillation yielded a statistically non-signficant relative risk of 1.38 (95% CI 0.94 – 2.03, p=0.10). For adverse cardiovascular events overall (7 datasets, n=1472/6693 vs. 1084/4837) the RR was 1.05 (95% CI 0.98 – 1.12, p=0.21)] while the RR for stroke events (3 trials, n=203/9936 vs. 203/9957) was 1.00 (95% CI 0.83 – 1.21, p=0.99).
CONCLUSIONS: Bisphosphonates do not significantly increase the risk of overall atrial fibrillation and cardiovascular adverse events including stroke. Episodes of 'serious' atrial fibrillation are more likely to occur in certain bisphosphonate users, with variation in the magnitude of the effect among trials. Individual patient analysis to identify specific dose-time-susceptibility factors for serious atrial fibrillation is required urgently.

BLOOD LEAD LEVELS AND PERIPHERAL NEUROPATHY AMONG UNITED STATES ADULTS C. Buettner[1]; R.B. Davis[2]; K.J. Mukamal[1]; M.A. Mittleman[2]. [1]Beth Israel Deaconess Medical Center, Harvard Medical School, Boston, MA; [2]Beth Israel Deaconess Medical Center, Harvard Medical School and Harvard School of Public Health, Boston, MA. *(Tracking ID # 190655)*

BACKGROUND: The blood concentration at which lead neuropathic toxicity begins has not been determined. Significant associations between blood lead concentrations > 30 μg/dl and peripheral neuropathy have been described among occupationally exposed persons. However, little is known about the association between lower blood concentrations and peripheral neuropathy in the general population. The purpose of this study was to examine the relationship between blood lead levels less than 10 μg/dl and peripheral neuropathy in a nationally representative sample of U.S. adults.
METHODS: Participants were 7156 persons aged 40 years or older who participated in the 1999–2004 US National Health and Nutrition Examination Survey (NHANES). Blood lead was measured and peripheral neuropathy was assessed using a monofilament at 3 plantar metatarsal sites on each foot. Peripheral neuropathy and was defined as the presence of one or more insensate areas. We investigated the association between blood lead levels below 10 μg/dl (groups: 0–2.99, 3–4.99, 5–9.99 μg/dl) and the prevalence of peripheral neuropathy using logistic regression weighted to account for the NHANES sampling. We obtained a p-value for linear trend by including log-transformed blood lead level as a continuous variable in a regression model. All results were adjusted for age, sex, race/ethnicity, education, height, weight, alcohol intake, health status, activity level, smoking status, diabetes, arthritis, renal function (estimated GFR), blood glucose and blood B12 levels.
RESULTS: The weighted prevalence of peripheral neuropathy in the study sample was 13 percent (95%CI 12–14%). Lead was positively associated with peripheral neuropathy. Figure 1 shows the OR and 95% confidence intervals of the fully adjusted model for blood lead concentrations and peripheral neuropathy (p-value=.03, Ptrend=.007).



CONCLUSIONS: These findings demonstrate a significant association between blood lead concentrations and peripheral neuropathy at concentrations currently considered to be below the accepted threshold for concern.

BRIDGING THE GAP BETWEEN EVIDENCE AND PRACTICE: DEVELOPMENT OF A PROTOTYPE TOOL TO SUPPORT CLINICAL DECISION MAKING IN OSTEOPOROSIS DISEASE MANAGEMENT AT THE POINT OF CARE M. Kastner[1]; J. Li[1]; S.E. Straus[2]. [1]University of Toronto, Toronto, Ontario; [2]University of Calgary, calgary, Alberta. *(Tracking ID # 190711)*

BACKGROUND: Osteoporosis is a major public health concern, affecting over 200 million people worldwide and 1.4 million people in Canada. The cost of treating osteoporosis in Canada is estimated to be $1.3 billion each year. Fragility fractures are the most common clinical consequence of osteoporosis and hip fractures have the most devastating prognosis. Although there are valid Canadian clinical practice guidelines for osteoporosis, studies indicate a gap between evidence and clinical practice, particularly in the appropriate screening and treatment of patients. Tools that facilitate clinical decision making at the point of care are promising strategies for closing these practice gaps. The objective of our study was to develop a multi-component and multi-target disease management tool prototype that can support clinical decision making in osteoporosis disease management (OP-DM) at the point of care.

BLOOD LEAD LEVELS AND PERIPHERAL NEUROPATHY AMONG UNITED STATES ADULTS C. Buettner[1]; R.B. Davis[2]; K.J. Mukamal[1]; M.A. Mittleman[2]. [1]Beth Israel Deaconess Medical Center, Harvard Medical School, Boston, MA; [2]Beth Israel Deaconess Medical Center, Harvard Medical School and Harvard School of Public Health, Boston, MA. *(Tracking ID # 190655)*

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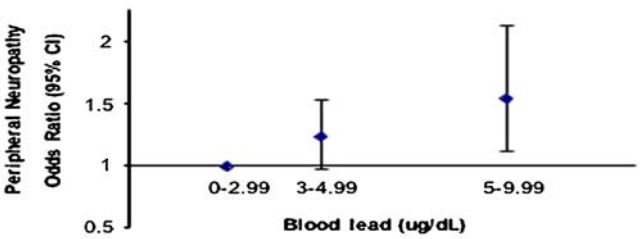

CONCLUSIONS: These findings demonstrate a significant association between blood lead concentrations and peripheral neuropathy at concentrations currently considered to be below the accepted threshold for concern.

BRIDGING THE GAP BETWEEN EVIDENCE AND PRACTICE: DEVELOPMENT OF A PROTOTYPE TOOL TO SUPPORT CLINICAL DECISION MAKING IN OSTEOPOROSIS DISEASE MANAGEMENT AT THE POINT OF CARE M. Kastner[1]; J. Li[1]; S.E. Straus[2]. [1]University of Toronto, Toronto, Ontario; [2]University of Calgary, calgary, Alberta. *(Tracking ID # 190711)*

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METHODS: We developed a prototype tool for OP-DM based on the results of a systematic review of randomized trials assessing OP-DM interventions and in consultation with human factors engineers and computer scientists. Key findings from our systematic review indicated that interventions with multiple components such as reminders and education, and those targeting both physicians and patients are associated with greater improvement in outcomes (e.g. bone mineral density testing [BMD] and initiation of osteoporosis medication) than single component interventions. The tool incorporates these key elements, and was programmed with a disease management algorithm modified from the current clinical practice guidelines in osteoporosis. We included all 3 components of disease management in our prototype: risk assessment, diagnosis, and treatment. It was tested in 4 focus groups by target groups of clinicians. These focus groups were audiotaped and the results transcribed and analyzed using verbal protocol analysis.
RESULTS: The OP-DM tool, which is targeted to patients, and primary care and general internal medicine (GIM) physicians, consists of a risk assessment questionnaire filled out by patients on a tablet PC in the waiting room; a one-page sheet outlining appropriate OP-DM recommendations according to guidelines given to physicians just prior to their visit with their patient (delivered in print or email); and a customized educational pamphlet given to patients, which includes the questionnaire results as well as tailored osteoporosis information about their diagnosis and treatment recommendations. The system was designed to target patients at risk for osteoporosis. Focus groups identified some barriers related to the accuracy and feasibility of extracting BMD test results and medications from the risk assessment questionnaire, and the need to include well-balanced information in the patient education sheet so that patients' compliance to other important medications remain unaffected. Suggestions for modifying the prototype included the addition of a percentile graph showing patients' 10-year risk for osteoporosis or fractures, and ensuring that the tool takes no more than 5 minutes to complete.
CONCLUSIONS: We developed a comprehensive OP-DM tool prototype that may aid physicians in their clinical decision making at the point of care. The next step will be to evaluate this tool in a pilot study.

BRINGING CLINICAL CORELATIONS TO THE ANATOMY GROSS LAB WITH STANDARDIZED PATIENTS K. Berg[1]; D.D. Berg[2]; J. Majdan[1]; H. Lopez[1]. [1]Jefferson medical College, Philadelphia, PA; [2]Thomas Jefferson University, Philadelphia, PA. *(Tracking ID # 190571)*

BACKGROUND: Forming and retaining a bridge between basic science teaching and clinical teaching is integral to, but yet a challenge in, effective medical education. We describe an innovative curriculum in which first year medical students in their required anatomy course learn clinical correlations from a curriculum using standardized patients and clinical skills faculty in concurrence with the site being dissected in the gross laboratory.
METHODS: During the gross anatomy dissecting lab, the students learn, in small group format, clinical surface anatomy and correlations. Each of the sessions involves a description of surface anatomy projections of the site that the students are currently dissecting. The surface anatomy structures are drawn on standardizied patients (SP), described by faculty and the clinical aspects of the site are discussed including pertinent history and physical examination. Examples include the surface anatomy projections of structures in the lateral ankle and thus provides anatomic underpinnings of the physical exam of the ankle, and the surface anatomy projections of heart valves to serve as backdrop for effective auscultation. The student assessment includes questions on their anatomy written exmaaintion and clinical question on the anatomy practicum in which SPs are in the dissection suite as discrete stations along side the traditional anatomy practicum questions. The students must identify the surface anatomy structures drawn on these SPs. Knowledge retention is being tested during their second year physical diagnosis course, using the same SP models.
RESULTS: The student's skills were assessed during the gross lab anatomy practicum. The 6 anatomic sites assessed included the medial collateral liagement, the supraspinatus muscle, McBurney's point, the surface projection of the aortic valve, the anterior talofibular ligament of the ankle and the cubital tunnel of the elbow. Over 90% of the surface anatomy projections correctly identified by the M1 students. On self assessment, the students valued highly this component of the anatomy course and expressed increased comprehension of anatomy in general

and surface anatomy in specific. The one year retention rate for these skills as measured in 135 second year students was 98%.
CONCLUSIONS: Teaching the surface anatomy with SPs during the dissection component of gross anatomy adds context, increases interest in learning, and help foster the bridge between clinical and basic scinece teaching. It is an innovative first step in learning clinical applications of the basic sciences.

BYPASSING THE BLUES: A TELEPHONE-BASED STEPPED COLLABORATIVE CARE TRIAL FOR TREATING POST-CABG DEPRESSION. STUDY BACKGROUND, METHODS, AND BASELINE FINDINGS. B.L. Rollman[1]; B. Herbeck Belnap[1]; S. Mazumdar[1]; F. Zhu[1]; W.N. Kapoor[1]; C.F. Reynolds[1]. [1]University of Pittsburgh, Pittsburgh, PA. *(Tracking ID # 190011)*

BACKGROUND: Depression symptoms are common following coronary artery bypass graft (CABG) surgery and associated with poorer clinical outcomes. Collaborative care models have been proven effective at treating depression in patients who present for primary care, but never specifically applied to treat depression in patients with cardiac disease. The NHLBI-funded Bypassing the Blues (BtB) study is the first trial to examine the impact of treating post-CABG depression on a broad variety of clinical outcomes. Its primary hypothesis tests whether a collaborative care strategy for treating depression can produce at least a clinically meaningful 0.5 effect size improvement in quality of life at 8-months following surgery, as defined by the SF-36 Mental Component Summary (MCS) score, versus patients' usual care. Secondary hypotheses include the impact of treating post-CABG depression on cardiovascular morbidity, return to work and/or usual activities, health services utilization, and health care costs.
METHODS: We used the 2-item Patient Health Questionnaire (PHQ-2) to screen post-CABG patients for depression at 8 Pittsburgh-area hospitals prior to discharge. If a patient screened positive, then we administered the 9-item Patient Health Questionnaire (PHQ-9) via telephone 2-weeks after hospitalization and randomized those scoring >9 to either: (1) their physicians' "usual care" for depression; or (2) an 8-month nurse-led telephone-based collaborative care intervention for treating depression. We also randomly selected a cohort of non-depressed patients (PHQ-2 negative and PHQ-9 <5) to compare the natural course of post-CABG outcomes to our two depressed patient cohorts. We collected sociodemographic and clinical data at baseline, and monitored outcomes through periodic telephone assessments, physician reviews of discharge summaries and death certificates, and analyses of insurance claims (8–51 months follow-up depending on date of enrollment).
RESULTS: Of the 2,486 patients who completed the PHQ-2 (3/04–9/07), 1,387 (56%) screened positive, 1,268 (91%) were protocol-eligible and consented to enroll, 1,100 (87%) completed the PHQ-9, 337 (31%) scored >9, and 303 (90%) agreed to randomization. We also enrolled 152 non-depressed control patients (455 total; 101% goal). Those with persistent depression (PHQ-2 positive and PHQ-9 >9) tended to be younger, female, and have COPD (all $p < 0.03$). Of the 303 randomized depressed subjects, their mean age was 64 (range:36–91), 41% were female, and 9% non-Caucasian. Compared to our non-depressed control patients, those depressed were younger (64 vs. 66 years; $p=0.04$), reported lower quality of life (SF-36 MCS 43.1 vs. 61.6; $p=0.001$), and were also more likely to have COPD (20% vs. 9%; $p=0.003$), however, they were similar on surgical (e.g., cross-clamp time, number bypass grafts) and other clinical characteristics (e.g., ejection fraction, diabetes, CHF).
CONCLUSIONS: Post-CABG depression is common and associated with certain sociodemographic features that internists can readily recognize. As our study-blind is in-place until the spring 2008, the impact of collaborative care for treating post-CABG depression on clinical outcomes is presently unknown.

CANCER PATIENTS' ROLE IN TREATMENT DECISION MAKING: ARE THEY INFLUENCED BY TYPE OF TREATMENT OR STRENGTH OF EVIDENCE SUPPORTING A TREATMENT? N.L. Keating[1]; M. Landrum[1]; N.K. Arora[2]; J.L. Malin[3]; P.A. Ganz[4]; M. Van Ryn[5]; J.C. Weeks[6]. [1]Harvard Medical School, Boston, MA; [2]National Cancer Institute, Rockville, MD; [3]West Los Angeles Veterans Affairs Healthcare Center, Los Angeles, CA; [4]University of California, Los Angeles, Los Angeles, CA; [5]University of Minnesota, Minneapolis, MN; [6]Dana Farber Cancer Institute, Boston, MA. *(Tracking ID # 189872)*

BACKGROUND: Cancer patients vary in their preferences for participation in decision making, but few data are available about whether patients' roles differ by type of decision (e.g., surgery, radiation, or chemotherapy), the strength of the evidence about benefits of a particular treatment, or subsequent receipt of the treatment.
METHODS: In a national study, we surveyed 6,535 patients with newly diagnosed lung or colorectal cancer who discussed surgery, radiation, and/or chemotherapy with their physician about their role in the treatment decision (N=11,590 decisions). We categorized decision-making roles as "patient control", "shared control", and "physician control." We used multinomial logistic regression with generalized estimating equations to estimate the independent effect of patient and treatment factors associated with roles in decision, accounting for clustering within patients when multiple treatments were discussed. Independent variables included treatment modality, whether treatment was received, and a variable describing the strength of evidence for each treatment based on cancer type and stage (evidence for, evidence against, no evidence, uncertain). Control variables included patient age, sex, race, marital status, education, income, cancer type, stage, comorbid illness, and geographic location.
RESULTS: Overall, patients reported that 39% of decisions were patient controlled, 44% were shared, and 18% were physician controlled. After adjustment, decisions about radiation were more likely to be physician controlled (23%) than decisions about surgery (18%) or chemotherapy (16%), while decisions about chemotherapy were more likely to be patient controlled (44% vs. 39% for surgery and 37% for radiation) ($P<.001$). Decisions where clear evidence suggests benefit (e.g., chemotherapy for stage III colon cancer) were most likely to be shared (45% vs. 39 to 43% for other levels of evidence), while decisions for which evidence about benefits vs. risks were uncertain (e.g., chemotherapy for stage II colon cancer) were most likely to be patient controlled (44% vs. 39% when evidence for benefit). Decisions for which there is no evidence for benefit (e.g., radiation for stage I colon cancer) were most likely to be physician controlled (22% vs. 16% when evidence for and 14% when uncertain) ($P<.001$). Patients who did not receive the treatment discussed were more likely than those who received the treatment to have physician-controlled decisions (29% vs. 13%, $P<.001$). Decision roles did not differ by lung vs. colorectal cancer site ($P=.23$).
CONCLUSIONS: Patients roles in decisions for cancer treatments vary by treatment modality, strength of evidence about benefit, and whether treatments were received. The higher rates of patient control for decisions about treatments of uncertain benefit and physician control for decisions lacking evidence for benefit suggest physicians may be appropriately soliciting patient input when evidence to guide treatment is lacking and steering patient decisions when treatments are unlikely to be of benefit.

CARDIAC PROCEDURE RATES AMONG AMERICAN INDIAN AND ALASKA NATIVES VERSUS NON-HISPANIC WHITES IN CALIFORNIA S. Jolly[1]; C. Kao[1]; A.B. Bindman[1]; C.C. Korenbrot[2]. [1]University of California, San Francisco, San Francisco, CA; [2]California Rural Indian Health Board, Inc., Sacramento, CA. *(Tracking ID # 189810)*

BACKGROUND: The prevalence and mortality rate of coronary heart disease (CHD) for American Indian and Alaska Natives (AIAN) is double that of the US population. Disparities in cardiac procedures among certain racial and ethnic groups for CHD has been well documented, however there is limited data on the AIAN population. CHD is the leading cause of death among AIAN in California, yet there is no data on whether there are treatment differences between AIAN and Non-Hispanic Whites (NHW).
METHODS: We performed cross-sectional analyses of non-federal hospital patient discharge data from California for the years 1998–2002. A subgroup analysis of AIAN users of the Tribal Health Programs (THPs) in California (37 counties) was done to account for known racial miscoding of AIAN. Our hospitalization inclusion criteria were administratively identified AIAN or NHW, age 30 years or older, and a primary discharge diagnosis of ischemic heart disease (IHD) as defined by ICD-9 diagnostic codes. Cardiac procedures for cardiac catheterization (CC), percutaneous coronary intervention (PCI), and coronary artery bypass graft surgery (CABG) were determined by ICD-9 coding of procedures per hospitalization. Cardiac procedure rates were determined using IHD hospitalizations as the denominator and number of cardiac procedures as the numerator for both AIAN and NHW groups for each of the three cardiac procedural outcomes. We used multivariate logistic regression modeling to generate cardiac procedure odds ratios for AIAN vs. NHW and adjusted for age, sex, comorbidities (Elixhauser Method), and hospitalization payer source.

RESULTS: There were 3391 ischemic heart disease (IHD) hospitalizations among AIAN and 583,221 IHD hospitalizations among NHW. The unadjusted rates for CC and PCI for AIAN versus NHW were 50% and 51% versus 53% and 54% respectively. For CABG, the unadjusted rates were 17% for AIAN and 16% for NHW. We found that AIAN compared to NHW actually have similar, or even higher, in the case of CABG, cardiac procedure rates after adjustment for covariates (Table). There were 1508 IHD hospitalizations among AIAN users of THPs and 213, 829 IHD hospitalizations among NHW in the 37 county subgroup population. We observed a similiar pattern, with suggestion of even slightly higher rates for all cardiac procedures, among AIAN users of THPs versus NHW for the subgroup 37 counties (Table).
CONCLUSIONS: We did not find significant disparities in cardiac procedure rates for ischemic heart disease hospitalizations among AIAN compared to NHW in California and analyses with better identification of the AIAN population reinforced this finding. Continued public health efforts and research are needed to prevent CHD along with its associated risk factors such as diabetes and hypertension among AIAN and further research is needed to assess the medical management of CHD and cardiac procedure referral patterns among AIAN in California.

Odds of a Cardiac Procedure among AIAN vs NHW for Ischemic Heart Disease Hospitalizations, Adjusted for Age, Sex, Comorbidites, and Payer Source

	California–58 Counties	Tribal Health Programs–37Counties
Cardiac Procedure	Odds Ratio (95% CI)	Odds Ratio (95% CI)
CC	0.95 (0.89–1.02)	1.09 (0.98–1.21)
PCI	0.96 (0.89–1.03)	1.10 (0.99–1.23)
CABG	1.11 (1.01–1.21)	1.17 (1.02–1.34)

CARDIOVASCULAR RISK ESTIMATION AND ELIGIBILITY FOR STATIN THERAPY USING DIFFERENT SCORING SYSTEMS IN EUROPE: A POPULATION-BASED STUDY IN SWITZERLAND D. Nanchen[1]; A. Chiolero[2]; J. Cornuz[1]; M. Firmann[3]; P. Marques-Vidal[2]; V. Mooser[4]; F. Paccaud[2]; G. Waeber[3]; P. Vollenweider[3]; N. Rodondi[1]. [1]Department of Ambulatory Care and Community Medicine, Lausanne,; [2]Institute of Social and Preventive Medicine, Lausanne,; [3]Service of Internal Medicine, University Hospital, Lausanne,; [4]Translational Medecine and Genetics, GlaxoSmithKline, Collegeville, PA. *(Tracking ID # 190409)*

BACKGROUND: Recommendations for statin use for primary prevention of coronary heart disease (CHD) are based on estimation of the 10-year CHD risk. We compared the 10-year CHD risk assessments and eligibility percentages for statin therapy using three scoring algorithms currently used in Europe.
METHODS: We studied 5683 women and men, aged 35–75, without overt cardiovascular disease (CVD), in a population-based study in Switzerland. We compared the 10-year CHD risk using three scoring schemes, i.e., the Framingham risk score (FRS) from the U.S. National Cholesterol Education Program's Adult Treatment Panel III (ATP III), the PROCAM scoring scheme from the International Atherosclerosis Society (IAS), and the European risk SCORE for low-risk countries, without and with extrapolation to 60 years as recommended by the European Society of Cardiology guidelines (ESC). With FRS and PROCAM, high-risk was defined as a 10-year risk of fatal or non-fatal CHD>20% and a 10-year risk of fatal CVD≥5% with SCORE. We compared the proportions of high-risk participants and eligibility for statin use according to these three schemes. For each guideline, we estimated the impact of increased statin use from current partial compliance to full compliance on potential CHD deaths averted over 10 years, using a success proportion of 27% for statins.
RESULTS: Participants classified at high-risk (both genders) were 5.8% according to FRS and 3.0% to the PROCAM, whereas the European risk SCORE classified 12.5% at high-risk (15.4% with extrapolation to 60 years). For the primary prevention of CHD, 18.5% of participants were eligible for statin therapy using ATP III, 16.6% using IAS, and 10.3% using ESC (13.0% with extrapolation) because ESC guidelines recommend statin therapy only in high-risk subjects. In comparison with IAS, agreement to identify eligible adults for statins was good with ATP III, but moderate with ESC. Using a population perspective, a full compliance with ATP III guidelines would reduce up to 17.9% of the 24′310 CHD deaths expected over 10 years in Switzerland, 17.3% with IAS and 10.8% with ESC (11.5% with extrapolation).
CONCLUSIONS: Full compliance with guidelines for statin therapy would result in substantial health benefits, but proportions of high-risk adults and eligible adults for statin use varied substantially depending on the scoring systems and corresponding guidelines used for estimating CHD risk in Europe.

CARDIOVASCULAR RISK FACTORS AMONG U.S. WOMEN USING HORMONE REPLACEMENT THERAPY,1999–2004 A. Hsu[1]; A. Card[1]; S. Mota[1]; O. Carrasquillo[1]; A. Moran[1]. [1]Columbia University, New York, NY. *(Tracking ID # 189903)*

BACKGROUND: Hormone replacement therapy (HRT) use declined after clinical trial results 1998–2002 suggested HRT increases cardiovascular risk. Current guidelines caution physicians to consider risk in prescribing HRT. We examine CHD risk factors among HRT users before and after potential cardiovascular harms were known.
METHODS: Self-reported HRT use in postmenopausal women 45–74 years old was estimated from the 1999–2000 and 2003–2004 NHANES. Age and CHD risk factors were determined from survey data and compared between surveys. If 95% confidence intervals did not overlap, % change was statistically significant. Mean age was compared with a t-test. Analyses were performed with SAS and SUDAAN.
RESULTS: In 1999–2000, 9.8 million, or 26% of postmenopausal women 45–74 years old reported HRT use. Most (77%) used estrogen-only HRT. By 2003–2004, 3.5 million fewer women used HRT. From 1999–2000 to 2003–2004 users' age was unchanged. A 70% reduction in CHD history was noted among users. A 51% relative reduction in prevalence of ≥2 CHD risk factors and a decrease in all individual CHD risk factors occured among users with no CHD history; not all changes were statistically significant.
CONCLUSIONS: CHD risk factors prevalence among HRT users declined after trials showed HRT's potential for increased cardiovascular risk. This may reflect users' concerns about well-publicized harms, or consideration of patients' risk by physicians. Nonetheless, 13% of HRT users in 2003–2004 had ≥2 CHD risk factors.

	1999-2000	2003-2004	Statistically significant change from 99-00 to 03-04
Mean Age	57.0 (56.1, 57.8)	57.0 (56.1, 57.8)	**NS**
History of CHD	27.6 (18.4, 39.3)	8.4 (3.8, 17.6)	**19.2 (14.6, 21.7)**
Risk factors among users with no CHD history			
Diabetes*	12.4 (7.4, 19.8)	9.9 (5.8, 16.3)	NS
Active smoking	18.6 (11.2, 29.4)	5.8 (2.4, 13.6)	NS
Dyslipidemia†	28.1 (23.2, 33.6)	14.1 (11.4, 17.4)	**14.0 (11.8, 16.2)**
Hypertension‖	26.4 (20.3, 34.5)	15.6 (11.5, 20.8)	NS
Obesity¶	23.2 (17.4, 30.1)	10.9 (7.8, 15.1)	**12.3 (9.6, 15.0)**
Family History of cardiovascular disease‡	30.7 (22.7, 40.0)	14.3 (8.8, 22.4)	**16.4 (13.9, 17.6)**
0-1 CVD risk factors**	19.7 (10.9, 33.1)	16.8 (8.4, 30.6)	NS
≥ 2 CVD risk factors	27.2 (23.1, 31.7)	13.2 (10.2, 16.9)	**14.0 (12.9, 14.8)**

*Fasting glucose ≥126 mg/dL (7.0 mmol/L), self report, or antidiabetes agents.
†Non-HDL cholesterol ≥ 130 mg/dL, self report, or taking lipid lowering medications
‖ Systolic blood pressure ≥ 140 mm Hg and/or diastolic blood pressure ≥ 90 mm Hg or antihypertensive medications.
¶ Body mass index ≥ 30 kg/m².
‡Family history coronary heart disease, stroke, TIA, peripheral arterial disease, abdominal aortic aneurysm.
**Risk factors based on the variables above in the table; not including age

Age and cardiovascular risk factor characteristics of U.S. women aged 45–74 years old using HRT, the NHANES, 1999–2000 and 2003–2004. Data are percent (95% confidence interval) except for age which is displayed as mean (95% confidence interval)

CARDIOVASCULAR RISK PROFILES AND OUTCOMES AMONG HEPATITIS C VIRUS SEROPOSITIVE AND NEGATIVE PATIENTS WITH CORONARY HEART DISEASE: DATA FROM THE HEART AND SOUL STUDY J.I. Tsui[1]; M.A. Whooley[2]; A. Monto[2]; K.H. Seal[2]; P.C. Tien[2]; M. Shlipak[2]. [1]Society of General Internal Medicine, San Francisco, CA; [2]University of California, San Francisco, San Francisco, CA. *(Tracking ID # 190308)*

BACKGROUND: More than 3 million Americans are infected with hepatitis C virus (HCV). How HCV impacts co-morbid outcomes is unknown. Some studies suggest an association between HCV and cardiovascular disease. This study examined whether HCV was associated with cardiovascular disease outcomes in patients with established coronary heart disease (CHD).
METHODS: Within the Heart and Soul cohort we examined whether having a positive HCV antibody test was associated with increased risk over time for (1) death, (2) cardiovascular-related (CV) death, MI or stroke and (3) heart failure (HF) hospitalizations. Descriptive statistics were used to compare demographic and clinical risk factors and inflammatory markers. Poisson regression was used to calculate age-adjusted incidence for each outcome by HCV status, and Cox Proportional Hazards models were used to calculate hazards ratios, adjusting for demographic, clinical factors and levels of inflammatory markers.
RESULTS: Of the 981 participants, 84 (8.6%) were seropositive for HCV. Anti-HCV+ individuals were younger (59 v. 67 years; p-value<0.01) and were more likely to be smokers (57% v. 16%; p-value<0.01). After adjusting for age, smoking and other factors, HCV seropositive patients were found to have significantly lower mean levels of log CRP, fibrinogen and total cholesterol (p-value<0.01), but higher levels of log IL-6 and log TNF-alpha (p-value 0.04 and <0.01 respectively). During follow-up there were a total of 182 deaths, 151 CV events, and 119 CHF hospitalizations. Age-adjusted outcome rates were higher among HCV seropositive patients (for death, 93 v. 42/1,000 person-years; for CV death, MI and stroke, 62 v. 40; for CHF hospitalizations, 76 v. 29). After adjustment, HCV seropositive participants still had a statistically significant 2-fold increase in risk of HF hospitalizations (HR=2.05, 95% CI: 1.11 to 3.78), and a 50% elevated risk of death and CV events that did not reach statistical significance (death: HR=1.62 (0.95 to 2.75); CV events: HR= 1.74 (0.92 to 3.32)). Adjustment for inflammatory markers did not substantially impact results.
CONCLUSIONS: In this cohort with CHD, HCV seropositive participants had higher rates of death, CV events and heart failure hospitalizations during follow-up. After adjustment for CV risk factors, HCV seropositivity remained independently associated with risk for heart failure hospitalizations, and this association did not appear to be mediated by levels of inflammatory markers.

CARING FROM "BENCH TO BEDSIDE:" USING RESEARCH FINDINGS TO INFORM CURRICULUM DEVELOPMENT D.S. Hatem[1]; M. Quirk[2]; K. Mazor[1]; M.A. Fischer[1]; G. Gleich[2]; A. Blount[1]; R.M. Forster[1]. [1]University of Massachusetts Medical School (Worcester), Worcester, MA; [2]University of Massachusetts Medical School, Worcester, MA. *(Tracking ID # 190371)*

BACKGROUND: Caring attitudes are universally endorsed but specific behaviors and skills are elusive. We sought to incorporate research findings from patient viewpoints on caring into curriculum designed to enhance caring attitudes in situations that are challenging for post-graduate trainees.
METHODS: Faculty volunteers were solicited from Internal Medicine and Family Medicine Departments at the University of Massachusetts Medical School and from attendees at a UMass sponsored faculty development conference to interact with a standardized patient and be videotaped. Patient scenarios included breaking bad news, discussing palliative care, and communicating about medical error. Multiple providers were videotaped for each scenario. Focus groups derived from a random sample of Worcester residents were solicited to take part in the study. They reviewed videotapes judged most and least caring by "analog" patients from prior studies of these videotapes. Focus groups discussed behaviors in these encounters that they found particularly caring and those that they felt demonstrating lack of caring. Focus group data was then combined with literature on caring to determine best practices in these 3 specific situations. We included focus group feedback to incorporate new viewpoints and developed a model to teach these three skills sets from focus group data, best evidence and the communication literature.
RESULTS: Caring as defined by patient focus groups viewing 3 challenging patient encounters defined new areas of caring not clearly described in prior literature. Key categories of caring included Communication, Arranging to meet healthcare needs, Respect and Empathy. While communication, respect and empathy are on existing checklists, individual patient viewpoints of what this meant differed greatly, and was even contradictory, pointing out the critical role of assessing patient viewpoints and needs in real time and the contextualized nature of patient viewpoints. Arranging to meet healthcare needs is a new category associated with caring that includes encounter-related behavior (is organized and thorough), some general concepts (is honest and trustworthy), and some behavior that extended beyond the encounter (takes control of the situation, provides timely and clear follow-up). Behavior judged to be caring was present equally in the "most" and "least" caring encounters. We delivered a 3 workshop series to Internal Medicine and Family Medicine Trainees using our CARE model that was adapted to each specific scenario utilizing acting patients trained to respond personally in their role, not in a standardized way, looking for specific behavior. Our teaching was carried out using 2 formats, an all day workshops for Internal Medicine residents and 3, 2 hour workshops for Family Medicine on 3 separate days. They were all well received and highly evaluated.
CONCLUSIONS: Research findings can be used to include patient viewpoints about best practices related to caring attitudes in situations in which this is challenged. Focus group data went beyond the empirical literature and led to the development of an integrated teaching model.

CAUSES OF DEATH AS REPORTED ON DEATH CERTIFICATES OF NURSING HOME RESIDENTS WITH END-STAGE DEMENTIA M. Wachterman[1]; D.K. Kiely[2]; S.L. Mitchell[3]. [1]Brigham and Women's Hospital, Boston, MA; [2]Hebrew Senior Life Institute for Aging Research, Boston, MA; [3]Hebrew Rehabilitation Center for Aged, Boston, MA. *(Tracking ID # 190485)*

BACKGROUND: In 2004, the National Center for Health Statistics listed Alzheimer's disease as the 7th leading cause of death among Americans based on data obtained from death certificates. There has been limited work examining the reporting of dementia as a cause of death on death certificates, however prior work has suggested that it is under-recognized as a terminal condition. Therefore, this study's objective was to ascertain the causes of death reported on the death certificates of nursing home (NH) residents who died with end-stage dementia.
METHODS: Data were collected as part of the CASCADE (Choices, Attitudes, and Strategies for Care of Advanced Dementia at the End-of-Life) study, an ongoing prospective cohort study of 326 residents living in 22 Boston area NHs. Eligibility criteria included: 1. >65 years, 2. a diagnosis of dementia (any type), and 3. Global Deterioration Scale (GDS) score of 7. The GDS is a validated staging system for dementia. A GDS score of 7 is the most advanced stage and is characterized by very severe memory impairment (e.g., cannot recognize close family members), minimal to no verbal skills, dependence for eating and toileting, incontinence of urine and stool, and the inability to walk. Subjects were followed for a maximum of 18 months or until death. Official death certificates were obtained for all decedents. There were two main outcome variables. The first was whether or not dementia (due to any cause) was listed as primary cause of death. The second was whether dementia was listed as a secondary or contributing cause of death.
RESULTS: A total of 150 participants with advanced dementia died; 85% were female, mean age was 86 + 7 (SD) years, and 7% (n=11) died in the hospital (the remainder died in the NH). Of the 150 decedents with advanced dementia, only 14% (n=21) had dementia listed as a primary cause of death. An additional 30% of decedents had dementia listed as a secondary or contributing cause of death. The other leading primary causes of death listed were: pneumonia (27%), cardiopulmonary arrest (25%), and chronic cardiac disease (10%).
CONCLUSIONS: Dementia is rarely recorded as the primary cause of death on the death certificates of NH residents dying with end-stage dementia, and not recorded as a secondary or contributing cause of death in a majority of cases. These findings suggest that dementia is grossly underestimated as a cause of death in national health statistics, and may have important health policy implications for the growing number of Americans dying with this condition.

CHALLENGES IN PRIMARY CARE RELATIONSHIPS: SEEING IT FROM BOTH SIDES N. Ratanawongsa[1]; S. Wright[1]; J.A. Carrese[1]. [1]Johns Hopkins University, Baltimore, MD. *(Tracking ID # 189886)*

BACKGROUND: Up to 20% of outpatient visits are deemed frustrating by primary care providers (PCPs). Most studies have focused on

"difficult patients", but provider, relationship, and systems factors may also contribute. To better understand these relationships, we studied the perspectives of both PCPs and their patients.
METHODS: We conducted in-depth, semi-structured interviews separately with each member of a patient-provider relationship deemed "challenging" by the PCP. Eligible providers saw adult primary care patients at 2 hospital-based and 11 community-based clinics affiliated with an academic medical center. Of the 100 eligible PCPs, 20 consented to participate and named 3–5 patients (i) whom they had seen at least 4 times, and (ii) with whom the relationship felt "challenging." We contacted all selected patients and interviewed only the first patient who consented; for 3 providers, no patients consented. To reduce the risk of harm, the IRB approved describing the study to patients as focused on "challenges and rewards in primary care relationships." Using editing analysis style, 3 investigators independently coded 4 transcripts to develop a preliminary coding template. Two investigators coded each remaining transcript; template modification occurred by consesus. We compared numeric relationship ratings using paired t-tests.
RESULTS: 17 patient-provider dyads participated. PCPs averaged 45 years in age and 14 years in practice. Most were internists (88%), Caucasian (88%), women (59%), and spent at least 20 hours per week in direct patient care (65%). The mean patient age was 49 years, and 41% were African-American. Most patients were female (71%) and were not educated beyond high school (62%). The mean duration of these ongoing relationships was 4.6 years. On the 10-point rating scale, patients' ratings of the relationship (mean 8.2, SD 2.3) exceeded physicians' ratings 5.1 (SD 2.2) [difference: 3.1, 95% CI 1.6–4.6, p< 0.001). Qualitative analysis revealed four themes. First, patients and providers cited the importance of ***mutual trust and respect***. One patient said, "I have to feel that she believes that I am an intelligent human being." PCPs felt frustrated when they did not trust patients (e.g.requests for narcotics) or when patients did not trust them. Second, ***discordant perceptions about the relationship*** occurred frequently. PCPs felt disappointed by their failure to engage with patients in 'optimal care' and generally underestimated patients' satisfaction with that care: "I'm not sure why she comes back." Third, opinions varied about ***the appropriateness of disclosing feelings about one another***. Some patients and PCPs disclosed feelings to negotiate, as one PCP did: "I tell him, 'It's frustrating when you've used bad language. It makes it harder for me to have my staff support you.'" Other PCPs and patients would not disclose because, as described by one patient: "You don't want to damage the relationship by showing them you're not pleased." Finally, PCPs described ***coping strategies*** for continuing to care for their patients. Some providers used mindfulness and empathy to manage their frustrations during encounters: "I take a deep breath" or "I try to see things in her shoes."
CONCLUSIONS: This work suggests challenging provider-patient relationships may be most distressing to the providers. Future studies could explore how individual and systems interventions to reduce provider frustration affect provider and patient satisfaction and quality of care.

CHALLENGES IN THE USE OF PERFORMANCE MEASURES AS A SURROGATE FOR PROVIDER QUALITY: SCREENING MAMMOGRAPHY IN AN URBAN MINORITY POPULATION C. Garner[1]; C.E. Phillips[1]; L.E. Henault[1]; P.K. Davidson[2]; T. Battaglia[3]; K.M. Freund[3]; E.M. Hylek[1]. [1]Boston Medical Center, Boston, MA; [2]Boston University, West Medford, MA; [3]Boston University, Boston, MA. *(Tracking ID # 190689)*

BACKGROUND: Pay for performance initiatives and use of quality indicators are increasingly viewed as ways to improve health care. Despite an increasing reliance on the EMR to produce provider level data, there is little data on the limitations of these measures from both a technical standpoint and in accounting for patient-specific characteristics. Competing patient demands such as uncompensated time off work and family responsibilities, transportation issues, and cultural perceptions of importance may all be barriers to achievement of these goals. We examined the HEDIS measure related to mammography every 2 years for women age 51–70 to determine the reasons for the perceived gap in performance among patients seen in an urban academic primary care practice.
METHODS: Patients between the ages of 51–70 years with a recorded visit with their provider in the past year and a 2-year gap in mammography screening were identified. Detailed chart reviews were conducted by non-provider research staff using predefined criteria.
RESULTS: Of 3,867 patients, 25.3% were designated as "overdue" for screening. For 302 30.8% patients, the provider discussed screening, ordered the mammogram, and the patient did not show for the test. For 21.5% patients, there was inadequate documentation in the chart to definitively assign a reason. Fragmentation in medical care defined as a lack of continuity in care characterized by sporadic contact with providers and repeated no shows for scheduled provider appointments accounted for 20.7% patients. Mammography was done at an outside institution for 11.7% patients. An additional 12.3% of patients refused screening, were ineligible, had died, or were assigned to the incorrect provider.
CONCLUSIONS: Patients in our study who did not reach HEDIS criteria for screening mammography were often overdue for reasons other than provider oversight or lack of quality care. Disruption in continuity of care and patient inability to keep test appointments accounted for over 50%. Innovative approaches are needed to overcome patient-specific barriers and to facilitate patient engagement in their health among these vulnerable populations. Our findings also highlight concerns about the use of provider-level data for staff reappointment and tiering by insurers. Amelioration of the causal forces that thwart attainment of these quality measures will improve patient care and empower providers.

Reason and Prevalence for Overdue Screening Mammography

Reason	N	(%)
Mammogram ordered-never performed (no-show)	302	30.8
Not ordered or performed, inadequate documentation to assign reason	211	21.5
Fragmentation in medical care	203	20.7
Patient seen once/twice and then lost to follow-up	(173)	
Extended interval gaps in contact with provider	(14)	
Left practice permanently	(16)	
Test performed at outside facility	115	11.7
Patient refused the test	65	6.6
Ineligible for mammogram	46	4.7
Bilateral mastectomy, male, transgender, young, died	(29)	
Hospice/terminal illness	(17)	
Inaccurate provider assignment	10	1
Other	28	2.9

CHANGES IN MEDICAL STUDENTS' VIEWS OF INTERNAL MEDICINE CAREERS FROM 1990 TO 2007 M.D. Schwartz[1]; E. Stern[1]; S. Durning[2]; K.E. Hauer[3]. [1]New York University/VA NYHHS, New York, NY; [2]Uniformed Services University of the Health Sciences, Bethesda, MD; [3]University of California, San Francisco, San Francisco, CA. *(Tracking ID # 190031)*

BACKGROUND: The proportion of students choosing IM careers rebounded from 19% in 1988 to a peak of 22% in 1998, but has again declined to 19% over the last decade. We studied how senior medical student views of IM careers have changed by comparing surveys from 1990 and 2007.
METHODS: In 2007 we surveyed 4th year medical students at 11 schools. We modified the 1990 questionnaire based on student focus groups, literature review, and pilot-testing. Questions addressed student characteristics, specialties considered and chosen, clerkship experiences, perceptions of IM (5-point scale from less than to more than other specialties considered), and influential aspects of IM (5-point scale from pushed away to attracted toward IM). Eleven of 24 perception items and 24 of 32 influence items were identical in 1990 and 2007. We used principal components analysis and reliability analysis to derive 5 common underlying factors and calculated scores for perceptions and influences on IM career choice. Scores were dichotomized and compared by study year. To adjust for multiple comparisons all p values for significant results below were <0.001.
RESULTS: 2,421 students were studied: 1,244 from 16 schools in 1990 (76% response) and 1,174 students in 2007 (82%). Compared with

1990, in 2007 there were more women (52% vs. 37%) and more debt (53% vs. 5% owed >$100,000) but a similar proportion planning IM careers (23.5%). Of students not choosing IM, fewer in 2007 had seriously considered a career in General IM (24% vs. 44%) or Subspecialty IM (46% vs. 59%). More 2007 students reported high satisfaction with the IM clerkship (78% vs. 38%) and an outpatient IM rotation (94% vs. 44%). 2007 students were less likely to say the IM clerkship made General IM more attractive (19% vs. 24%) but more likely to say it made Subspecialty IM more attractive (49% vs. 35%). The appeal of Primary Care as an influence towards IM declined from 73% to 45%.
CONCLUSIONS: Medical students generally view IM more positively now than in 1990, but the proportion of students choosing IM careers has returned to the low levels seen then. Current students may be more turned on by other careers than they are turned off by IM. The challenges appear even greater for GIM. To rebuild and sustain the US generalist physician workforce, improving students' experience of IM in medical school may no longer be sufficient. Bolder health marketplace reform may be required.

Perception and Influence Factors (* p<0.001)

	1990 (%)	1990 (%)	2007 (%)	2007 (%)
Perceptions (compared with other specialties I considered)	LESS	MORE	LESS	MORE
*Meaningful Work in IM is (5 items, alpha=0.71)	58	42	42	58
Workload & Stress in IM is (3 items, alpha = 0.82)	57	43	56	44
Influences (pushed me away or attracted me toward IM)	AWAY	TOWARD	AWAY	TOWARD
*Time and Workload in IM (3 items, alpha = 0.85)	54	46	46	54
*Type of Patients in IM (5 items, alpha = 0.81)	72	38	55	45
*Meaningful Work in IM (6 items, alpha = 0.75)	32	68	18	82

CHARACTERISTICS OF PRIMARY CARE PATIENTS REFERRED TO NUTRITIONIST AND PREDICTORS OF ATTENDANCE V.L. Leung[1]; N.J. Davis[1]. [1]Albert Einstein College of Medicine, Bronx, NY. *(Tracking ID # 190068)*

BACKGROUND: Optimal strategies for obesity management in primary care continues to be debated. Multi-disciplinary approaches involving a primary care physician and on-site nutritionist are proposed, but have not been well studied. At the Comprehensive Family Care Clinic in the Bronx, NY where there is an on-site nutritionist, it is estimated that only half of patients scheduled for initial nutrition consultation keep their appointment. The purpose of this study is to examine the characteristics of patients being referred to nutrition and to identify predictors of attendance.
METHODS: Consecutive patients referred to nutrition over a 6 month period (December 2006–May 2007) were identified from the clinic scheduling database. Patients who "attended" and "did not attend" appointments were invited to complete a 21-item telephone survey which included patient demographics, knowledge of nutritionist appointment, reasons for not attending appointment, beliefs about nutritionist, and perceived reasons for being referred to nutritionist. Comorbid illnesses and patient BMI (body mass index) were confirmed by chart review. Chi-square tested associations between independent variables including gender, perceived reason for referral, and beliefs regarding nutrition counseling with dependent variables "attended"and "did not attend" appointment. Logistic regression determined Odds Ratios of significant associations while controlling for age, gender, and BMI.
RESULTS: During the six month period, 210 new patients were referred to nutrition, and 138 (65%) attended their initial appointment. 111 patients (49% attended) were able to be contacted via telephone and were invited to participate. 71 patients (52% attended) completed the questionnaire. Participants who attended and did not attend their appointment were similar in mean age (45.7±13.6), and mean BMI (38.7±10.7). The majority (69%) of participants were female. The perceived reasons for referral were weight loss (67%), diabetes (57%), hypertension (29%), and high cholesterol (22%). 24% of patients did not have any comorbid conditions besides overweight or obesity. The major reason reported for not attending initial consultation was being "too busy" (49%). After controlling for age, gender, and BMI, patients were more likely to attend their appointment if they thought they were being referred for diabetes management OR=3.9 (95% CI 1.3–11.7), or if they believed a nutritionist could help them lose weight OR=3.3 (95% CI 1.05–10.5). Patients were less likely to keep their appointments if they believed they were being referred for weight loss alone OR=.142 (95% CI.033-.607). Hypertension and hyperlipidemia were not significant predictors of patients keeping nutritionist appointments.
CONCLUSIONS: Our results suggest that patients who believe they are being referred for diabetes management and who believe that a nutritionist can help with weight loss are more likely to keep their initial nutrition appointments. Patients who believe they are being referred for weight loss alone are less likely to keep nutrition appointments. Physicians may need to emphasize to patients that obesity in the absence of other comorbidities is still a chronic condition requiring treatment. Our findings may also suggest that physicians need to take a more active role in weight loss counseling for obese patients without comorbid conditions as they may be less likely to attend nutrition consultation.

CHARACTERISTICS OF PRIMARY CARE PRACTICES THAT HAVE ADOPTED STRATEGIES TO IMPROVE THE QUALITY OF CARE. M.W. Friedberg[1]; D.G. Safran[2]; K. Coltin[3]; M. Dresser[4]; E.C. Schneider[5]. [1]Brigham and Women's Hospital, Boston, MA; [2]Tufts University, Boston, MA; [3]Massachusetts Health Quality Partners, Waltham, MA; [4]Massachusetts Health Quality Partners, Watertown, MA; [5]Harvard University, Boston, MA. *(Tracking ID # 190226)*

BACKGROUND: Recently, national professional organizations and accreditation bodies have advocated the Patient-Centered Medical Home, encouraging primary care practices to adopt strategies to improve the quality of primary care. Some of these strategies may require large financial investments (e.g., electronic health records) or active organizational management (e.g., providing performance feedback to physicians). The ability of practices to adopt these strategies may depend on characteristics such as practice size and affiliation with networks of other practices. We assessed the prevalence of quality improvement strategies among primary care practice sites and evaluated whether adoption differed based on practice size and network affiliation.
METHODS: We developed a survey to query practicing primary care physicians about presence of quality improvement strategies at their practice sites. The survey was administered between May and October 2007 to 1 physician randomly selected from each of the 412 primary care practice sites in Massachusetts with ≥2 physicians. Of these, 310 (75%) physicians responded. For each practice site, we linked survey responses to a previously developed database including practice size (measured as number of physicians) and network affiliation. We calculated the prevalence of 14 strategies across 5 domains: care coordination and integration, quality improvement tools, linguistic

capabilities, enhanced access, and electronic health records (EHRs). We compared the prevalence of each strategy between sites of different sizes and between sites that were network-affiliated or non-affiliated using Chi-square and Fisher exact tests. We constructed multivariable logistic regression models predicting the presence of each strategy as a function of practice size and network affiliation, adjusting for other practice characteristics (teaching status, presence of specialists, and financial performance).
RESULTS: Practice size (median 4 physicians, range 2–84) and network affiliation (64% of sites affiliated) were similar between survey respondents and nonrespondents. The prevalence of quality improvement strategies ranged from 24% in the enhanced access domain to 66% in the care coordination and integration domain. In bivariate analysis, larger practice site size (≥5 physicians) was associated with higher prevalence of 11 of the 14 strategies (P<0.05) spanning all 5 domains. Network affiliation was associated with higher prevalence of 3 strategies (P<0.05) in 2 domains (quality improvement tools and EHRs). All associations remained statistically significant after adjustment for other practice site characteristics, and associations with EHR presence were largest in magnitude. Highly-functional EHRs (with electronic results, notes, medication and problem lists, and reminders for indicated services) were present in 33% of sites. The adjusted odds of having highly-functional EHRs were higher among practices that were larger (OR, 3.0; 95% confidence interval [CI] 1.6–5.5) or network-affiliated (OR, 2.9; 95% CI 1.3–6.2), compared to practices that were smaller or non-affiliated.
CONCLUSIONS: Larger and network-affiliated primary care practice sites are more likely than smaller, non-affiliated practices to have adopted several recommended quality improvement strategies. In order to implement these features of the Patient-Centered Medical Home, smaller non-affiliated practices will be the most likely to require new investments.

CHRONIC MEDICAL CONDITIONS: HOW DO INMATES COMPARE WITH THE GENERAL POPULATION? I.A. Binswanger[1]; P.M. Krueger[2]; J.F. Steiner[1]. [1]University of Colorado Denver, Aurora, CO; [2]University of Texas School of Public Health, Houston, TX. *(Tracking ID # 190323)*

BACKGROUND: Little is known about the prevalence of chronic medical conditions among jail and prison inmates because inmates are excluded from most national health surveys in the US. Given the high rates of death soon after release from prison, including deaths from cardiovascular disease, we hypothesized that inmates have a higher prevalence of chronic medical conditions than the general population.
METHODS: We use data from the 2002 Survey of Inmates in Local Jails, 2004 Survey of Inmates in State and Federal Correctional Facilities and the 2002–4 National Health Interview Survey-Sample Adult Files to compare the prevalence of self-reported chronic medical conditions among jail (n=6,582) and prison (n=14,386) inmates and non-institutionalized (n=76,597) adults aged 18–65. We selected conditions for which the wording across surveys was similar. Using logistic regression, we compared the prevalence of each condition adjusted for age and gender and generated odds ratios (OR) and 95% confidence intervals (95% CI). A second model adjusted for race and other socio-demographic characteristics (education, employment, US as birthplace, and marital status) to examine whether they accounted for differences between inmates and non-institutionalized adults.
RESULTS: Both jail and prison inmates had a higher prevalence of hypertension, diabetes, obesity and overweight, heart attack or myocardial infarction, asthma, arthritis, cervical cancer, and hepatitis than non-institutionalized adults (see table for data on prisoners). After adjusting for socio-demographic characteristics, many differences were attenuated and some were no longer significant, but inmates still had a higher prevalence of hypertension, asthma, arthritis, cervical cancer, and hepatitis.
CONCLUSIONS: Jail and prison inmates have a higher burden of chronic medical conditions than the general population. While some of the difference can be explained by socio-demographic factors resulting from the over-representation of minority and disadvantaged populations in correctional settings, differences persist even after adjustment for socio-demographic characteristics. Further research on strategies for preventive care and management of chronic conditions in correctional settings would benefit clinicians who treat those who are currently incarcerated or who have been released into the community.

Prison inmates compared with non-institutionalized adults, adjusted for age and gender (Model 1) and age, gender, race, education, birthplace, and marital status (Model 2)

Condition (ever had)	Model 1 OR	95% CI	Model 2 OR	95% CI
Hypertension	1.6	1.5, 1.9	1.2	1.1, 1.3
Diabetes	1.5	1.3, 1.6	1.0	0.9, 1.1
Obese Class I-III (vs. normal)	1.1	1.0, 1.2	0.7	0.7, 0.8
Over weight (vs. normal)	1.3	1.3, 1.4	1.2	1.1, 1.3
Under weight (vs. normal)	0.5	0.4, 0.6	0.5	0.3, 0.6
Angina	1.0	0.7, 1.3	0.9	0.7, 1.1
Heart attack	1.2	1.0, 1.7	1.0	0.8, 1.2
Asthma	1.6	1.4, 1.7	1.3	1.2, 1.5
Arthritis	1.9	1.7, 2.0	1.6	1.5, 1.8
Cancer of any kind	1.0	0.9, 1.2	1.2	1.0, 1.4
Cancer, cervix	5.8	4.6, 7.3	5.2	4.0, 6.7
Hepatitis	4.1	3.7, 4.7	4.3	3.8, 4.9

CHRONICALLY ILL AND UNINSURED: A NATIONAL STUDY OF ILLNESS PREVALENCE, DIAGNOSIS, CONTROL AND ACCESS TO CARE A. Wilper[1]; S. Woolhandler[1]; K. Lasser[1]; D. Mccormick[1]; D. Bor[1]; D. Himmelstein[1]. [1]Harvard Medical School, Cambridge Health Alliance, Cambridge, MA. *(Tracking ID # 190026)*

BACKGROUND: While the uninsured may receive care for emergencies, many have difficulty obtaining ongoing care for potentially disabling chronic conditions. No recent nationwide studies provide reliable data on the prevalence of chronic illness among the uninsured.
METHODS: Using the 1999–2003 National Health and Nutrition Examination Survey (NHANES), which includes questionnaire, examination and laboratory data, we generated national estimates of the prevalence of seven common chronic illnesses among Americans age 18–64 with and without insurance. Using logistic regression we determined whether the chronically ill were more likely than others to have health insurance. We used chi-square tests to examine the relationship between health insurance and the probability that the illness was diagnosed, the probability that it was adequately controlled, and measures of access to care among the ill.
RESULTS: Over 23.2 million of the 122 million working-age Americans with a chronic condition are uninsured, including 20% of the 2.1 million with cardiovascular disease, 16% of the 50.2 million with hypertension, and 16% of the 12.6 million diabetics. Uninsured persons, if diabetic, were more often undiagnosed than those with coverage (42% vs. 22%, p=0.003). Among hypertensives, the uninsured were more likely to have inadequate blood pressure control (140/90 mmHg); 55% vs. 47%, p=0.006. After controlling for age, gender, race and income, the chronically ill were slightly more likely to have insurance than other Americans, OR 1.2 (95% confidence interval [CI] 1.0, 1.4). Compared to others with a chronic illness, the uninsured chronically ill were less likely to have seen a health professional in the past year (62% vs. 87%) or to have a usual site of care (60% vs. 90%); they were more likely to identify that site as an emergency department (9% vs. 1%) (p<0.0001 for all comparisons).
CONCLUSIONS: Millions of Americans with chronic illnesses are uninsured and face grave difficulties in obtaining diagnoses and treatments that might prolong life or prevent disabling complications.

CLASSIFYING AND PREDICTING ERRORS OF INPATIENT MEDICATION RECONCILIATION J.L. Schnipper[1]; J. Pippins[2]; C. Hamann[3]; C. Ndumele[4]; S. Labonville[4]; E. Diedrichsen[3]; M. Carty[5]; A.S. Karson[6]; I. Bhan[3]; C.M. Coley[7]; C. Liang[4]; A. Turchin[8]; P. Mccarthy[3]; T. Gandhi[4]. [1]Society of General Internal Medicine, Boston, MA; [2]Harvard Medical School, Boston, MA; [3]Massachusetts General Hospital, Boston, MA; [4]Brigham and Women's Hospital, Boston, MA; [5]Harvard University, Boston, MA; [6]Massachusetts General Hospital, Lexington, MA; [7]Massachusetts General Hospital, Chestnut Hill, MA; [8]Havard Medical School, Wellesley, MA. *(Tracking ID # 190641)*

BACKGROUND: Failure to reconcile medications across transitions in care has recently gained national attention as an important source of potential harm to patients, and medication reconciliation is now a Joint Commission National Patient Safety Goal. Yet little is known about the nature of the medication discrepancies that the reconciliation process is intended to prevent. This study sought to classify inpatient medication discrepancies and explore the association between potentially harmful discrepancies and patient, medication, and provider characteristics.
METHODS: We conducted a prospective observational study in May-June 2006 on general medical units at two academic medical centers in Boston, Massachusetts. Study pharmacists took gold-standard medication histories of admitted patients and compared them with medical teams' medication histories, admission and discharge orders. Blinded teams of two physicians each adjudicated all unexplained discrepancies and judged each unintentional discrepancy as having potential for patient harm. Our main outcome measure was the number of unintentional medication discrepancies per patient with potential for causing harm (potential adverse drug events or PADEs). Multivariable Poisson regression was used to determine the association between the number of PADEs per patient and several patient, medication, and provider characteristics.
RESULTS: Among 180 patients, we identified 257 unintentional medication discrepancies with potential for harm, an average of 1.4 PADEs per patient. Of these 257 PADEs, 186 (72%) were due to errors taking the preadmission medication history, while 78 (30%) were due to errors reconciling the medication history with admission or discharge orders (2% were due to both causes). Approximately 75% of PADEs occurred at discharge. In multivariable analyses, low patient understanding of preadmission medications as judged by a pharmacist (adjusted relative risk (ARR) 1.62, 95% confidence interval (CI) 1.14–2.39), 4 or more high-risk medications prior to admission (ARR 3.00, 95% CI 1.29–7.00), 6 or more medication changes from preadmission to discharge (ARR 3.65, 95% CI 2.31–5.78), and medication history taken by an intern (ARR 1.48, 95% CI 1.01–2.18) were associated with the number of PADEs per patient.
CONCLUSIONS: Unintentional medication discrepancies are common and are more often due to errors taking an accurate medication history than errors reconciling this history with patient orders. They are also more common at discharge than at admission. Several easily identifiable medication, patient, and physician characteristics are associated with these PADEs. Taking accurate medication histories and identifying high-risk patient subpopulations for more intensive interventions may improve medication safety during and after hospitalization.

CLINICIAN RATINGS OF AD HOC, IN-PERSON, AND VIDEO CONFERENCING INTERPRETATION A. Napoles-Springer[1]; J. Santoyo-Olsson[2]; L. Karliner[2]; H. O'Brien[1]; S. Gregorich[2]; E.J. Perez-Stable[2]. [1]UCSF, San Francisco, CA; [2]University of California, San Francisco, San Francisco, CA. *(Tracking ID # 190618)*

BACKGROUND: With the growth of immigrant populations with limited English proficiency (LEP) in the U.S., studies of the quality and outcomes of interpretation modes are needed. There are limited data on obtaining clinician's perspectives on the interpretation experience. We compared clinician ratings of the quality of interpretation and communication, visit satisfaction, degree of patient engagement, and perceived cultural competence of visits using ad hoc or professional interpretation either in-person or by video conferencing or VMI.
METHODS: Cross-sectional self-administered clinician survey post-language-interpreted patient visits. Twenty-nine clinicians in four adult primary care public clinics rated 283 visits on 278 unique patients. Outcome measures included a 4-item Quality of Interpretation scale; 4-item Patient Engagement Scale; and single item ratings of the quality of communication, clinician satisfaction with the visit, and clinician understanding of the patient's health-related cultural beliefs. Type of interpretation (ad hoc, In-person, and VMI) was the main predictor variable. Odds ratios were estimated for the likelihood of clinicians reporting high quality interpretation, high quality communication, high clinician visit satisfaction, and a better understanding of the patient's health-related cultural beliefs.
RESULTS: Forty percent (n=114) of the LEP visits used professional in-person, 38% (n=107) used video conferencing, and 22% (n=62) used ad hoc interpretation. Overall, clinicians rated the quality of interpretation as good or better in almost 90% of encounters. Adjusting for clustering within clinician, the quality of communication was more likely to be rated as good or better for video conferencing visits compared to in-person and ad hoc interpreted visits (89% of visits vs. 77% and 66%; p <.01). Overall, visit satisfaction tended to be high for all modes of interpretation. Controlling for clustering within clinician, clinicians rated their satisfaction as higher for videoconferencing visits than for in-person or ad hoc visits (95% of visits vs. 86% and 88%; p <.01). There were no significant differences by mode of interpretation in the quality of interpretation, the extent of patient engagement, or perceived cultural competence. In nearly 50% of visits, clinicians reported understanding patients' cultural beliefs poorly or not at all. Adjusting for clinician and patient characteristics, the quality of interpretation of in-person and video conferencing modes was rated similarly (OR=1.93; 95% CI 0.90, 4.14). Both in-person (OR=6.92; 95% CI 1.88, 25.50) and video conferencing (OR=3.59; 95% CI 1.30, 9.91) were more likely to be rated as being of high quality than ad hoc interpretation. There were no differences in clinician ratings of quality of communication or visit satisfaction by interpretation mode. Understanding of patient's cultural beliefs was more likely to be rated as being better for visits using in-person than video conferencing interpretation (OR=2.16; 95% CI 1.27, 3.65).
CONCLUSIONS: Clinicians viewed equally the quality of interpretation of in-person and video conferencing modes, and both were rated higher than ad hoc interpretation. In-person interpretation may convey cultural nuances of the interaction not captured by video conferencing interpretation.

COCAINE USE IS ASSOCIATED WITH ALL-CAUSE MORTALITY AMONG DRUG USERS ENGAGED IN HIV CARE A.A. Chaudhry[1]; R.E. Thompson[1]; R.D. Moore[1]. [1]Johns Hopkins University, Baltimore, MD. *(Tracking ID # 189598)*

BACKGROUND: Illicit drug use among HIV-infected persons is associated with poorer treatment adherence and HIV outcomes. Data suggest that the type of drug used may affect HIV progression; specifically, central nervous system (CNS) stimulant (e.g. cocaine) use may be associated with HIV progression. We sought to evaluate the impact of type of drug on all-cause mortality and progression to AIDS among individuals in an urban HIV clinical cohort.
METHODS: We analyzed data from the Johns Hopkins HIV Clinical Cohort, a prospective observational cohort of patients engaged in HIV care in Baltimore, MD. Based on responses to computer-assisted surveys addressing drug and alcohol use administered longitudinally every six months, patients were classified as nonusers, exclusive cocaine users, exclusive heroin users, or polydrug users (cocaine and heroin use at any time point, not necessarily concurrently). We used multivariate Cox proportional hazards to evaluate the impact of type of drug on all-cause mortality in all patients, and progression to first AIDS-defining event (ADE) in those who were ADE–free at enrollment.
RESULTS: 1625 individuals were included in the analysis. Of these, 12.8% were exclusive cocaine users, 7.0% were exclusive heroin users, 23.4% were polydrug users, and 56.8% reported no drug use on any survey since enrollment. Overall, 82.3% had been on ARV therapy at some point during follow up. In terms of ARV use, heroin (77.2%) and polydrug (78.2%) users were less likely to have received ARV therapy than nondrug (84.4%) and cocaine (83.2%) users (p<0.05). Between February 1989 and March 2007, there were 196 deaths. There were 402 new AIDS-defining events, of 877 individuals without prior history of an AIDS-defining event. Adjusting for age, sex, race, HIV transmission group, and CD4 nadir, cocaine users had a significantly higher probability of dying compared to nonusers (Adjusted RH: 1.40; 95% CI: 1.01–1.94). Heroin and polydrug use was not associated with death. Adjusting for duration of ARV therapy, progression to death was no longer associated with cocaine use. There was no association between any type of drug use and progression to AIDS.
CONCLUSIONS: Among HIV-infected persons engaged in care, cocaine use, but not heroin or polydrug use, is associated with all-cause mortality, which appears to be at least partially attributable to duration of ARV therapy. This suggests that cocaine use is a barrier to effective ARV utilization. Further investigation of ARV utilization among cocaine users in care is warranted to evaluate the impact of different patterns and modes of use of cocaine on ARV use, HIV progression, and survival.

CODE STATUS DISCUSSIONS AND WILLINGNESS TO ENDURE BURDENS OF TREATMENT AMONG GENERAL MEDICAL INPATIENTS T.H. Haberle[1]; Z.D. Erekson[1]; A.E. Curtis[2]; L.A. Shinkunas[3]; K.T. Cannon[2]; V.F. Hoffman[2]; L.C. Kaldjian[4]. [1]University of Iowa Carver College of Medicine, Iowa City, IA; [2]University of Iowa Carver College of Medicine/Iowa City VA (CRIISP), Iowa City, IA; [3]Program in Bioethics, University of Iowa Carver College of Medicine, Iowa City, IA; [4]Program in Bioethics, University of Iowa Carver College of Medicine/Iowa City VA (CRIISP), Iowa City, IA. *(Tracking ID # 190154)*

BACKGROUND: Physician-patient communication regarding code status (resuscitation) orders is often insufficient to understand patients' treatment preferences. To improve code status discussions, it may be important to elicit patients' goals of care and their willingness to endure the burdens of cardiopulmonary resuscitation. This study explored patients' ability to articulate how much physical and emotional suffering they are willing to endure in order to achieve their goals of care and to investigate correlations between willingness to endure suffering and preferences regarding goals of care and code status.
METHODS: Over a 3 month period, 2 trained medical students interviewed 135 adult inpatients within 48 hours of admission to a general medical service at a large Midwestern medical center. Using a structured survey instrument, the interviewers asked patients about their (1) resuscitation preferences, (2) goals of care, and (3) demographic variables. Charts were reviewed for additional demographic information and treating physicians were contacted to estimate their patients' survival prognoses. Patients were asked to express their willingness to endure physical suffering (WEPS), and willingness to endure emotional suffering (WEES), to attain their most important goal of care by asking them to (1) recall their most difficult experiences of physical and emotional suffering, (2) use each of these most difficult experiences as an extreme on a zero-to-ten scale (ten signifying the suffering associated with the patient's most difficult experience, zero representing no suffering), and (3) decide how much suffering, on their own individualized scales, they would be willing to endure to attain their most important goal of care.
RESULTS: Patients had a mean age of 48 years (range 18–86), 52% were female, 82% had a survival prognosis of greater than 2 years, 93% performed high on a measure of activities of daily living (scoring at least 10 on a scale of 1–12), and 58% described their health as good, very good, or excellent. Twenty-four percent of patients had a living will, 25% had a durable power of attorney for healthcare, and 86% expressed preference for full code status. All but 4 patients were able to answer the suffering scale questions. The mean WEPS score was 8.7 (range, 2–10), and the mean WEES score 8.5 (range, 0–10). The mean WEPS score was lower for patients whose most important goal of care was "be comfortable" (6.9), compared with "cure" (9.4), "accomplish something particular" (9.3), "live longer" (9.2), "maintain health" (8.3), and "improve health" (8.2), p=0.007. Patients preferring full code status had higher WEPS (8.9 vs 7.7, p=0.09) and WEES (8.7 vs 7.1, p=0.07) scores, though p values were greater than 0.05.
CONCLUSIONS: Asking patients to use a self-calibrated numerical scale to articulate their willingness to endure burdens of treatment to accomplish their most important goal of care is feasible, and answers from these scales appear to correlate with differences in preferences regarding goals of care and, to a lesser extent, code status. Exploring patients' willingness to endure suffering to achieve their most important goals of care may improve the quality of code status discussions.

COLON CANCER SCREENING IN AN URBAN, PREDOMINANTLY HISPANIC IMMIGRANT COHORT A. Montero[1]; K. Kyanko[2]; M. Hamm[2]; M. Vijayaraghavan[2]; N. Chang[3]; M. Salameh[2]; A. Koppel[2]; O. Carrasquillo[2]. [1]Society of General Internal Medicine, New York, NY; [2]None, New York, NY; [3]None, Fort Lee, NJ. *(Tracking ID # 190906)*

BACKGROUND: In national surveys, only 40%-50% of adults over 50 report having received a colon cancer screen at an appropriate interval. Minorities, immigrants, and the uninsured are less likely to receive colon cancer screening. The type and prevalence of colon cancer screening has not been characterized in Hispanic, immigrant patients engaged in primary care. We carried out this study to evaluate whether acculturation is associated with receipt of any colon cancer screening in this underserved population.
METHODS: Subjects were drawn from a larger study of 1,157 patients randomly selected from an urban general medicine group practice. Our cross sectional analysis linked responses from that study's questionnaire with data from our practice's clinical information system. Our sample consisted of the 337 patients in the parent study who were fifty or older at the time of the baseline interview in 2002 and who made at least annual visits to their primary care provider through the end of our five year follow up period in 2007. Our independent variable was country of birth. Our outcome variable was receipt of any colon cancer screening - colonoscopy or flexible sigmoidoscopy or fecal occult blood testing (FOBT) - as ascertained from gastroenterology data in our clinical information system. "Annual FOBT" was defined as at least four FOBT at appropriate intervals over five years of follow up; "Some FOBT" was defined as less than four FOBT over five years of follow up. We used logistic regression to adjust for those covariates which in bivariate analysis were correlated with receipt of any colon cancer screening.
RESULTS: We found that 84% of our patients received some type of colon cancer screening, either prior to baseline or during follow up. The predominant modalities were colonoscopy (48.4%) and FOBT (34.7%). Of patients receiving FOBT, the majority were receiving only "Some FOBT" (89.7%), a suboptimal receipt of this modality. In bivariate analysis, older age (p=.08), foreign birth (p=.02), and Hispanic race (p=0.05) were positively associated with receipt of any colon cancer screening. In multivariate analysis, none remained independently associated with receipt of any colon cancer screening.
CONCLUSIONS: In our sample of urban, predominantly Hispanic immigrant patients we did not find an independent relationship between acculturation and receipt of colon cancer screening. Although 84% received some colon cancer screening, only 52% of received an optimal screening modality. Those receiving suboptimal screening did so due to suboptimal FOBT testing interval. In this underserved population, FOBT may not represent an optimal screening strategy. Limited resources may be better directed toward obtaining screening colonoscopy in similarly underserved populations.

Baseline Characteristics

Age (mean)	60.4
Women (%)	77.1
Race (%)	
- Hispanic	86.9
- Black (non-Hispanic)	10.1
- White/Other	3.0
Medicaid (%)	69.2
Income <2,000 (%)	81.9
Birth Outside US (%)	88.1
Spanish Preferred (%)	83.7

Results

Colon CA Screen	%
None	16.6
Colonoscopy	48.4
Flex Sig	0.3
Annual FOBT	3.6
Some FOBT	31.2

COLORECTAL CANCER SCREENING AMONG U.S. MILITARY VETERANS: HAVE WE REACHED A CEILING? J.M. Shackelford[1]; B. Ling[1]. [1]University of Pittsburgh Medical Center, VA Pittsburgh Healthcare System, Pittsburgh, PA. *(Tracking ID # 189015)*

BACKGROUND: Colorectal Cancer (CRC) screening has been proven to reduce mortality. U.S. screening rates remain low (57.3% in 2004, Behavioral Risk Factor Surveillance System). The Veterans Administration (VA) has achieved higher CRC screening rates (72% in 2004) through a systems-based approach that has been emphasized since 1995. Still, CRC screening rates in the VA are lower than for other cancer screening services. The aim of this study is to determine if CRC screening rates among VA Medical Centers are continuing to improve or have reached an upper limit (i.e., ceiling).

METHODS: The External Peer Review Program conducts quarterly audits of medical records of patients with ≥ 3 outpatient visits within the past year. From 2004 to 2006, 138 VA Medical Centers across the U. S. were audited each year. In 2004, CRC screening was defined as: Fecal Occult Blood Test (FOBT) within the past year; sigmoidoscopy within past 5 years; or colonoscopy within the past 10 years. For 2005 and 2006, an upper age limit (80) was added and double contrast barium enema was added as a CRC screening test. Patients were ≥52 years. Patients with specific terminal conditions, prior diagnosis of CRC, or total colectomy were excluded. Percent CRC screened was calculated for each center each year. The goal for annual improvement was defined as the 3% necessary to rise from meeting target (72%) to exceeding target (75%) by VA standards. The upper tenth percentile was further analyzed to determine the level of the ceiling.
RESULTS: The mean percent CRC screened was 72±7% in 2004 (range of 45 to 91%), 75±6% in 2005 (range of 61 to 88%), and 77±6% in 2006 (range of 56 to 89%). Only 17 centers (12%) were able to show continued improvement of ≥3% per year. Of the 17 centers that reached the 90th percentile (80%) in 2004, 6 to 8 were able to repeat this achievement in any subsequent year, and only 4 were able to sustain it for all 3 years. The 95th percentile (82% screened in 2004, 84% in 2005, and 85% in 2006) was reached by 7, 7, and 8 centers, respectively. Of the 7 centers in 2004, only 2 were able to repeat this achievement in any subsequent year, and none were able to sustain it for all 3 years. The 98th percentile (84% in 2004, 85% in 2005, and 86% in 2006) was reached by 4, 5, and 3 centers, respectively. Of the 4 centers in 2004, only 1 was able to repeat this achievement in any subsequent year, and none were able to sustain it for all 3 years.
CONCLUSIONS: Despite an overall increase in mean percent CRC screened over the 3 recent consecutive years (2004–2006), a very small number of VA medical centers are continuing to improve at a rate of ≥3% per year indicating that a ceiling has been reached. The ceiling appears to exist between 84 and 86% since only a few centers were able to achieve this level and those that did were not able to sustain it. Further investigation to assess the reasons for this ceiling effect and to identify potential approaches that may potentially increase the ceiling would be worthwhile.

COMBINED MEDICATION ADHERENCE TO CARDIOVASCULAR RISK REDUCTION THERAPY C.L. Bryson[1]; N.D. Sharp[2]; M. Perkins[2]; D. Blough[3]; F. Liu[2]; E.J. Boyko[3]; M.L. Maciejewski[4]. [1]Health Services Research & Development Center of Excellence, VA Puget Sound Health Care System; University of Washington, Seattle, WA; [2]Health Services Research & Development Center of Excellence, VA Puget Sound Health Care System, Seattle, WA; [3]University of Washington, Seattle, WA; [4]Health Services Research & Development, Durham VAMC, Durham, NC. *(Tracking ID # 190479)*

BACKGROUND: We sought to assess the prevalence of combined adherence to medications for cardiovascular (CV) risk reduction. Medical therapy is the cornerstone of risk reduction, but is ineffective if not taken. Maximal reduction in cardiovascular events results from adherence to all aspects of therapy that address CV risk factors, including antihypertensive (HTN), lipid (LDL), and diabetic (DM) therapy.
METHODS: A cohort of overlapping primary care patients (total N= 8,749) taking medications for hypertension (N=8,404), hyperlipidemia (N=6,356), and diabetes (N=7,164) from 4 VA facilities was followed from 3/2002 to 12/2003. Adherence to medications was assessed based on a medication possession ratio (MPR) from electronic pharmacy records, defined as a proportion of days of drug available in a month. The MPR was constructed for each drug, and then a composite MPR was created for each of the 3 drug groups (hypertension, diabetes, and lipids). Patients were considered adherent to a drug group if their composite MPR>=80% for that month. Proportions adherent to 3/3 and 2/2 groups were created for the appropriate subgroups. Generalized estimating equations with a logit link were used to control for confounding and account for repeated measures in analyses.
RESULTS: The proportions of patients adherent to hypertension, lipid, and diabetic therapy on average each month were 50%, 72%, and 59%, respectively. Among 5,228 (60%) patients on therapy for all 3 conditions (DM/HTN/LDL), only 27% were adherent to all 3 therapies on average each month. Among 937 (11%) patients on only HTN/LDL therapy, 37% were adherent to both groups of medications on average each month. Age, number of drugs in regimen, month of followup, and disease severity were predictive of less overall adherence in adjusted analyses.
CONCLUSIONS: Combined adherence to cardiovascular risk reduction medication was much worse than for each condition, indicating a large amount of potentially controllable risk. Patients who are adherent to medications for one condition may not be adherent to others. An overall adherence gap gives a better estimate of unaddressed risk than focusing on adherence for single conditions. The magnitude of missed opportunity for CV risk reduction due to nonadherence may be larger than expected.

COMMUNICATION AMBIGUITY IN AN ADVANCED COMPUTERIZED ORDER-ENTRY SYSTEM H. Singh[1]; S. Mani[1]; D. Espadas[1]; V. Franklin[2]; L.A. Petersen[1]. [1]Houston Center for Quality of Care and Utilization Studies, Michael E. DeBakey Veterans Affairs Medical Center and Baylor College of Medicine, Houston, TX; [2]Michael E. DeBakey VA Medical Center, Houston, TX. *(Tracking ID # 189879)*

BACKGROUND: Computerized physician order entry (CPOE) has reduced medication errors, but computerization may introduce new pathways through which errors in order entry continue to persist. Although CPOE systems provide users with a structured template through which even complex prescriptions can be ordered, they are also flexible to allow providers to provide clarification through a free-text comment window. This can lead to a discrepancy between the elements selected through the template order and the free- text comments entered by the provider — a communication error not yet well described. For instance, the provider may select Warfarin 5 mg orally every day in the template but in the comment box write "Take 7.5 mg a day on Mon-Fri only." We studied characteristics of medication errors resulting from such inconsistencies in electronic communication through CPOE.
METHODS: We examined computerized prescriptions in a large tertiary care VA facility and its multi-specialty ambulatory clinic and affiliated satellite clinics. Over a 2- month period, pharmacists were prompted to report prescriptions for which they identified an inconsistency between the structured CPOE template and the associated free-text comment window. Pharmacy reports and prescription records were evaluated to determine the nature of the inconsistency, i.e., in terms of drug dosage, administration time, schedule, day's supply, quantity, refills and duration. Patient outcomes were also determined.
RESULTS: Of 116,013 new prescriptions processed and reviewed by a pharmacist in the study period, 229 prescriptions with communication inconsistencies were identified; 65% occurred in inpatients, and 9% had two or more inconsistencies. Information discrepancies between the template and the free-text comment window involved drug dosages (48%), duration of treatment (24%), drug-administration schedule (21%), medication administration time for inpatients (10%), route of administration (3%), quantity of drug requested (2%) and name of dispensed drug (<1%). In 85% of cases, pharmacists accepted the free-text comment, while in the remainder they accepted the structured template. Pharmacists used their judgment and called providers for clarification in only a selected 71 (31%) cases. Orders with inconsistencies were most commonly entered by trainees (52%), followed by attending physicians (30%), physician assistants (11%), and nurse practitioners (7%). The following medication classes were most commonly affected: analgesic (18%), cardiovascular (11%), antidiabetic (8%), nutritive agent (7%), anticoagulant (7%), and antibiotic (4%). Only one error was discovered after it had already reached the patient, but it did not result in harm.
CONCLUSIONS: Medication order entry through a computerized interface continues to carry risks of communication breakdowns, despite standardization of data entry. The risks of allowing providers to clarify prescriptions through unstructured free text must be weighed with the benefits it provides. Although most near-misses we studied did not reach the patient because of pharmacist intervention, contradictory messages transmitted through order- entry interfaces carry a significant potential for harm. Because we used only prompted spontaneous reporting, the problem may actually be more severe than described. Further studies are needed to evaluate and reduce ambiguities in information transfer that may result at the human–CPOE interface.

COMMUNICATIONS ON COLORECTAL AND PROSTATE CANCER SCREENING: ARE PATIENT PERCEPTIONS CONSISTENT WITH ACTUAL INFORMATION EXCHANGED B. Ling[1]; J.M. Trauth[2]; M.J. Fine[3]; M.K. Mor[4]; C.H. Braddock[5]; S. Bereknyei[5]; J. Weissfeld[2]; R. Schoen[2]; J. Whittle[6]. [1]VA Pittsburgh Healthcare System and the University of Pittsburgh, Pittsburgh, PA; [2]University of Pittsburgh, Pittsburgh, PA; [3]VA Pittsburgh Health Care System and the University of Pittsburgh, Pittsburgh, PA; [4]Pittsburgh VA Health Care System and The University of Pittsburgh School of Medicine, Pittsburgh, PA; [5]Stanford University, Palo Alto, CA; [6]Medical College of Wisconsin, Milwaukee, WI. *(Tracking ID # 190450)*

BACKGROUND: Several clinical controversies impact decision-making regarding colorectal (CRC) and prostate cancer (PC) screening. Therefore, effective patient-provider communication on these topics is essential. The quality of such communication depends upon the content of the communication as well as patient perception of the interaction. We compared audiotaped clinical encounters containing patient-provider communication relevant to these screening decisions with patient report of the information they received during the encounters.
METHODS: We audiotaped and transcribed interactions between 112 enrolled male patients (38 African American and 74 white) aged 50–74 years and the primary care team during clinic visits to the VA Pittsburgh. Patients were asked after the visit whether there were discussions on: CRC or PC screening in general; advantages/disadvantages of CRC or PC screening; or particular screening tests for CRC [i.e., fecal occult blood testing (FOBT) or sigmoidoscopy (Sig)] or PC [i.e., prostate specific antigen (PSA)]. In addition, patients were asked whether the provider made a recommendation to complete a FOBT, Sig, or PSA. The transcripts were independently coded for these same topics. We determined the level of agreement for the occurrence of a communication topic during the clinic visit (% of instances when both the transcript and patient response matched regarding whether or not the topic of interest occurred) and Kappa coefficients to measure agreement occurring beyond chance. We tested the equality of the Kappa coefficients by race for each communication topic using a chi-square test with significance defined at the $p<.05$ level. Also, we assessed whether providers elicited patient understanding of the topic areas discussed during the clinic visit by examining the transcripts.
RESULTS: The following were the levels of agreement (LOA) and Kappa coefficients (K) for patients' perceptions of topics discussed compared with the coded transcripts of the recorded patient-provider communication: (1) CRC screening in general (LOA 87%, K.67), (2) advantages/disadvantages of CRC screening (LOA 74%, K.08), (3) FOBT (LOA 84%, K.68) or Sig (LOA 84%, K.44) in general, (4) recommendations to perform FOBT (LOA 84%, K.66) or Sig (LOA 90%, K.51), (5) PC screening in general (LOA 65%, K.33), (6) advantages/disadvantages of PC screening (LOA 80%, K.17), (7) PSA in general (LOA 74%, K.45), and (8) recommendations to perform PSA (LOA 82%, K.42). There were no statistical differences in the Kappa coefficients by race. Further review of the transcripts showed no instances when providers assessed patient understanding regarding any of these topics.
CONCLUSIONS: While a majority of patients accurately recalled discussions of CRC and PC screening immediately after a clinic visit, there is a sizable proportion of instances (13–35%) when patients' perceptions of the interaction differ from the transcripts of the audio-recorded patient-provider communication. In particular, the topics that exhibited the poorest Kappa scores are discussions of advantages/disadvantages of CRC (.08) and PC screening (.17) as well as talk regarding PC screening in general (.33). Therefore, patient-provider communication on CRC and PC screening can be improved upon so that decision-making toward these services is optimized. A potential approach worth considering would be to have providers assess patient understanding of the communication and correct any misperceptions at the time of the clinic visit.

COMMUNITY WEALTH AND EDUCATION PREDICT THE AVAILABILITY OF HOSPICE M.J. Silveira[1]; S.D. Goold[1]; L.F. Mcmahon[1]. [1]University of Michigan, Ann Arbor, MI. *(Tracking ID # 190596)*

BACKGROUND: Research has shown that the local availability of hospice is an important predictor of its use. Unfortunately, little is known of the factors that determine the local availability of hospice. What we do know is that most hospices are built and maintained thanks to charity and volunteerism. Thus, we hypothesized that the local availability of hospice would be strongly determined by the wealth and education of the residents in its community.
METHODS: We used data from Medicare's 2000 Provider of Service Files to identify the point location of every hospice in the US and defined its service area according to the 60 mile great circle radius. Our outcome of interest was county-level availability of hospice defined according to the amount of geographic clustering of hospice services areas measured using the Hot Spot Analysis Tool in ArcView GIS 3, and grouped into 5 categories according to standard deviation. We used multivariate, ordinal logistic regression to test the relationship between this outcome and county wealth (% households with incomes >$100,000) and education (% individuals with a high school diploma), adjusting for confounding by race (% blacks), ethnicity (% Hispanics), age (% over age 65), population count, and area.
RESULTS: In multivariable ordinal logistic regression examining the determinants of hospice availability, we found that wealth and education positively determined availability and age negatively determined availability. For every 1% increase in the proportion of households with incomes >$100,000, there was a 16% greater odds of being in the next highest category of hospice availability. For every 1% increase in the percentage of high school educated in a county, there was a 24% greater odds of being in the next highest category. For every 1% increase in the percentage of elderly in a county, there was a 10% lower odds of being in the next highest category. In testing for confounding, we found wealth, education, and age each influenced the strength, though not the significance, of the relationship between our predictors and outcome. There was no confounding by race and ethnicity.
CONCLUSIONS: Hospice is more available in communities with larger proportions of wealthy and, educated residents. These findings suggest that to address disparities in the utilization of hospice, policy-makers may need to address inequities in the availability of hospice first.

COMPARISON OF HEALTHCARE USE AND COSTS OF ADULT PATIENTS WITH "PURE OBSESSIVE-COMPULSIVE DISORDER" VERSUS "PURE DEPRESSION": NINE-YEAR (1997–2006), LARGE-SCALE, RETROSPECTIVE CLAIMS ANALYSIS OF FLORIDA MEDICAID ENROLLEES C. Hankin[1]; L.M. Koran[2]; L. Culpepper[3]; J. Knispel[4]; D. Dougherty[5]; E. Hollander[6]; D.V. Sheehan[7]; J. Dunn[8]; A. Levin[9]; D.W. Black[10]; A. Bronstone[1]; Z. Wang[1]. [1]BioMedEcon, LLC, Moss Beach, CA; [2]Stanford University, Stanford, CA; [3]Boston University, Boston, MA; [4]Humana, Singer Island, FL; [5]Massachusetts General Hospital, Boston, MA; [6]Mount Sinai School of Medicine, New York, NY; [7]University of South Florida, Tampa, FL; [8]SelectHealth, Inc., Salt Lake City, UT; [9]Health Plus, Bronx, NY; [10]University of Iowa, Iowa City, IA. *(Tracking ID # 190671)*

BACKGROUND: Whereas the healthcare burden of depression is well documented, little is known about the burden of obsessive-compulsive disorder (OCD), a highly debilitating anxiety disorder. We compared healthcare use and costs of newly-diagnosed patients with "pure OCD" (P-OCD; OCD in the absence of bipolar disorder, psychoses, or depression) to a matched sample of patients newly-diagnosed with "pure depression" (P-D; depression in the absence of bipolar disorder, psychoses, or OCD).
METHODS: We examined 9 years (1997–2006) of computerized Florida Medicaid claims. Among patients with >1 OCD diagnosis (ICD-9 300.3), we identified their first occurring ("index") OCD claim. Those with 2 years of data preceding their index OCD claim were selected. Of these, P-OCD patients were identified as having no diagnoses of depression (ICD-9 296.2, 296.3, 296.9, 300.4, 309.0, 309.1, 311), psychoses (ICD-9 295, 298) or bipolar disorder (ICD-9 296) in the 2 years prior and 2 years following their index OCD claim. P-D patients were identified similarly, except that the index claim was depression and the exclusion diagnoses included OCD rather than depression. Each P-OCD patient was matched to >1 P-D patient on sex, race/ethnicity, medical illness severity (Charlson Comorbidity Index), and age and year at index diagnosis. P-OCD patients without a match were excluded from the analysis. We examined inpatient and outpatient primary diagnoses to classify medical versus psychiatric care, and NDC codes to classify pharmacy claims; we assumed amphetamines, antidepressants, antimanics, antipsychotics, anxiolytics, hypnotics, mood stabilizers, and stimulants were prescribed for psychiatric illness, and other medications were prescribed for medical illness. Numbers and costs of

inpatient stays, outpatient visits, and pharmacy claims were calculated over the 2 years following each patient's index claim. We then compared median per-patient total, medical, and psychiatric healthcare use and costs.
RESULTS: Among 2,924,412 Medicaid enrollees, 156 met criteria for P-OCD and 16,055 for P-D. Of these, 135 patients with P-OCD were matched to 1,511 patients with P-D (21 P-OCD patients could not be matched). Numbers of matches of P-OCD to P-D patients ranged from 1 to 76. The 2-year, median, per-patient total (inpatient, outpatient, and pharmacy) number of healthcare claims was approximately 2 times greater among patients with P-OCD than patients with P-D (P-OCD 126.0 versus P-D 68.4, p<0.0001). Those with P-OCD had a 65% greater median number of outpatient visits for medical treatment (86.0 versus 56.0, p=0.0007) and approximately 2 times greater median total medical costs for these visits than their P-D counterparts. Median total healthcare costs were approximately 3 times higher among patients with P-OCD than among those with P-D (P-OCD $25,666 versus P-D $7,732, p<0.0001).
CONCLUSIONS: Although patients were matched on medical illness severity, those with P-OCD used significantly more outpatient medical services and incurred 2 times greater outpatient medical costs than their counterparts with P-D. These findings suggest that much of the care for patients with OCD may occur within the outpatient medical setting.

COMPARISON OF METHODS EXAMINING HOSPITAL USE VARIATION AMONG ELDERLY HEART FAILURE PATIENTS M.K. Ong[1]; J.J. Escarce[1]; A. Ang[1]; W. Xiong[1]; A.D. Auerbach[2]; A. Chun[3]; B. Davidson[3]; T.G. Ganiats[4]; S. Greenfield[5]; M. Gropper[2]; S. Malik[6]; P.S. Romano[7]; C.M. Mangione[1]. [1]University of California, Los Angeles, Los Angeles, CA; [2]University of California, San Francisco, San Francisco, CA; [3]Cedars-Sinai Medical Center, Los Angeles, CA; [4]University of California, San Diego, La Jolla, CA; [5]University of California, Irvine, Irvine, CA; [6]University of California, Irvine, Tustin, CA; [7]University of California, Davis, Sacramento, CA. *(Tracking ID # 190198)*

BACKGROUND: Recent national and California studies have documented variation in hospital resource utilization among expired elderly Medicare beneficiaries with chronic illnesses in their last two years and six months of life. However, findings may differ for elderly Medicare beneficiaries who did not expire and with expanded risk-adjustment.
METHODS: 7,301 hospitalizations for elderly Medicare beneficiaries with a principal diagnosis of heart failure (HF) were identified at six California academic medical centers between January 1, 2001 and June 30, 2005. Local administrative data and the National Death Index were used to generate outcomes of hospitalization length of stay, hospitalization total costs, inpatient mortality, and one month mortality. Two multivariate risk-adjustment models were used. The first model matched the model used in studies of expired elderly individuals, and included age, gender, ethnicity, and twelve chronic conditions; over-dispersed Poisson models were used for resource utilization outcomes and logistic models were used for mortality outcomes. The second expanded model included patient age at admission, gender, ethnicity, 26 comorbidities, admission year, Medicaid as an additional payor, transplant patient status, transfer patient status, and surgical Diagnostic Related Group classification; zero-truncated negative binomial models were used for resource utilization outcomes and logistic models were used for mortality outcomes. Adjusted means for each outcome were generated for each site using recycled estimates from the entire cohort to minimize selection bias.
RESULTS: The unadjusted resource utilization among the sites ranged from 4.3 to 8.4 hospital days and $8,568 to $19,185. Adjusted means with the first model showed similar resource utilization variation between sites, which ranged from 4.3 to 8.3 hospital days and $7,999 to $19,924. Adjusted means with the second model showed slightly reduced resource utilization variation between sites, which ranged from 4.7 to 8.0 hospital days and $9.861 to $19,561. The unadjusted inpatient and one month mortality rates among the sites ranged from 2.8% to 4.6% for inpatient mortality and 6.3% to 8.8% for one month mortality. The adjusted mortality rates using the first model showed increased variation between sites, which ranged from 3.0% to 5.4% for inpatient mortality and 6.2% to 9.9% for one month mortality. The adjusted mortality rates using the second model showed increased variation between sites, which ranged from 2.8% to 5.1% for inpatient mortality and 6.4% to 11.1% for one month mortality. The site with the highest adjusted hospital days and costs also had the lowest adjusted mortality rate which significantly differed from the other sites. The Spearman correlation coefficients with the first model for one month mortality were −0.41 for adjusted hospital days and −0.32 for adjusted costs. The Spearman correlation coefficients with the second model for one month mortality were −0.60 for adjusted hospital days and −0.37 for adjusted costs.
CONCLUSIONS: Resource utilization variation patterns are reduced but persist when using an expanded risk-adjustment model compared to prior risk-adjustment models in a sample of HF patients that both expired and survived. However, focusing only on expired individuals may overlook associations of greater resource utilization and lower mortality among all Medicare beneficiaries admitted with HF.

COMPARISON OF PAPER AND ONLINE VERSIONS OF THE WEIGHT MANAGEMENT SUPPORT INVENTORY K.O. Hwang[1]; A.J. Ruderman[2]; A.J. Ottenbacher[1]; J.F. Lucke[1]; A.L. Graham[3]; E.J. Thomas[1]; E.V. Bernstam[1]. [1]University of Texas Health Science Center at Houston, Houston, TX; [2]University of Illinois at Chicago, Chicago, IL; [3]Georgetown University Medical Center, Washington, DC. *(Tracking ID # 190808)*

BACKGROUND: The Weight Management Support Inventory (WMSI) is a reliable and valid paper instrument to measure social support for weight loss. This measure may be useful for Internet-based studies of weight loss, but an online version has never been tested. We compared the psychometric properties of an online (ON) and paper (PA) version of the WMSI.
METHODS: The PA version has 26 five-point Likert items on the frequency and helpfulness of receiving 4 types of support: emotional, instrumental, informational, and appraisal. It yields a total and 4 subscale scores for both frequency and helpfulness. With a counter-balanced order of administration, members of an online weight loss program completed both versions within 2 days. We emailed subjects a link to the ON version and an attached file of the PA version, which they faxed back. We calculated Pearson correlations (r) for total and subscale scores and measured between-subjects and within-subjects effects with t-tests and repeated measures analysis of variance.
RESULTS: Of 737 eligible subjects, 511 enrolled and 230 returned both ON and PA versions (93% female, 86% white, mean age 37.0 years [SD= 10.1], mean body mass index 31.3 [SD=7.3]). ON and PA versions were highly correlated (r=0.84 to 0.95). Between-subjects comparison of ON vs PA (first administration) revealed no differences, except in the emotional frequency subscale (ON 2.61 vs PA 2.31, p=0.04). Within-subjects comparison of ON vs PA (regardless of order of administration) also revealed no differences except in emotional frequency (ON 2.54 vs PA 2.45, p=0.002).
CONCLUSIONS: There was no difference between ON and PA versions for total frequency, total helpfulness, and 7 of 8 subscales. The ON version of the WMSI generally retains the properties of the PA version and may be useful for assessing social support for weight loss.

COMPARISONS OF ATTITUDES ABOUT, BARRIERS TO AND INTAKE OF VEGETABLES AND FRUIT IN AN URBAN POPULATION AT A HEALTH CLINIC WITH A PROGRAM TO PROVIDE INEXPENSIVE LOCALLY GROWN PRODUCE E.L. Seeholzer[1]; E. Jennings[1]; M. Clark[1]; C.L. Thomas[1]; D. Kaiser[1]; P. Mlandenov[1]. [1]Case Western Reserve University, Cleveland, OH. *(Tracking ID # 189850)*

BACKGROUND: Fruit and vegetable consumption is lower in poor urban populations compared to more affluent urban/suburban populations. Rising produce costs may contribute to lower produce consumption rates. Some programs providing inexpensive locally grown produce to urban populations increased participant produce consumption. Our objective was to measure: 1)baseline attitudes about 2) perceived barriers to and 3)baseline consumption of fruits and vegetables in participants and a convenience sample of non-participant controls in a program providing low-cost locally grown produce through an urban health center.
METHODS: All program participants (N=39) and a convenience control sample (N=75) from the clinic waiting rooms were surveyed. Survey items measured demographic characteristics and the three areas

outlined in the objectives. Many items relating to fruit and vegetable attitudes, barriers and consumption were from the Behavioral Risk Factor Surveillance System (BRFSS) 2003. Responses were compared between participants and controls. Participants purchasing produce for at least 3 weeks (N=15) were re-tested in the last month of the program and intra-individual responses were compared. Analyses of the categorical survey items including bivariate comparison of participants and controls was conducted using Fisher's Exact Test. Bivariate comparisons of the continuous items were analyzed using the student's T-test. An alpha level of 0.05 was used as the threshold for significance.
RESULTS: Demographics: Nearly all participants and controls were African American (85% and 89%) and the majority were female (93% and 80%). The modal educational level was high school graduate and the modal age category was 45–54 for participants and controls. No participants were under the age of 35. Household size was smaller (1–2 persons) for more participants than controls (68% vs.46%, $p<0.05$). Produce Consumption: No differences were found in juice, fruit, vegetable, or potato consumption between participants and non-participants. Compared to controls, fewer participants consumed fast food four times or more weekly (29% vs. 36%, $p<0.05$). At post-participation testing, enrollees consumed even less fast food consumption ($p<0.0005$). Responses did not oterwise differ from pre-participation. Attitudes/Knowledge: Compared to controls, more participants usually/always read food labels (64% vs. 34%, $p<0.05$) Barriers: Participants and controls did not cite cost as a major barrier to healthy eating, yet over 75% were interested in a low-cost produce program. Participants were more likely to shop at farmer's markets than controls.
CONCLUSIONS: High program interest supports efforts to continue it. The higher likelihood for participants to read nutrition labels and lower fast food consumption among participants suggests healthier baseline eating behaviors and may suggest higher literacy levels, although no difference in educational level was seen. Post-participation surveys did not demonstrate increased participant produce consumption, but showed a marked decrease in fast food consumption. Convenient produce may have displaced some fast food consumption. It would be of interest to see if this change persisted after the program's conclusion in October. While interpretation of these results is limited by the small participant number, and to this somewhat older, low-income, urban, female African American population, the program shows promise in helping improve food consumption quality in this at-risk group.

COMPETING RISK AND HETEROGENEITY OF TREATMENT-EFFECT IN CLINICAL TRIALS D. Kent[1]; A. Alsheikh-Ali[1]; R.A. Hayward[2]. [1]Tufts-New England Medical Center, Boston, MA; [2]University of Michigan, Ann Arbor, MI. *(Tracking ID # 190817)*

BACKGROUND: Randomized clinical trials frequently exclude older patients and patients with multiple comorbid conditions and may not be representative of typical populations seen in real-world settings. To address this, there has been a call for pragmatic comparative effectiveness trials with broader inclusion criteria. Enrolling such older and complex patients would increase competing risk (the risks of outcomes that interfer with the occurance of the primary disease specific outcome) and increase competing risk heterogeneity. We sought to examine the impact of including patients with a greater range of competing risk on measured treatment-effect, and heterogeneity of treatment-effect, through simulations.
METHODS: We explored how the observed treatment-effect of an intervention varies with variation in both disease-specific outcome risk and competing risk, holding constant treatment efficacy (relative risk reduction) and treatment-related harm. We examined several scenarios based on values obtained from the literature for specific clinical conditions, including conditions in which disease-specific and competing risk are uncorrelated (such as breast cancer) and correlated (such as implantable cardiac defibrillators [ICD] for primary prevention of sudden cardiac death).
RESULTS: Even for treatments with a constant efficacy, the observed absolute and relative risk reduction depends directly on the ratio between disease-specific and competing risk. Table 1 shows how the benefit of adjuvant chemotherapy for breast cancer varies according to both the baseline risk from the cancer itself and the degree of competing risk for mortality, assuming a constant efficacy for all patients (relative risk reduction for breat cancer death=15%) and a constant absolute rate of serious treatment-related harm (15 events over 10 years per 1000 people treated). For the prevention of sudden cardiac death with ICDs in patients with heart failure, for which disease-specific and outcome risk are highly correlated, our simulations suggest that intermediate-risk patients would be most likely to benefit, since low risk patients are likely to survive and high risk patients are likely to die (from non-arrhythmic cardiac death) regardless of therapy.
CONCLUSIONS: Our simulations demonstrate that understanding how to treat individual patients can depend on the interplay between competing and outcome risks, and these effects can be greatly amplified by even small amounts of treatment-related harm. Overall summary results from clinical trials including substantial numbers of older patients and those with comorbid risks may be difficult to interpret. Techniques to stratify patients both by their disease-specific risks and competing risks should be explored.

Observed treatment-effect (absolute risk reduction/number needed to treat) of chemotherapy with varying outcome and competing risks

10-year Risk of Breast Ca Death	No Competing Risk	Low Competing Risk (10%)	Medium Competing Risk (25%)	High Competing Risk (50%)
10%	0/∞	.060/-667	−.004/−267	−.007/−133
25%	.023/44	.019/53	.013/76	.004/267
50%	.060/17	.053/19	.013/24	.022/44

COMPLEMENTARY AND ALTERNATIVE MEDICATION USE IN A PRIMARY CARE CLINIC S. George[1]; J.L. Jackson[2]. [1]Walter Reed Army Medical Center, Bethesda, MD; [2]Society of General Internal Medicine, Bethesda, MD. *(Tracking ID # 190195)*

BACKGROUND: Complementary and alternative medication (CAM) is commonly used in the United States. The purpose of our study was to evaluate the frequency of CAM use for specific symptoms, the predictors of CAM use and whether or not CAM was helpful.
METHODS: Patients presenting to a walk-in clinic with a physical symptom were enrolled. Prior to the baseline visit, patients completed surveys assessing symptom characteristics, stress, functional status (MOS SF6), somatization (PHQ15) and mental disorders (PRIME-MD). Immediately post-visit, patient surveys assessed satisfaction (Rand-9) and unmet expectations. Follow-up at 2 weeks, 3 months and 5 years assessed symptom outcome, functional status (MOS SF6), unmet expectations, stress and satisfaction. In addition, at 5 years, patients reported whether they used CAM specifically for their presenting symptom, reported the type of CAM by picking from a list of common CAM modalities, rated its efficacy and were assessed for mental disorders (PRIME-MD). Data were analyzed using univariate (chi-square, t-test) and multivariate (logistic regression) techniques, as appropriate.
RESULTS: Five hundred patients completed baseline surveys. We achieved 92% 2-week, 81% 3-month and 73% 5-year follow up. Lost patients tended to be younger, but otherwise did not differ in the characterestics we assessed. Overall, patients averaged 55 years in age and 52% were women; 45% were African-American and 49% White. Patients presented with a myriad of physical symptoms, which we collapsed into 14 categories. Among the patients with complete surveys at five years, 26%(83/326) reported using CAM for the symptom they initally presented with. The most common type of CAM was the use of dietary supplements, followed by chiropractic care and herbal remedies. Seventy eight percent reported that CAM was either "very" or "somewhat" helpful, though patients who reported using CAM were more likely to have persistence of their symptom at 5 years (OR: 2.90, 95% CI: 1.81–4.66). There was no relationship between race, duration or type of initial presenting symptom, whether the symptom remained unexplained, worry that the symptom could be serious, patient satisfaction or mental disorders and use of CAM. Multivariable predictors of CAM use included persistence of the initial symptom beyond 3 months (OR: 1.99, 95% CI: 1.09–3.61), having more than 3 "other" bothersome symptoms (OR: 2.71, 95% CI: 1.54–4.78), having some college education (OR: 2.69, 95% CI: 1.53–4.72) and being female (OR: 2.05, 95% CI: 1.16–3.62).

CONCLUSIONS: A quarter of patients presenting to a primary care clinic used CAM for their presenting physical symptom. A wide variety of different CAM modalities were used and most CAM users reported that it was beneficial. Patients who experienced persistence of their symptom beyond 3 months and who had a greater number of physical symptoms were more likely to turn to CAM. CAM users also tended to be better educated and female. Primary care providers should be vigilant for CAM use among primary care patients.

CONCEPTS OF HEALTH, DISEASE & HEART DISEASE AMONG SOUTH ASIAN IMMIGRANTS IN CHICAGO M. Tirodkar[1]; D.W. Baker[1]; G.T. Makoul[1]; N. Khurana[1]; M.W. Paracha[2]; N.R. Kandula[1]. [1]Northwestern University, Chicago, IL; [2]Asian Human Services Family Health Center, Chicago, IL. *(Tracking ID # 190538)*

BACKGROUND: Evidence suggests that Asian Indians and Pakistanis (South Asians) are at greater risk for coronary artery disease (CAD) than other racial/ethnic groups. Little is known about concepts of health, illness, and CAD among South Asians in the United States, and few CAD prevention messages target this rapidly growing immigrant community. We studied South Asian immigrants' concepts of health, illness, and CAD as the first step in developing culturally-targeted CAD prevention messages. Because the majority of South Asians emigrated from countries in the developing world, we hypothesized that South Asian immigrants would have a primarily infectious disease model of health and illness. We also hypothesized that their causal models of CAD would differ from the chronic disease model, which emphasizes behavioral, genetic, and physiologic risk factors.
METHODS: We conducted qualitative, in-depth semi-structured interviews in English, Hindi and Urdu with 75 adults recruited from a federally qualified health center and a community center for South Asian immigrants in Chicago, Illinois. Transcripts were analyzed using an iterative coding process with consensus and triangulation on final thematic findings. Coded reports were analyzed using NVivo 7.0 qualitative coding software.
RESULTS: Participants' ages ranged from 20–70 years and 49% were women. Although 51% of participants had at least a college education, more than half (55%) were without any health insurance. The majority of participants (70%) migrated to the US in the last 10 years, and 70% of the interviews were in Hindi or Urdu. Concepts of health fell into four major domains: behavior (e.g., "I take care in my diet") physical (e.g., "I don't feel anything wrong"), psycho-social (e.g., "I don't get overstressed") and spiritual (e.g., "God take care of me"). Contrary to our hypothesis, South Asians' concepts of illness and CAD causation were similar to concepts from the chronic disease model. When asked about causes of CAD, participants most frequently cited psychosocial (stress), behavioral (diet and exercise), and physiologic (cholesterol, diabetes, and hypertension) risk factors. In addition, participants also discussed spiritual factors, such as fate and prayer, as part of CAD cause and prevention. Cultural and social stressors, such as social isolation, cultural conflicts, lack of health insurance, and financial hardship, were repeatedly identified as barriers to good health.
CONCLUSIONS: South Asian immigrants have a holistic conceptualization of health and illness, incorporating behavioral, physical, psychosocial, and spiritual factors. Concepts of CAD predominantly reflect a chronic disease model; however, there is also an emphasis on spiritual factors, suggesting that South Asian immigrants may hold multiple health belief systems. Health promotion strategies aimed at South Asians in the US should take into account their holistic model of health, while also addressing the social and cultural stressors that affect the health of this community.

COORDINATION OF CARE FOR BREAST CANCER SURVIVORS: A 5-YEAR LONGITUDINAL STUDY C.F. Snyder[1]; K.D. Frick[1]; K.S. Pearis[1]; M.E. Kantsiper[1]; R.J. Herbert[1]; A.L. Blackford[1]; A.C. Wolff[1]; C.C. Earle[2]. [1]Johns Hopkins University, Baltimore, MD; [2]Dana-Farber Cancer Institute, Boston, MA. *(Tracking ID # 189405)*

BACKGROUND: The appropriate roles of oncology specialists and primary care providers (PCPs) in the long-term follow-up care of breast cancer survivors are unclear. Without proper coordination, breast cancer survivors may not get appropriate preventive care.
METHODS: We used the SEER-Medicare database to conduct a 5-year retrospective longitudinal study of breast cancer survivors aged 65+ diagnosed in 1998 and enrolled in fee-for-service Medicare. Beginning 366 days post-diagnosis, we traced the physician mix visited, preventive care received, and how receipt of preventive care related to the physician mix visited. Physician mix visited was categorized as Oncology Specialist Only, PCP Only, Both, or Neither. Preventive care measures were influenza vaccination, cholesterol screening, colorectal cancer screening, and bone densitometry. Logistic regression with generalized estimating equations was used to assess how preventive care receipt relates to physician mix visited while controlling for total number of visits, age, race, stage of disease, comorbidities, socioeconomic status, urban/rural location, year of follow-up, and SEER registry site.
RESULTS: There were 1961 breast cancer survivors who met our eligibility criteria. Over time, breast cancer survivors visit both a PCP and oncology specialist less and are followed only by a PCP more ($p < .0001$ for trend over time) (Table 1). Survivors who are followed by both a PCP and oncology specialist are most likely to receive each preventive care service (all $p<.05$), except that survivors who see only a PCP are equally likely to receive colorectal cancer screening and bone densitometry (Table 2). Survivors who visit only a PCP are more likely to receive all four preventive services compared to survivors who visit neither a PCP nor oncology specialist (all $p<.05$). Survivors who visit only a PCP are more likely to receive colorectal cancer screening compared to survivors who see only an oncology specialist ($p=.03$), and survivors who see only an oncology specialist are more likely to receive colorectal cancer screening compared to survivors who visit neither ($p=.04$).
CONCLUSIONS: Over time, survivors are managed by only a PCP more often and by both a PCP and oncology specialist less often. Coordination of care between PCPs and oncology specialists during this transition is critical to ensure that survivors receive appropriate preventive care. Survivorship care plans may be an important tool in promoting coordination of care for cancer survivors.

Physician Mix Visited Each Year for Five Years

Percentage	Year 1	Year 2	Year 3	Year 4	Year 5
Both PCP and Oncology Specialist	56.8	51.4	45.5	40.8	35.9
PCP Only	22.9	28.1	33.7	37.9	42.1
Oncology Specialist Only	14.1	11.5	10.7	11.2	9.6
Neither PCP nor Oncology Specialist	6.2	9.1	10.2	10.2	12.4

Adjusted Odds Ratios (95% Confidence Intervals) for Preventive Care Service Receipt

	Influenza Vaccination	Cholesterol Screening	Colorectal Cancer Screening	Bone Densitometry
Both PCP and Oncology Specialist	Reference Group	Reference Group	Reference Group	Reference Group
PCP Only	0.82 (0.72–0.95)	0.85 (0.74–0.99)	0.89 (0.78–1.02)	0.95 (0.83–1.10)
Oncology Specialist Only	0.69 (0.58–0.84)	0.80 (0.65–0.98)	0.70 (0.57–0.86)	0.79 (0.63–0.98)
Neither PCP nor Oncology Specialist	0.56 (0.45–0.70)	0.65 (0.50–0.84)	0.51 (0.39–0.67)	0.72 (0.55–0.94)

COST-CUTTING STRATEGIES USED BY PATIENTS ENROLLED IN MEDICARE PART D: THE TRANSLATING RESEARCH INTO ACTION FOR DIABETES (TRIAD) STUDY O. Duru[1]; N. Steers[1]; C. Tseng[2]; V. Fung[3]; S. Ettner[1]; J. Schmittdiel[3]; N. Turk[1]; E. Quiter[1]; B. Swain[3]; C.M. Mangione[1]; J. Hsu[3]. [1]University of California, Los Angeles, Los Angeles, CA; [2]University of Hawaii, Honolulu, HI; [3]Division of Research, Kaiser Permanente Northern California, Oakland, CA. *(Tracking ID # 190267)*

BACKGROUND: The introduction of Medicare Part D in 2006 provided an outpatient drug benefit for thousands of seniors with diabetes who previously had no coverage. However, the design of the Part D benefit also included a coverage gap for many patients after exceeding a spending threshold of $2250 in total drug costs. Prior studies of increases in cost sharing and/or drug benefit caps in Medicare + Choice showed that after reaching the cap, patients used several different cost-cutting strategies to lower their out-of-pocket costs, including inconsistent medication use or discontinuing their meds. To date however, there have been no studies describing cost-cutting strategies within Medicare Part D.
METHODS: We used data from a 2007 computer-assisted telephone interview survey of Medicare Part D enrollees with diabetes. Enrollees were part of the Translating Research into Action for Diabetes (TRIAD) Study, a multicenter study of diabetes care in managed care. Respondents were randomly drawn from a non-profit HMO and a health plan with both Medicare Advantage Prescription Drug Contracting (MAPD) and stand-alone Prescription Drug Plan (PDP) products. Members with drug coverage after reaching the spending threshold (either generic-only or generic + brand coverage) were classified as having no coverage gap. Low-income qualifiers were excluded from the sampling frame. We used multivariate logistic regression models adjusted for age, gender, race/ethnicity, education, income, comorbidity score, number of medications, and health plan, to examine the association between coverage in the gap and the use of any of 11 different cost-cutting strategies.
RESULTS: Our analytic sample included 504 patients with no coverage gap and 1080 patients with a gap in coverage. Of the 11 strategies, 5 were more common among patients with a coverage gap compared to those with no gap in coverage; 1) using medication less often than prescribed (OR 2.1, 95% CI 1.4–3.2), 2) switching to cheaper medications (OR 1.6, 1.2, 2.2), 3) using a mail-order pharmacy (OR 1.4, 1.1–1.9), 4) using formulary rather than non-formulary medications (OR 1.5, 1.0–2.2), and 5) calling different pharmacies to compare prices (OR 2.1, 1.5–2.9). No differences were seen between the 2 groups in the odds of borrowing medications from family or friends (OR 1.8, 0.8–3.2), substituting over-the-counter medications for prescription medications (OR 1.2, 0.7–1.9), obtaining free samples (OR 1.0, 0.7–1.4), splitting pills according to a doctor's advice (OR 1.3, 0.9–1.9), going without necessities such as food or rent (OR 1.3, 0.8–4.4), or having family or friends pay for medication (OR 1.5, 0.95–2.5).
CONCLUSIONS: Medicare Part D beneficiaries with diabetes who have a gap in coverage are at greater odds of using several different cost-cutting strategies, including using their medication less often than prescribed. Patients with gaps in coverage also have higher odds of using price-conscious cost-cutting strategies such as comparison shopping and buying in bulk through the mail. Health plans that provide some coverage after patients reach the spending threshold of $2250 may prevent medication underuse.

CURRENT AND FUTURE TRENDS IN THE GROWTH OF HOSPITALISTS IN CALIFORNIA E.E. Vasilevskis[1]; R.J. Knebel[1]; R.M. Wachter[1]; A.D. Auerbach[1]. [1]University of California, San Francisco, San Francisco, CA. *(Tracking ID # 189476)*

BACKGROUND: The number of hospitalists is growing rapidly, even though managed care – one of the field's major initial stimuli – is abating in California. There are few data which examine the current factors responsible for the continued growth and utilization of hospitalists.
METHODS: Via email, telephone, and fax we surveyed hospital leaders (e.g chief medical officer) at all non-federal, general acute care hospitals in California (N=326) about whether and how they employed hospitalists. Surveys were performed between 2006 and 2007. For purposes of the survey, a "hospitalist" was defined as a doctor whose majority of work is in the care of hospitalized patients. We asked hospital leaders to indicate: 1) if they had a hospitalist service, 2) if yes, the year they started the service and, 3) if yes, factors influencing the decision to implement the hospitalist service (e.g. cost/efficiency, care for patients without a primary doctor or uninsured, primary care physician demand, patient satisfaction, 24-hour coverage, quality measure performance). We collected data regarding other potential predictors of hospitalist service implementation (such as bed count, teaching status) from California Office of Statewide Health Planning and Development hospital utilization files (2006); we also flagged those hospitals involved in the voluntary California Hospital Assessment and Reporting Taskforce (CHART) quality reporting project. We used multivariable logistic regression to identify hospital factors associated with the presence of hospitalists at the time of the survey. Next, to capture recent trends, we divided the hospital leader cited factors associated with implementation into three time periods: 1) before 2002, 2) between 2002–04, and 3) 2005 or later. We then used tests of trend to examine recent changes in factors cited by hospital leaders influencing hospitalist introduction.
RESULTS: 54% (N=175) of hospitals in California responded to the survey. Respondent hospitals were similar to non-respondents among all characteristics, except for fewer responses from for-profit hospitals (15% vs. 29%). 63% of hospital leaders identified the presence of at least one hospitalist group within their hospital. 59% expected continued growth in the number of hospitalists, and none expected to decrease or eliminate their hospitalist service. Among hospitals without a hospitalist program, 44% stated one would be introduced within 5 years. In multivariable models, increasing number of hospital beds (each increase in 50 beds, OR=1.6, 95% CI 1.1–2.4) as well as participation in CHART (OR=3.0, 95% CI 1.3 – 6.7) were independently associated with having a hospitalist service in 2006–07. Among recently implemented programs, the need for 24 hour coverage (P-trend=0.05) was associated with implementation, while quality improvement goals were of borderline significance (P-trend=0.09).
CONCLUSIONS: There is widespread use of hospitalists in California, especially among larger hospitals and those participating in a voluntary quality reporting initiative. Continued growth appears likely. From the perspective of hospital leaders, the need to provide 24 hour coverage and for quality improvement are strong rationales for sustaining and growing hospitalist groups, even as cost pressures have ebbed.

CURRICULA FOR CLINICAL PRACTICE GUIDELINES IN US INTERNAL MEDICINE RESIDENCY PROGRAMS: A NATIONAL SURVEY STUDY E.A. Akl[1]; R.A. Mustafa[1]; M.C. Wilson[2]; A. Moheet[3]; H.J. SchüNemann[4]. [1]University at Buffalo, Buffalo, NY; [2]University of Iowa, Iowa City, IA; [3]ViaHealth, Rochester, NY; [4]McMaster University, Buffalo, NY. *(Tracking ID # 190377)*

BACKGROUND: Research has shown that implementing clinical practice guideline (CPGs) improves patient outcomes for a number of diseases. At the residency level, teaching CPGs can help achieving 3 of the 6 general competencies defined by the Accreditation Council for Graduate Medical Education (ACGME) outcome project: patient care, medical knowledge and practice-based learning and improvement. The objective of this study was to determine the characteristics of curricula to teach CPGs in Internal Medicine residency programs in the US and the barriers to teach CPGs.
METHODS: We conducted a national survey of directors of Internal Medicine residency programs in the US. We based the survey questionnaire on the ACGME definition of curriculum. We mailed program directors the initial invitation to participate in the survey in April 2007. We included a non-monetary incentive consisting of a Jeopardy-like game to teach CPGs in a Microsoft PowerPoint file format. We sent a follow up mail and a follow up fax respectively 5 and 9 weeks after the initial invitation.
RESULTS: The survey response rate was 51% (195 out of 383). The table below shows the detailed results. 15% of programs reported having written goals and objectives; the mostly taught aspect was the content of specific CPGs (74%); the mostly used educational activity was didactic sessions (69%); and about 40% of programs conducted no evaluation. The mostly reported barrier to teaching CPGs was time constraints on faculty (54%). Both female sex and a higher number of years as program director were consistently associated with positive curricular characteristics.
CONCLUSIONS: Curricula to teach CPGs in US Internal Medicine residency programs could be better defined and developed in terms of scope, educational activities, and evaluation. Time constraints on faculty are the major barrier to teaching CPGs.

Characteristics of curricula to teach CPGs in Internal Medicine residency programs in the US and the barriers to teach CPGs

Goals and objectives	
Yes	9(14.9%)
Aspects of CPGs taught	
Content of specific CPGs	144(73.8%)
Identifying and locating CPGs	119(61.0%)
Critical appraisal of CPGs 92(47.2%)	92(47.2%)
How to deal with conflicting CPGs	45(23.1%)
None	25 (12.8%)
Other	5(2.6%)
Educational activities to teach the content of CPGs	
Didactic sessions	135(69.2%)
Journal club	119(61.0%)
Making texts of CPGs available	103(52.8%)
Interactive sessions	71(36.4%)
Audit and feedback to residents	64(32.8%)
Self-audit by residents	40(20.5%)
Educational games	34(17.4%)
None	18 (9.2%)
Other	10(5.1%)
Evaluation of the teaching of CPGs	
None	79 (40.5%)
Objective assessment of knowledge	72(36.9%)
Auditing of adherence	67(34.4%)
Assessment of attitude	22(11.3%)
Assessment of satisfaction	17(8.7%)
Other	8(4.1%)

DECISION MODELING TO GUIDE THE USE OF BARIATRIC SURGERY FOR THE TREATMENT OF MORBID OBESITY D.P. Schauer[1]; D.E. Arterburn[2]; E. Livingston[3]; D. Fischer[1]; M.H. Eckman[1]. [1]University of Cincinnati, Cincinnati, OH; [2]University of Washington, Seattle, WA; [3]University of Texas Southwestern, Dallas, TX. *(Tracking ID # 190623)*

BACKGROUND: The only treatment proven to be efficacious for long-term sustained weight loss for morbid obesity is bariatric surgery, and the use of bariatric surgery for morbid obesity has increased to approximately 205,000 procedures per year in the United States. However, bariatric surgery is associated with significant risks. Our objective was to create a decision analytic model to estimate the balance between treatment risks and benefits for patients with morbid obesity.
METHODS: We developed a decision-analytic Markov state transition model to evaluate two clinical strategies: bariatric surgery for morbid obesity versus no surgical treatment of morbid obesity. The model incorporates a 30-day cycle length and a lifelong time horizon. Logistic regression models were developed to calculate the in-hospital mortality risk associated with bariatric surgery, controlling for age and gender using data from the 2005 National Inpatient Survey and then adjusted for 30-day mortality. Excess mortality associated with obesity was calculated using the 1986–2000 National Health Interview Survey linked to the National Death Index and stratified by age, gender and body mass index (BMI). Bariatric surgery was assumed to influence mortality only through its impact on the excess mortality associated with obesity and the efficacy of surgery was estimated from a recent large observational trial. The decision model was constructed using Decision Maker® and all results were evaluated as changes in life expectancy.
RESULTS: Our base case, an average 40 year-old female with a BMI between 40 and 45, gained an additional 2.1 years of life expectancy with bariatric surgery. The treatment decision changed in our base case when the surgical mortality exceeded 5.3% (baseline risk= 0.14%) or when the efficacy of bariatric surgery decreased to 2% or less (baseline efficacy=53%). A similar woman with a BMI greater than 45 would gain 2.7 additional years of life expectancy with bariatric surgery. For the average 60 year-old female with a BMI between 40 and 45, surgery resulted in a gain of 0.9 years of life expectancy and the treatment decision changed when the surgical risk exceeded 4.5% (baseline risk=0.64%) or when the efficacy of surgery decreased to 8% or less (baseline efficacy=53%). A 40 year-old male with a BMI between 40 and 45 would gain 2.0 additional years of life expectancy. The treatment decision changed when the risk from surgery exceeded 6.1% (baseline risk=0.34%) or when the efficacy of bariatric surgery decreased to 3% or less (baseline efficacy =53%). For both female and male patients with a BMI between 40 and 45, the expected benefit of surgery decreases with increasing age until surgery is harmful at age 78 for females and age 68 for males.
CONCLUSIONS: The optimal decision for individual patients varies based on the balance of risk between perioperative mortality, excess annual mortality risk associated with increasing BMI, and the efficacy of surgery; however, for the average morbidly obese patient, bariatric surgery improves life expectancy. Younger patients have a lower surgical risk and greater time to realize the benefits leading to greater increases in life expectancy. The expected benefit from bariatric surgery decreases as age and surgical risk increase.

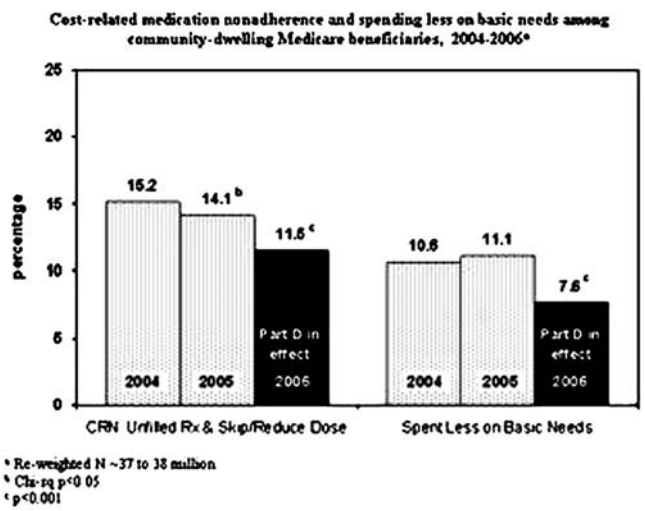
DECISION-MAKING AROUND BREAST CANCER TREATMENT AMONG WOMEN AGED 80 AND OLDER M.A. Schonberg[1]; R.A. Silliman[2]; E.R. Marcantonio[1]. [1]Beth Israel Deaconess Medical Center, Brookline, MA; [2]Boston University, Boston, MA. *(Tracking ID # 189803)*

BACKGROUND: Many studies have demonstrated that older women do not receive as aggressive treatment for breast cancer as younger women yet few studies have examined older women's treatment decision-making.
METHODS: To examine breast cancer treatment decision-making among women aged 80+ we performed a cohort study using the online medical record at one large academic medical center and two community health centers in Boston. We examined the charts of all 2,203 women aged 80+ who received their primary care (defined by having at least 2 notes from one primary care physician) at one of these centers between 1994 and 2004 and we followed these women through 12/07. We identified all women who were diagnosed with breast cancer (n=64) since turning aged 80. Since we anticipated that a history of breast cancer would affect decision-making, we focused our analyses on the 47 women with new primary breast cancers. We abstracted data on mode of detection, tumor characteristics, treatments recommended and received, patient preferences, family member involvement, and course of disease. We defined standard treatment for invasive breast cancer as receiving lumpectomy/mastectomy, radiation (XRT) after lumpectomy, and hormonal therapy (HT) for estrogen receptor (ER) positive tumors. A Charlson comorbidity score was calculated for each patient at diagnosis and deaths were confirmed through 2005 using the National Death Index.
RESULTS: Median age of the 47 women was 84 years (range 80–95), median Charlson score was 2, and median follow up since diagnosis was 4 years. One-third (n=16) were detected by screening mammography, 11 by physician exam, and in 20 cases the patient noted symptoms. Thirty-nine women had invasive cancer [stage I (29, 74%), II (9, 23%), IV (1, 3%)] and 8 had Ductal Carcinoma in Situ (DCIS). Only 6 (15%) had a lymph node dissection and were staged pathologically. Of the 39 invasive tumors, 35 (90%) were ER+ (1 was mucinous, 3 were ER -). Only 9 of 39 women (23%) received standard treatment: 16 (41%) refused at least one standard treatment (9 refused XRT, 4 refused HT, and 3 refused surgery); physicians did not recommend a standard treatment in 7 cases (18%); patient and doctor decided together against a standard treatment in 2 cases; acute illness or unrelated death prevented standard treatment in 2 cases; and side effects caused 2 women to stop HT early and 1 to stop XRT. Among women with DCIS, 2 refused a recommended therapy (1 for surgery and 1 for XRT). Reasons for treatment refusals included age, comorbidity, fear of side effects, and preserving quality of life. Reasons for not recommending a treatment included patient comorbidity and age. Family member involvement in decision-making was documented in 24 of 47 cases (51%). Of the 39 women with invasive cancer, 22 (56%) died by the end of the study; 3 (14%) of breast cancer. Of these, one had ER negative disease and did not get XRT due to stroke; one had 16+ nodes at diagnosis and received standard treatment but did not receive chemotherapy since she was concurrently diagnosed with colon cancer; and one was found to have metastatic breast cancer at diagnosis. None of the 3 women who died had recent screening mammograms. Half of the women with DCIS died by the end of the study (none from breast cancer).

CONCLUSIONS: Among women aged 80+ diagnosed with new primary breast cancer few receive standard therapy which may be based more on patient preference than physician bias. Competing illnesses account for the majority of deaths.

DECLINES IN COST-RELATED MEDICATION NONADHERENCE AND IN FORGOING BASIC NEEDS FOLLOWING MEDICARE PART D
J.M. Madden[1]; A.J. Graves[1]; F. Zhang[1]; A.S. Adams[1]; B.A. Briesacher[2]; D. Ross-Degnan[1]; J.H. Gurwitz[3]; M. Pierre-Jacques[1]; D.G. Safran[4]; G.S. Adler[5]; S.B. Soumerai[1]. [1]Harvard University, Boston, MA; [2]University of Massachusetts Medical School (Worcester), Worcester, MA; [3]University of Massachusetts Medical School, Worcester, MA; [4]Tufts University, Boston, MA; [5]Centers for Medicare and Medicaid Services, Baltimore, MD. *(Tracking ID # 190525)*

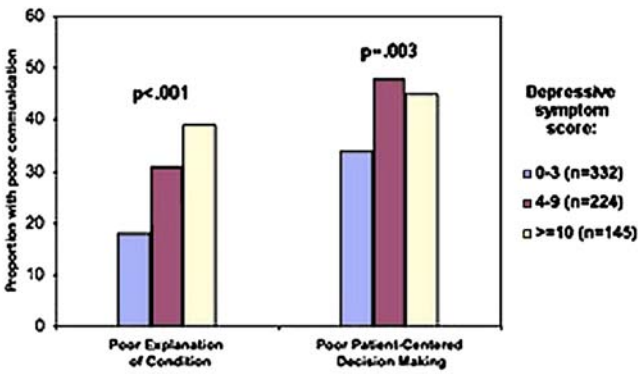
BACKGROUND: Cost-related medication nonadherence (CRN) has been a serious, persistent problem for the health of elderly and disabled Americans. The impact of Medicare prescription drug coverage (Part D) in 2006 on CRN is unknown. The objectives of our study were to measure changes in CRN and forgoing basic needs to pay for drugs following Part D implementation.
METHODS: This intent-to-treat design compared changes in study outcomes from 2005 to 2006 relative to changes in a historical comparison group (2004–2005). Logistic regression analyses included the community-dwelling sample of the nationally representative Medicare Current Beneficiary Survey (MCBS, unweighted n=24,234), and controlled for baseline demographic characteristics, health status, drug coverage, and interview sequence. The main outcomes measures were MCBS reports of cost-related nonadherence (skipping or reducing doses, not obtaining prescriptions) and spending less on basic needs in order to afford medicines.
RESULTS: Unadjusted prevalence of CRN decreased from 14.1% in 2005 to 11.5% after Part D; spending less on basic needs dropped from 11.1% to 7.6%. (See Figure.)Adjusted analyses comparing 2006 to 2005, controlling for historical changes (2004–05), found relative decreases in odds ratios of 14.9% for CRN and 41.6% for spending less on basic needs [95% CIs: 0.74–0.98; 0.48–0.72, respectively; see Table]. Comparison of continuous cohorts (a pre- and post-Part D cohort versus an historical cohort) found that the odds of CRN declined 26.5% after Part D, and the odds of spending less on basic needs declined 48.2%, relative to historical changes [95% CIs: 0.60–0.90; 0.39–0.69, respectively]. In subgroup analyses, declines in CRN and forgoing basic needs were statistically significant among the elderly, but not among the non-elderly disabled.



CONCLUSIONS: Early MCBS data show decreases in CRN following Part D implementation that were modest in absolute terms (<4%), but substantial relative to baseline prevalence. More research is needed to understand how specific Part D benefits contributed to these declines and whether they endure.

DEPRESSION AND DOCTOR-PATIENT COMMUNICATION IN PATIENTS WITH STABLE CORONARY HEART DISEASE: DATA FROM THE HEART AND SOUL STUDY
Y. Schenker[1]; A. Stewart[1]; M.A. Whooley[1]. [1]University of California, San Francisco, San Francisco, CA. *(Tracking ID # 189668)*

BACKGROUND: Doctor-patient communication is considered an important marker of healthcare quality in patients with chronic disease. Little is known about the extent to which individual patient characteristics influence their perceptions of doctor-patient communication.
METHODS: In a cross-sectional study of 703 outpatients with stable coronary heart disease, we evaluated the extent to which patient perceptions of doctor-patient communication were influenced by demographic characteristics, comorbidities, cardiac disease severity, and depressive symptoms. We assessed perceived doctor-patient communication using the Explanations of Condition and Patient-Centered Decision Making subscales from the "Interpersonal Processes of Care" instrument. Participants indicated the frequency with which doctors (for example) provided enough information about their health problems, or (another example) involved the patient in treatment decisions. Poor doctor-patient communication was defined as a score of <=3 (range 1 to 5) on either subscale. All patients completed the 9-item Patient Health Questionnaire (PHQ) for measurement of depressive symptoms and underwent an extensive evaluation of cardiovascular risk factors and disease severity.
RESULTS: In univariate analyses, the following patient characteristics were associated with poor doctor-patient communication on one or both subscales: female sex, current smoking, alcohol use, and depressive symptoms. Measures of cardiac disease (left ventricular ejection fraction, inducible ischemia) and comorbidities (hypertension, diabetes, heart failure) were not associated with perceived doctor-patient communication. After adjusting for age, sex, ethnicity, education, income, hypertension, and diabetes, each standard deviation (5.4-point) increase in depressive symptom score was associated with a 53% greater odds of poor Explanations of Condition (OR 1.53, 95% CI, 1.28–1.84; p <0.001) and a 33% greater odds of poor Patient-Centered Decision Making (OR 1.33, 95% CI, 1.13–1.58; p=0.001).
CONCLUSIONS: In outpatients with coronary heart disease, depressive symptoms are strongly associated with perceived deficits in doctor-patient communication. In contrast, comorbidities and severity of medical illness are not. These data raise questions about whether patient perceptions of doctor-patient communication more accurately reflect the psychological state of the patient or the quality of care received.



DEPRESSION TRAJECTORIES PREDICT MEDICAL BURDEN OUTCOMES IN OLDER PRIMARY CARE PATIENTS
R. Drayer[1]; X. Tu[2]; W. Tang[2]; X. Cui[3]; J.M. Lyness[2]. [1]Rochester VA Outpatient Clinic, Rochester, NY; [2]University of Rochester School of Medicine and Dentistry, Rochester, NY; [3]Canandaigua VA Medical Center, Canandaigua, NY. *(Tracking ID # 189285)*

BACKGROUND: Older adults in primary care frequently have depression in addition to multiple chronic medical conditions. Medical illness worsens the prognosis of depression, and vice versa. Furthermore, medical illness burden at one point in time can predict the subsequent

trajectory of depression severity. Less is known, however, about whether depression severity can predict subsequent medical burden outcomes.
METHODS: In this 2-year observational study, 709 patients over the age of 65 years were recruited from internal medicine and family practice offices in the Rochester area. Semi-structured research interviews were conducted at six-month intervals, and medical chart reviews were performed annually. Depression was assessed with the Structured Clinical Interview for DSM-IV (SCID). Weekly changes in depression severity were measured with the Longitudinal Interval Follow-up Evaluation (LIFE). The Cumulative Illness Rating Scale (CIRS) was used to quantify overall medical burden. Depression trajectories were calculated using cluster analysis, and generalized linear modeling was used to determine predictors of medical burden outcome.
RESULTS: The 327 patients who completed follow-up assessments yielded six distinct trajectories of depression severity over time. Compared to patients whose depression improved or remained the same, patients whose depression worsened had worse outcomes of their general medical conditions, even after controlling for age, gender, baseline medical burden, history of depression, and antidepressant use.
CONCLUSIONS: Depression trajectories predict medical burden outcomes. Further research is necessary to elucidate the mechanisms of this association. Elderly patients with worsening depression should be followed closely so that potential medical problems may be detected at an early stage.

DEPRESSIVE SYMPTOMS IN HEART FAILURE: VALIDITY AND RELIABILITY OF THE PHQ-8 U. Subramanian[1]; S.M. Perkins[2]; J. Kim[3]; Y. Ding[4]; S.J. Pressler[3]. [1]Roudebush VAMC and Indiana University School of Medicine, Indianapolis, IN; [2]Indiana University School of Medicine and Regenstrief Institute, Inc., Indianapolis, IN; [3]Indiana University School of Nursing, Indianapolis, IN; [4]Division of Biostatistics, Indiana University, Indianapolis, IN. *(Tracking ID # 189888)*

BACKGROUND: Depression and depressive symptoms are highly prevalent among patients with chronic heart failure (HF). Currently available measures for depression in HF although valid, are not easy to use especially in routine primary care. Our objective was to evaluate the construct validity and reliability of a brief measure of depressive symptoms, the Patient Health Questionnaire – 8 (PHQ-8), among patients with chronic HF.
METHODS: The data were collected as part of a larger study designed to evaluate health-related quality of life and cognitive functioning among persons with HF. 150 participants with both a diagnosis of chronic HF and objective documentation of systolic dysfunction were recruited from five outpatient (County, University, Heart failure) clinic sites in the Midwest. Patients completed the PHQ-8, the Living with Heart Failure Questionnaire (LHFQ) and the New York Heart Association functional class during face-to-face interviews. The PHQ-8 is an 8-item questionnaire with 4-point response scales designed to measure depressive symptoms. The NYHA is a commonly used clinical measure to assess functional status in HF. The LHFQ is a 21-item questionnaire with 5-point response scales; higher scores indicate poorer quality of life. The LHFQ has a 5-item emotional subscale that was used in this analysis. To evaluate construct validity, factor analysis was completed using principal components analysis with Varimax rotation. Two factors were requested based on the PHQ-8 items measuring both the emotional and somatic dimensions of depressive symptoms. Construct validity was further evaluated by 1) Pearson's correlation coefficients to examine differences between the PHQ-8 and the LHFQ total and physical and emotional subscale scores and 2) ANOVA to examine differences in the PHQ-8 scores among patients with varying severity of HF using NYHA classifications. Cronbach's alpha coefficient was computed for the PHQ-8 to estimate internal consistency reliability.
RESULTS: The sample was comprised of 88 (59%) men and 62 (41%) women, 67% white and 31% African American with a mean PHQ score of 6.8 (SD=5.5, range 0 to 24). Factor analysis of the PHQ-8 supported 2 factors (emotions, 4 items; somatic, 3 items) which accounted for 59% of the variance. One item loaded on both factors. Construct validity was further supported by the correlations between the PHQ-8 scores and the LHFQ total and subscale scores. The magnitude of the correlations was strongest between the PHQ-8 and the LHFQ Emotional Subscale ($r=0.68$, $p<0.0001$), followed by the LHFQ Total Scale ($r=0.67$, $p<0.0001$) and the Physical Subscale ($r=0.62$, $p<0.0001$). Patients with more depressive symptoms had significantly poorer health-related quality of life. Differences in the PHQ-8 scores in the expected direction were found by NYHA; persons with more severe HF and functional limitations had significantly more depressive symptoms ($F=16.34$; $p<0.0001$). Cronbach's alpha for the PHQ-8 was 0.83.
CONCLUSIONS: The PHQ-8 demonstrated satisfactory construct validity and internal consistency reliability among patients with HF, and our study supports its use as a measure of depressive symptoms in this population. Moreover, the PHQ-8 is a brief, clinically feasible questionnaire, and thus is ideally suited to the HF population, particularly due to their increased fatigue and decreased attention, and concentration.

DETECTING PATIENT SAFETY ISSUES IN PERSONS WITH SEVERE MENTAL ILLNESS DURING MEDICAL AND SURGICAL HOSPITALIZATIONS G.L. Daumit[1]; J.H. Hayes[1]; D.E. Ford[1]; L.M. Dixon[2]; P.J. Pronovost[1]; D.M. Steinwachs[1]; J. Skapik[1]; R.T. Boonyasai[1]; D. Thompson[1]. [1]Johns Hopkins University, Baltimore, MD; [2]University of Maryland at Baltimore, Baltimore, MD. *(Tracking ID # 190816)*

BACKGROUND: Persons with severe mental illness (SMI) comprise a vulnerable population with a high prevalence of medical comorbid conditions; these individuals die 25 years earlier on average than the general population, primarily from medical causes. Persons with SMI may be at high risk for adverse events during non-psychiatric hospitalizations. We developed and piloted an instrument targeted to detect adverse events during medical and surgical hospitalizations for persons with SMI.
METHODS: We developed a medical record abstraction tool to assess patient safety events, contributing factors and harm in medical and surgical hospitalizations for persons with SMI. Domains incorporate relevant patient factors (e.g., mental health status, social support) and provider factors (e.g., psychiatric consultation, communication.) A multidisciplinary team of internists, psychiatrists, and critical care physician and nurse specializing in patient safety developed the tool. For the pilot, we trained 5 community utilization review nurses, and they participated in interrater reliability testing with 4 reviewers from the research team. Each chart was independently reviewed by at least two reviewers and adjudicated. Reviewers coded patient safety events for each separate occurrence of an issue during a hospitalization (e.g., 3 medications inappropriately not continued on admission = 3 events). We piloted medical records sampled from 400 adult Maryland Medicaid recipients with SMI identified as having at least two hospitalizations in the state during 1994–2004.
RESULTS: We reviewed 74 hospitalizations for 32 patients. Mean patient age was 53 years; 81% of patients were female, 69% African American. Eighty% of hospitalizations were on medical services. The overall kappa for all instrument fields was 0.79; the patient safety events kappa was 0.43. We found 540 patient safety events, a mean of 7.3 (SD 6.6) per hospitalization. The most common safety events were medication-related (14% of all events, 70% of hospitalizations had at least 1) or related to general patient care such as incomplete or incorrect treatment (14% of all events, 61% of hospitalizations had at least 1). Readmissions, unanticipated transfer to ICU or unanticipated surgery comprised 6% of events affecting 28% of hospitalizations. Patient safety events also included falls in 11% of hospitalizations, nosocomial infections in 11% and surgical complications in 8%. Provider factors such as miscommunication (13% of events) and not following protocols (17%) may have contributed to patient safety problems. Patient's mental status or nonadherence to recommendations were thought to contribute to 18% of events. We categorized 24% of events as resulting in a physical injury and 31% as resulting in increased health care utilization.
CONCLUSIONS: Pilot testing of this patient safety tool in a statewide sample of hospitalizations showed high overall interrater reliability among reviewers, and moderately high interrater reliability for coding patient safety events, consistent with other patient safety work. We found a high prevalence of adverse events during medical and surgical hospitalizations for persons with SMI, particularly medication-related events. These elevated rates of safety issues highlight the importance of identifying quality of care problems for this vulnerable population. The results also suggest greater attention to medication prescribing and provider communication may prevent harm for persons with SMI.

DETERMINANTS OF AFRICAN AMERICANS' DISTRUST IN HEALTH CARE E. Jacobs[1]; I. Rolle[2]; R.B. Warnecke[2]; C.E. Ferrans[2]. [1]Stroger Hospital of Cook County & Rush University Medical Center, Chicago, IL; [2]University of Illinois at Chicago, Chicago, IL. *(Tracking ID # 190395)*

BACKGROUND: Distrust of health care is one of the many factors that contributes to health disparities among African Americans. There is little empirical research that has investigated the contributors to distrust in health care in this population. The objective of this study was to understand the relationship between distrust in health care, sociodemographic factors, physician trust, discrimination and previous negative experiences of health care in this population.
METHODS: We surveyed 265 self identified African American adults seeking care at a large public hospital clinic or who were affiliated with a community based organization in the City of Chicago. Respondents completed the African American Trust in Health Care Scale (AATHCS), the Trust in Physician scale, a measure of day to day experiences of discrimination, and a measure of major life experiences of discrimination, provided sociodemographic information, and answered questions about negative experiences in health care in the past 5 years. We conducted regression analyses in STATA to examine the relationship between averages scores on the AATHCS and demographic factors, physician trust, discrimination, and previous negative experiences in health care.
RESULTS: In adjusted analyses, age, income, perceived discrimination, and previous negative experiences in health care were significantly associated with lower trust in health care. Individuals 40–50 years of age were less trusting than those younger than 40 years ($p=0.03$). Participants making $40,000/year or more were less trusting than individuals making less than $10,000 ($p<0.01$). Individuals with higher scores on the day to day life experiences racism scale ($p<0.01$) and major life experiences racism scales ($p<0.01$), and those reporting previous negative health care experience ($p=0.03$) had higher distrust scores. Gender, education, marital status, and physician trust were not significantly related to distrust in health care.
CONCLUSIONS: The findings provide insight into the determinants of distrust in health care among African Africans. Identifying these determinants is the first step towards understanding how best to reduce that distrust and what sub-groups within the population might benefit most from intervention.

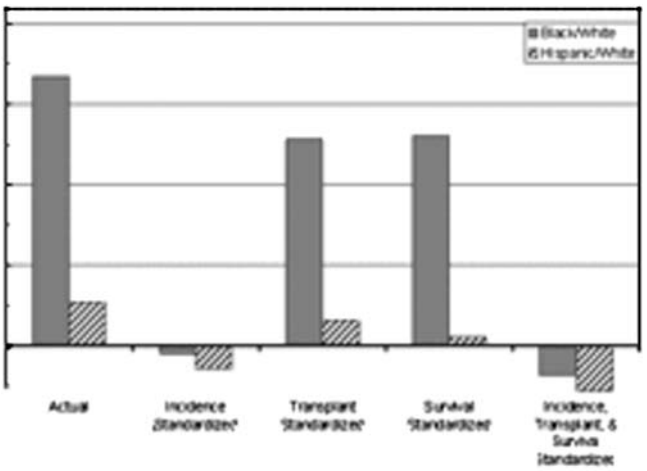
DETERMINANTS OF BLOOD PRESSURE UNCERTAINTY: A PRELIMINARY MODEL M.M. Hogan[1]; J. Forman[1]; M. Bermann[2]; T.P. Hofer[1]; M.L. Klamerus[3]; E.A. Kerr[4]. [1]VA Ann Arbor Healthcare System, Ann Arbor, MI; [2]John D. Dingell VA Medical Center and the Department of Internal Medicine, Wayne State University, Detroit, MI; [3]Ann Arbor VA Center for Clinical Management Research, Ann Arbor, MI; [4]Ann Arbor VA COE, Ann Arbor, MI. *(Tracking ID # 190603)*

BACKGROUND: We used qualitative data from study site interviews to propose a model of conditions leading to uncertainty about a patient's "true" blood pressure (BP). Failure to act in the face of an elevated blood pressure (BP) has been considered clinical inertia, but may instead be uncertainty about BP. We conducted a multi-site mixed-methods study of BP management among patients with diabetes who had an elevated BP. Quantitative analyses suggested that variables indicative of (un) certainty about the patient's "true" BP were related to change in BP management. We used data from interviews to better understand the concept of BP uncertainty.
METHODS: Four trained interviewers conducted semi-structured interviews with 80 personnel among the nine study sites. Interviews addressed topics such as clinic operations, BP measurement, BP management resources, home monitoring, and obtaining medications. The analysis team reviewed transcripts, prepared site summaries, and discussed findings. Concepts derived from participant statements and team discussions provided the basis for the model.
RESULTS: Many clinicians reported retaking elevated triage blood pressures but apparently accepting normal BPs. "If the blood pressure's below 140, I'm sure it's in normal range, but if it's elevated, I always do it myself." Normal BP findings seem to prevail over uncertainty; clinicians tend to seek, believe and use normal BPs. When presented with an elevated BP, the clinician looks at home and previous BPs and may accept the elevated BP when other information is similar: "We'll see if their blood pressures at home are significantly different"; "I usually look at the trends." However, inconsistency between an elevated BP and other information results in uncertainty, and an elevated BP may only be accepted when the clinician is certain about the specific elevated BP. Blood pressures "are high this time but they were 128 last time when the patterns are not totally consistent, that makes providers hesitate."Interviews further suggested that certainty about a specific BP measure requires 1) confidence in or knowledge of the circumstances under which the blood pressure was taken: "patient has (not)walked a half a mile from parking lot,", 2) confidence in the skills of the operator, that is, the person taking the BP, either staff, patient, or self: "we had one LPN we felt her readings were inaccurate", and 3) confidence in the equipment: "There's a lot of inconsistencies in the electronic BP readings." If uncertainty cannot be resolved at the visit, e.g., by retaking BPs, clinicians may be reluctant to act until sufficient home or clinic measurements are obtained to be certain that the BP is truly elevated.
CONCLUSIONS: Certainty about BP is a characteristic of both specific BP measures (requiring confidence in circumstances, the operator, and the equipment) as well as trends (consistency in measures over time). It is interesting that an elevated BP values may cause uncertainty while normal values are accepted. Health care personnel seem largely unaware of bias towards accepting low BP values. It is likely that if uncertainty cannot be resolved during a clinical visit, further information is sought before changing treatment. The proposed model would benefit from further evaluation using qualitative and quantitative methods. Detailing how uncertainty operates is a step towards reducing uncertainty and developing clarity about how to use BP measures for treatment decisions.

DETERMINANTS OF RACIAL/ETHNIC DISPARITIES IN DIALYSIS, THE CONTRIBUTION OF DISPARITIES IN INCIDENCE, TRANSPLANTATION AND SURVIVAL M. Weden[1]; R. Vargas[2]; C. Setodji[3]; K. Norris[4]. [1]RAND, Santa Monica, CA; [2]University of California, Los Angeles, Los Angeles, CA; [3]RAND Health, Santa Monica, CA; [4]Charles R. Drew University of Medicine and Science, Los Angeles, CA. *(Tracking ID # 190849)*

BACKGROUND: Racial and ethnic disparities in end stage renal disease (ESRD) treated with dialysis are influenced by differences in incidence, mortality and likelihood of transplantation. As most new cases are due to preventable and treatable diseases and transplantation eliminates the need for dialysis, we examine the contribution of disparities in incidence, transplantation and mortality on the prevalence of dialysis in the U.S.
METHODS: We examine point prevalent cases of ESRD among Black, White and Hispanic persons on dialysis in 2003 that developed ESRD after 1993. Data sources include the United States Renal Data System (USRDS) and the U.S. Census for 1993 through 2003. Demographic standardization techniques are used to examine how differences between Blacks and Whites and Hispanics and Whites in the incidence of ESRD over the period 1993–2003, the likelihood of transplantation and survival of patients on dialysis contribute to disparities in the prevalence of patients treated with dialysis in 2003
RESULTS: We observe 302,378 prevalent cases of ESRD who were undergoing dialysis in 2003 and diagnosed after 1993 (95% of the total dialysis cases in 2003). The numbers of Blacks on dialysis were over four times larger than Whites (2,900.0 per 1,000,000 versus 667.1 per 1,000,000), and rates for Hispanics (1023.5 per 1,000,000) were 1.5 times larger than Whites. Standardization showed that the difference in ESRD incidence between minorities and Whites has the largest effect on the rates of dialysis. Dialysis rates among Blacks were reduced by 80% and among Hispanics by 54% when the respective age-race-sex-year-specific incident rates of ESRD in each group are standardized to White rates. Disparities are reversed after incidence-standardization (Figure 1). For Hispanics, disparities are also nearly eliminated when survival is standardized to that of Whites. The impact of transplantation on dialysis disparities reduced rates by 14% among Hispanics and 18% among Blacks. By standardizing for all three factors simultaneously, the rates of persons requiring dialysis are reduced by 85% for Blacks and 72% for Hispanics. Overall, the combined effect of eliminating disparities in incidence of ESRD, likelihood of transplantation, and survival would reduce the total prevalence of dialysis in the US population by about 45%.
CONCLUSIONS: Elimination of racial and ethnic differences in incidence, survival and transplantation has varied effects on disparities in the need for dialysis. Combined they are reposnsible for nearly half of all

US dialysis cases. Understanding the contribution of specific disparities to the overall burden of disease may aid in developing and encouraging support for interventions to eliminate modifiable causes of racial and ethnic disparities in ESRD prevalence



Relative Differences in the Prevalence of Dialysis: Rate Ratios Standardized to White Age-specific Incidence, Transplant and Survival Rates

DETERMINANTS OF USE OF AND ACCESS TO HEALTH CARE IN A HOMELESS POPULATION IN SAN FRANCISCO R. Brown[1]; M. Kushel[1]. [1]University of California, San Francisco, San Francisco, CA. *(Tracking ID # 190768)*

BACKGROUND: The average age of homeless adults is increasing; while 1/10 of homeless adults were aged 50 or older in the early 1990s, 1/3 were in the early 2000s. Homeless health care services have focused on meeting the health care needs of younger homeless populations (acute injuries, infections and substance abuse), which may differ from those of older homeless individuals (chronic disease, geriatric conditions). We investigated demographics, health care use and health care needs in a sample of homeless adults to determine if these differ by age.
METHODS: We administered a questionnaire to a random sample (N= 648) of adult attendees (N=2175) of a homeless outreach event, assessing use of and access to health care in the prior year. We asked participants if they had a regular place where they received health care other than the Emergency Department (ED); if they had a regular health care provider; if they were unable to obtain needed health care; if they had visited the ED or been admitted to the hospital for a physical or emotional problem; and if they had health insurance. We analyzed bivariate rates dichotomizing on age: 50 versus <50. We used multivariate models to determine predictors of health care use and health care access.
RESULTS: 224 (39.9%) of the sample were aged 50 or over. Participants aged 50 and older were significantly more likely than those younger than 50 years to have a regular place for health care (72.8 vs. 51.3%, P< 0.0001), to have a regular health care provider (65.6 vs. 43.3%, P< 0.0001), and to have health insurance (54.5 vs. 38.8%, P<.001). Older participants were significantly less likely to be unable to obtain needed health care (21.0 vs. 29.9%, P<0.05). There were no significant differences between the two age groups in rates of ED visits (46.1% vs. 42.3%), hospital admissions for physical problems (23.7% vs. 25.5%), or in rates of self-reported fair or poor health status (58.5 vs. 52.8%, P= 0.23). In a multivariate analysis of inability to obtain needed health care, after adjustment for age, gender, race and insurance status, only lack of health insurance predicted inability to obtain needed care (AOR 2.9, CI 1.76–4.8). Age was not significantly associated. Age was not associated with use of acute medical services (ED visit or hospital admission) during the previous year.
CONCLUSIONS: Increasing proportions of homeless adults are aged 50 and older, which may change the nature of the health care needs of homeless adults. While health care access is better amongst the older (compared to younger), it is still inadequate to prevent acute health care utilization and poor self-reported health.

DEVELOPMENT AND IMPLEMENTATION OF A PRIMARY CARE-INTERNET BASED DEPRESSION PREVENTION INTERVENTION FOR ADOLESCENTS (CATCH-IT) B.W. Van Voorhees[1]; D. Paunesku[1]; N. Watson[2]; S. Melkonian[2]; N. Bradford[3]; B. Fagan[4]. [1]University of Chicago, Chicago, IL; [2]University of Chicago, General Internal Medicine, Chicago, IL; [3]Anderson Area Medical Center, Anderson, SC; [4]Mission Hospitals, Ashville, NC. *(Tracking ID # 190179)*

BACKGROUND: Prevention of depression in adolescence has emerged as an key public health goal in the United States and other developed countries. Face-to-face interventions led by mental health professionals may reduce risk. However, low cost, easily disseminated and culturally acceptable interventions are needed
METHODS: We developed a low cost primary care/Internet based depression prevention intervention for adolescents ages 14–21 based on face-to-face interventions of demonstrated efficacy using a product design team of researchers and near-peer emerging adults. The team used instructional design and vicarious learning theory to develop the intervention. We conducted an initial implementation process evaluation with physicians and adolescents. We recruited 33 physicians at 13 primary care sites in four health systems to evaluate and implement the intervention. We measured time on internet site and ratings of the intervention in addition to comments provided by participants.
RESULTS: Forty-seven adolescents (out of projected enrollment of 85, mean age was 17.2 years; 29% ethnic minority, and 53% male with a mean Center for Epidemiologic Studies Depression score of 21.7, enrollment rate 74%) evaluated the intervention. The CATCH-IT intervention includes an initial motivational interview (MI) in primary care to engage the adolescent, fourteen Web-based modules based on Cognitive Behavioral (activation, thought change) and Interpersonal Psychotherapy (enhance social support), and a follow-up MI in primary care to enhance behavior change. Neer peer wrote "character examples" correspond to life transitions ages 14–21 from a multiple gender, ethnic, socio-economic and family perspectives faciliate vicarious learning in each module. In terms of dose delivery, 92% of adolescent engaged the site, mean time on site was 142 (95% CI 104, 184) minutes and the mean precentage of exercises completed was 52.0% (95% CI, 37.4, 66.5). On a 1=10 scale, ratings of overall satisfaction with the physician program 7.6 (95% CI, 6.8, 8.3), overall satisfaction with the internet based component 7.6 (95% CI, 7.1, 8.1) and usefulness of this program to people my age (7.8, 95% 7.2, 8.4 CI). Comments from adolescents included gaining self-confidence in problem solving and self-management of moods and feeling greater optimism with regard to their future. The top three rated reasons for participating in a preventive intervetion were 1) "reducing depressed mood," 2) "reduce risk of major depression," and 3) "achieve goals." Physician participation ranged from 100% (4 adolescents recruited and completed) to 0% (none recruited, but study still ongoing). Nurse participation ranged from screening >90% of adolescents to <10% of adolescents. Key determinants appear to be degree of involvement of managing physicians, personal commitment by nursing staff and the level of psychosocial orientation of the practice.
CONCLUSIONS: Adolescents substantially engaged the intervention completing more than half the intervention exercises. Near-peer contribution to medical research teams may enhance the socio-cultural relevance of depression prevention interventions for adolescents. Primary care/Internet based depression prevention can be implemented in primary care settings and these settings may be well suited to engage adolescents with internet based behavior change programs.

DEVELOPMENT AND INITIAL VALIDATION OF A 3-ITEM BRIEF PAIN INVENTORY E.E. Krebs[1]; M.J. Bair[1]; T.M. Damush[1]; J. Wu[2]; J. Sutherland[3]; K. Kroenke[1]. [1]Indiana University School of Medicine/VA Center for Implementing Evidence-Based Practice/Regenstrief Institute, Indianapolis, IN; [2]Indiana University School of Medicine, Indianapolis, IN; [3]Dartmouth Medical School, Hanover, NH. *(Tracking ID # 190529)*

BACKGROUND: In primary care, pain measurement is typically limited to self-reported current pain intensity (i.e., "the fifth vital sign"). Recent

studies suggest that the single-item pain score mandated in many settings is frequently inadequate, possibly because pain is a multidimensional experience with clinically important effects on physical and emotional functioning. However, the use of multidimensional pain measures in primary care is limited by practical factors such as instrument length and scoring complexity. The Brief Pain Inventory (BPI) is a well-validated 11-item instrument that assesses two of the most important dimensions of pain: severity and functional interference. The BPI is easy to administer, score, and interpret, but is too long for routine use in primary care. Our goals were to develop an "ultra-brief" version of the BPI and to assess its reliability, validity, and sensitivity to change in a sample of patients with chronic musculoskeletal pain.
METHODS: We used data from the Stepped Care for Affective Disorders and Musculoskeletal Pain (SCAMP) trial. SCAMP enrolled 500 primary care patients with persistent (>3 months) pain of the low back, hip, or knee of at least moderate severity, 250 of whom had concurrent depression. Overall, the mean age was 59 years, 52% were women, 58% were white, and 38% were black. Participants completed the BPI, the Graded Chronic Pain Scale (GCPS), the Roland disability scale, and the SF-36 bodily pain scale. We used pre-specified criteria to guide initial item selection. In summary, we chose items with the following characteristics: 1) easy to understand and applicable to patients with all types of chronic pain; 2) good statistical characteristics (e.g., high item-total correlation, high response variability); 3) similar performance in depressed and non-depressed samples. In addition, we decided to assign greater weight to interference than to severity and to include items that represent both "physical" and "emotional" functioning. We came to consensus on a preferred 3-item scale and alternative 3 and 4-item scales, which we then evaluated statistically. We assessed reliability using Cronbach's coefficient alpha. For validity, we evaluated Pearson correlation coefficients with the parent BPI and other pain measures. The preferred 3-item scale demonstrated reliability and validity equal to or better than the alternatives.
RESULTS: Our final "ultra-brief" scale consists of the following 3 items: average pain severity, interference with general activity, and interference with enjoyment of life. The Cronbach's alpha for the 3 items was 0.73 (compared with 0.83 and 0.88 for the parent BPI severity and interference scales, respectively). The table shows construct validity data. Sensitivity to change will be assessed at 6 months (post-intervention).
CONCLUSIONS: An "ultra-brief" 3-item version of the BPI has good initial reliability and validity among primary care patients with chronic musculoskeletal pain. This practical measure may be a useful tool to improve assessment and monitoring of chronic pain in primary care.

Correlation between 3-item BPI and full pain measures

	BPI severity	BPI interference	GCPS severity	GCPS disability	Roland disability	SF-36 bodily pain
BPI-3	0.69	0.89	0.64	0.68	0.60	−0.61

DEVELOPMENT OF A COURSE FOR STUDENTS WHO FAIL A HIGH-STAKES OSCE J.F. Majdan[1]; K. Berg[1]; D.D. Berg[2]. [1]Jefferson Medical College, Philadelphia, PA; [2]Thomas Jefferson University, Philadelphia, PA. *(Tracking ID # 190601)*

BACKGROUND: Objective Structured Clinical Examinations (OSCE) are now used in almost every medical school across America to assess the clinical acumen of medical students. These OSCEs identify students with deficiencies not previously recognized in clerkships. These deficiencies require remediation. However, there are few if any curricula extant for such remediation. Based on this need, we report the development, implementatiion, and evaluation of a remedial course to assist these students who need to improve their defined clinical skills.
METHODS: We developed a 4 week clinical skills remediation course for 8 of the 224 (3.6%) students who failed a comprehensive 11 station end of third year OSCE. Seven of these students failed because of unsatisfactory data gathering skills; one student failed due to weak communication and interpersonal skills.The remedial course, which was scheduled early in their fourth year, included a review of history taking, physical examination techniques, and data synthesis skills. Methods of teaching include faculty demonstration, practice sessions with standardized patients with immediate standardized patient and direct faculty-mediated feedback. In addition, faculty meet witht the students to review and discuss the specific cases the student failed in the OSCE. As a component of this review, the student was required to develop a clinical template for clinical problems and discuss them with the faculty.The students completed a mid-course 5 station OSCE which was reviewed and discussed with course faculty. A final 5 station OSCE was administered at the end of the course. This OSCE must be passed for successful completion of the remediation course.Data from this OSCE was compared with data from the baseline comprehensive end-of-third year OSCE. Finally, each student completed a self-assessment and course evaluation survey.
RESULTS: All 8 students passed the OSCE at the end of the course and thus successfully completed the remediation course. As a subset analysis of the end of course OSCE data, the students skills in "data gathering" increased from a mean of 65% in the baseline third year OSCE to 84% in the end of remedial course OSCE. Scores on the communication and interpersonal skills also increased from a mean of 76% in the third year OSCE to 85% at the end of the remedial OSCE. The students self assessment of skills improved during the course.
CONCLUSIONS: We describe a course that is successful in remediating deficits discovered during a comprehensive OSCE for clinical skills. This remedial course improved the skill sets of data gathering,communication,and interpersonal skills of students who had failed a comprehensive, high stakes OSCE. This is a course that is exportable.

DIABETES MELLITUS AND MORTALITY RISK IN PATIENTS WITH ENDOMETRIAL CANCER: A META-ANALYSIS K.S. Peairs[1]; B.B. Barone[2]; C. Snyder[3]; Y. Hsin-Chieh[2]; K.B. Stein[3]; R. Derr[1]; A.C. Wolff[4]; F.L. Brancati[3]. [1]Johns Hopkins School of Medicine, Baltimore, MD; [2]Johns Hopkins Bloomberg School of Public Health, Baltimore, MD; [3]Johns Hopkins School of Medicine; Johns Hopkins Bloomberg School of Public Health, Baltimore, MD; [4]Johns Hopkins School of Medicine; The Sidney Kimmel Cancer Center, Baltimore, MD. *(Tracking ID # 190388)*

BACKGROUND: Diabetes mellitus increases the risk for endometrial cancer however it is unclear if pre-existing diabetes mellitus affects the outcomes (including survival) of patients diagnosed with endometrial cancer.
METHODS: We searched the EMBASE and MEDLINE databases from inception to August 2007 to identify articles that evaluated the effect of comorbid diabetes mellitus on cancer prognosis using search terms related to diabetes, cancer, and prognosis, survival, or mortality. Studies were included in a meta-analysis if they provided quantitative estimates and standard errors or confidence limits of the association between diabetes and overall mortality in patients with endometrial cancer. Studies were excluded if they provided only an estimate of effect, with no means by which to calculate the standard error, or if estimates were not adjusted by age. Paired reviewers independently reviewed articles, extracted data, and assessed quality. Potential sources of heterogeneity between studies were assessed using Q statistics. Publication bias was evaluated using both the Begg's funnel plot and the Egger plot. The pooled hazard ratio (HR) was calculated using the variance-weighted method for a fixed-effects model (Q=5.384 on 3df, p= 0.146).
RESULTS: From 6943 titles identified and 213 articles reviewed, 91 met our inclusion/exclusion criteria for abstraction. Twelve articles included outcomes for patients with endometrial cancer and diabetes mellitus, and 7 of them described overall mortality though only 4 provided sufficient data for pooled analysis. In those 4 studies, the pooled estimate showed that women diagnosed with endometrial cancer and pre-existing diabetes were 64% more likely to die during follow-up when compared to their non-diabetic counterparts (HR= 1.64; 95% CI, 1.37–1.96). Two studies reported increased lymph node metastases in diabetic women with endometrial cancer and two studies described increased depth of myometrial invasion. There was no significant publication bias. The quality of studies varied substantially, but the 4 in the pooled HR were of moderate-to-high quality.

CONCLUSIONS: Our analysis suggests that diabetes mellitus is associated with increased mortality in patients with endometrial cancer and may lead to more advanced stage at presentation. Additional studies of the impact of diabetes and diabetes control on outcomes in endometrial cancer are warranted.

DIABETES MELLITUS AND THE RISK OF MORTALITY IN PATIENTS WITH COLORECTAL CANCER: A SYSTEMATIC REVIEW AND META-ANALYSIS K.B. Stein[1]; C.F. Snyder[1]; B.B. Barone[2]; H. Yeh[1]; K. Peairs[1]; R. Derr[1]; A.C. Wolff[1]; F.L. Brancati[1]. [1]Johns Hopkins University, Baltimore, MD; [2]Johns Hopkins Bloomberg School of Public Health, Baltimore, MD. *(Tracking ID # 189772)*

BACKGROUND: Diabetes mellitus increases the risk for colorectal cancer, but it is unclear if a pre-existing diabetes mellitus diagnosis affects mortality outcomes in patients with colorectal cancer. We conducted a systematic review to examine the association between pre-existing diabetes mellitus and colorectal cancer mortality.
METHODS: We identified studies by searching EMBASE and Medline for human, English-language studies of diabetes mellitus and cancer treatment outcomes, prognosis and/or mortality from inception to August, 2007. Studies were excluded if 1) patients without a cancer diagnosis were included, 2) a prognostic outcome was not reported, 3) diabetes mellitus was not analyzed separately as a risk factor, 4) the study only included patients with diabetes mellitus, or 5) original data were not reported. We defined perioperative mortality as death occurring within 30 days of operation and long-term survival as 5-year survival. Paired reviewers independently reviewed articles, extracted data, and assessed quality. Potential sources of heterogeneity between studies were assessed using Q statistics. Publication bias was evaluated using both the Begg's funnel plot and the Egger plot. We performed a meta-analysis of the studies that reported risk ratios of all-cause mortality. Other studies were described qualitatively.
RESULTS: From 6943 titles, our search found 91 cancer articles that met our inclusion/exclusion criteria for abstraction. Ten of these articles evaluated survival outcomes for diabetes mellitus and colorectal cancer. Four reported perioperative all-cause mortality and results are reported qualitatively due to the heterogeneity of the studies. Two studies assessed mortality after emergency surgery in patients older than 70 years with colon cancer, and both studies found a significantly increased risk of mortality in patients with pre-existing diabetes mellitus as compared to patients without diabetes mellitus. The other two studies evaluated postoperative mortality after surgery for colorectal cancer and surgery for hepatic metastasis in colorectal cancer, and both studies also found significantly increased risk of death among patients with diabetes mellitus as compared to patients without diabetes mellitus. Six studies evaluated long-term, all-cause mortality and all 6 reported risk estimates. To pool these risk estimates, we used the DerSimonian-Laird method for a random-effects model due to a high degree of between-study heterogeneity ($Q=14.6$ on 6 df, $p=0.02$). In our meta-analysis, compared to their counterparts without diabetes, colon cancer patients with pre-existing diabetes were 30% more likely to die during follow-up (Hazard Ratio 1.3; 95% CI 1.2, 1.4). There was no significant publication bias, and the quality of the perioperative and long-term survival studies was low-moderate and moderate-high, respectively.
CONCLUSIONS: Diabetes mellitus is associated with higher perioperative and long-term mortality in patients with colorectal cancer. Further studies assessing the effect of duration, control, and severity of diabetes mellitus on mortality and treatment outcomes in patients with colon cancer are needed.

DIABETES REVERSAL IN PRIMARY CARE: A PILOT PROGRAM M.L. Dansinger[1]; E. Saltzman[1]; S. Wolleb[1]; R. Phadke[1]; D.G. Fairchild[2]. [1]Tufts-New England Medical Center, Boston, MA; [2]Tufts University, Boston, MA. *(Tracking ID # 190374)*

BACKGROUND: Lifestyle coaching can prevent or delay the onset of type 2 diabetes mellitus, however the extent to which lifestyle coaching can reverse existing type 2 diabetes is unclear.
METHODS: We designed an outpatient lifestyle coaching program with the objectives of normalizing hyperglycemia and decreasing diabetes medication burden in patients with obesity and elevated hemoglobin A1c (>6.0%). Participants were coached individually by one physician to follow a diet low in calories, glycemic load, and saturated fat, to exercise at least 7 hours per week, and to keep a daily food and exercise journal for review at all program visits. Coaching sessions typically lasted 15 minutes and were available weekly for 3 months, and semi-weekly thereafter. Participants were referred to the program by internists and nurse practitioners staffing a high-volume primary care practice at a university-based medical center. The program was designed to be scalable and reproducible at other primary care practices.
RESULTS: During the first year of this program 40% (23/58) of eligible referred patients participated for at least 3 months (mean 6.5 months). This group, within 3 months, reduced mean body weight by 10% (from 116 to 105 kg, $p<.01$) and reduced mean hemoglobin A1c from 8.2% to 6.1% ($p<.01$), and maintained those changes throughout program participation. Normalization of hemoglobin A1c (5.8% or lower) occurred in 26% (6/23) of those who completed 3 months of lifestyle coaching, and in 0% of those who discontinued before 3 months ($p=0.03$ between groups). Individuals for whom hemoglobin A1c became normal were able to discontinue or avoid diabetes medication, consistent with reversal or remission of type 2 diabetes or hyperglycemia, throughout their participation in the lifestyle coaching program.
CONCLUSIONS: Marked improvement of hyperglycemia and reversal of type 2 diabetes mellitus can be achieved via an intensive lifestyle coaching program suitable for use in primary care practices. Long-term data in a larger patient population are necessary to verify these preliminary results.

DID HIGH-RISK PATIENTS EXPERIENCE WORSE OUTCOMES UNDER ACGME DUTY HOUR RULES? K.G. Volpp[1]; P. Rosenbaum[2]; A. Rosen[3]; P.S. Romano[4]; L.M. Bellini[5]; K.M. Itani[6]; L. Cen[7]; O. Shoshan[8]; M. Halenar[8]; J.H. Silber[9]. [1]CHERP, Philadelphia VAMC; University of Pennsylvania School of Medicine and the Wharton School, Philadelphia, PA; [2]The Wharton School, Philadelphia, PA; [3]Bedford VA and Boston University, Boston, MA; [4]University of California, Davis, Sacramento, CA; [5]University of Pennsylvania, Philadelphia, PA; [6]Boston VA, Boston, MA; [7]CHERP, Philadelphia VAMC, Philadelphia, PA; [8]COR, Children's Hospital of Philadelphia, Philadelphia, PA; [9]Children's Hospital of Philadelphia; The Wharton School; Leonard Davis Institute of Health Economics, Philadelphia, PA. *(Tracking ID # 190472)*

BACKGROUND: In response to concerns about deaths from medical errors, the Accreditation Council for Graduate Medical Education (ACGME) restricted duty hours for all accredited residency programs effective July 1, 2003. In previous work, we found that mortality rates improved for medical but not surgical patients in more vs. less teaching intensive VA hospitals in the second year post-reform. Due to concerns that effects could be different in higher severity patients, we examined mortality for medical and surgical patients of differing baseline severity as well as failure-to-rescue rates (FTR), defined as death conditional on having a surgical complication.
METHODS: We analyzed all unique medical patients admitted to acute-care VA hospitals from July 1, 2000 to June 30, 2005 with principal diagnoses of acute myocardial infarction, gastrointestinal bleeding, congestive heart failure, or stroke (N=145,905) and general, orthopedic or vascular surgery patients (N=174,780). FTR analyses were done in the subset of surgical patients who experienced one or more specified complications (n=67,830). Data were obtained from the VA Patient Treatment File, the VA Beneficiary Identification and Record Locator Subsystem file, and the VA Office of Academic Affiliations. We constructed risk scores for each patient using data from the year immediately preceding the study period to estimate coefficients for each risk factor. Risk scores were used in logistic regression to determine the change in mortality before and after the duty hour reform for patients with different degrees of baseline severity of illness (bottom 25%, 26th-75th percentile, 76th-90th percentile, >90th percentile). FTR rates were similarly analyzed for patients in more vs. less teaching intensive hospitals adjusting for patient comorbidities, common time trends, and hospital site.
RESULTS: For medical patients, in post-reform year 1, the only observed change in mortality in more vs less teaching intensive hospitals was for patients in the top 10% of severity (OR 1.55, 95% CI [1.09, 2.21]) which was significantly higher than patients in the bottom 90% (OR for difference 1.63, 95% CI [1.08, 2.45]). In post-reform year 2, while all severity groups demonstrated a trend toward

decreased odds of mortality in more vs less teaching intensive hospitals, there was no significant difference between the top 10% of severity and others. Among surgical patients, there was no relative change in mortality in more vs. less teaching intensive hospitals in any of the severity groupings in either post-reform year 1 or 2, and the differences observed in the top 10% of severity compared to the bottom 90% of severity were not significant. There were no significant relative changes in FTR for surgical patients in either the first (OR 0.85, 95% CI [0.64, 1.12]) or second year post-reform (OR 0.92, 95% CI [0.68, 1.23]). The results were robust to exclusion of patients from New York, patients admitted from nursing homes, and adjustment for comorbidities.
CONCLUSIONS: The ACGME duty hour regulations were associated with a relative increase in mortality in post-reform year 1 for the highest severity medical patients within VA, but by the second year post-reform these patients experienced improvements in mortality similar to other patients. Higher severity surgical patients experienced no significant relative changes in mortality in more vs. less teaching intensive hospitals as a result of duty hour reform, similar to their less severe counterparts.

DIFFERENCES IN GFR AND CREATININE-BASED REFERRAL PATTERNS BY U.S. PRIMARY CARE PHYSICIANS R.F. Charles[1]; N.R. Powe[1]; M.U. Troll[1]; L.E. Boulware[1]. [1]Johns Hopkins University, Baltimore, MD. *(Tracking ID # 190638)*

BACKGROUND: Although nationwide efforts are in place to encourage laboratories to include estimated glomerular filtration rate (GFR) when a serum creatinine is reported, little is known about the effect of automatic GFR reporting on primary care physicians' (PCP) referral patterns of patients with chronic kidney disease (CKD).
METHODS: We surveyed a nationally representative sample of 178 U.S. PCPs in 2005 to evaluate differences in referral patterns based on creatinine and GFR levels. We presented PCPs with one of 4 possible clinical scenarios of a 50 year-old woman with hypertension and CKD demonstrating evidence of progression over 4 months. The scenario randomly varied on patient race (African American or White) and the presence or absence of diabetes. We asked PCPs to identify both the serum creatinine level (mg/dL) and the GFR level (mL/min/1.73m2) at which they believed a PCP should refer the patient to a nephrologist. After converting PCPs' selected serum creatinine levels to estimated GFR using the Modification of Diet in Renal Disease Study equation, we assessed concordance in physician recommendations for referral. Concordance was assessed as present if the percent difference in the estimated and the reported-GFR referral level was less than 30%. In multivariable models, we identified physician (specialty, years in practice, practice setting, percent time performing clinical duties) and patient (race and presence of diabetes) characteristics independently associated with concordance.
RESULTS: Most of the 89 family physicians and 89 internists practiced greater than 10 years (53%), were in a non-academic setting (82%), and had greater than 80% clinical time (85%). Over half of PCPs were presented with the case of an African American patient (54%) and a patient with diabetes (58%). When making recommendations based on serum creatinine levels, PCPs referred to a nephrologist at a more advanced stage of kidney disease (median estimated GFR 32; interquartile range (IQR): 18–51), compared to recommendations based on GFR (mean estimated GFR 57; IQR: 22–100). After converting serum creatinine levels to estimated GFRs, there was a median 43% (IQR: 3–69%) difference between creatinine-based GFRs and provided GFRs at which PCPs referred. Twenty-five percent of physicians were concordant in their referral recommendations, with greater concordance among PCPs who practiced less than 10 years compared to those practicing more than 10 years (32% versus 19%, p=0.046) and among PCPs presented with an African American patient compared to those presented with a White patient (32% versus 17%, p=0.02). In multivariable analyses, concordance was statistically significantly less likely among PCPs who evaluated a White patient compared to those evaluating an African American patient (Odds Ratio (95% confidence interval): 0.4[0.2–0.8]).
CONCLUSIONS: When making recommendations based on estimated GFR, PCPs refer patients with progressive CKD to nephrologists at a less severe stage of kidney disease compared to their recommendations based on serum creatinine alone. Concordance in recommendations varies based on physician experience and patient race. Automated reporting of GFR may enhance care of patients with CKD by facilitating earlier involvement of specialty care and decreasing physician and patient-based variations in practice

DIFFERENCES IN SELF-REPORTED HYPERTENSION AND DIABETES AMONG HISPANICS BY COUNTRY OF ORIGIN: THE NATIONAL HEALTH INTERVIEW SURVEY 2006 L.P. Pabon-Nau[1]; A. Cohen[2]; J.B. Meigs[1]; R.W. Grant[1]. [1]Massachusetts General Hospital, Boston, MA; [2]Harvard University, Boston, MA. *(Tracking ID # 190483)*

BACKGROUND: Prior research among U.S. Hispanic patients has identified higher diabetes and hypertension prevalence, morbidity, and mortality compared to Non-Hispanic Whites. However, these studies have primarily analyzed Mexican-Americans. We tested the hypothesis that prevalences in this subgroup are not representative of the entire Hispanic population, but vary by Hispanic country of origin. Our main objectives were to: 1) Assess demographic and disease-related differences among U.S. Hispanics by country of origin, and 2) Examine the mediating roles of socioeconomic status and acculturation on disease prevalence in these subgroups.
METHODS: The National Health Interview Survey (NHIS) is a yearly face-to-face survey of non-institutionalized U.S. civilians. NHIS uses a complex sample design involving stratification, clustering, and multistage sampling to allow extrapolation to the US civilian non-institutionalized population. We evaluated data on 4,044 Hispanic adults (ages 18–85) comparing Mexican-Americans with Hispanics originally from: Puerto Rico, Mexico, Cuba, Dominican Republic, or Central/South America. We analyzed characteristics using chi-square and t-tests; and applied multivariable logistic regression to evaluate the effect of Hispanic country of origin on the odds of self-reported hypertension or diabetes relative to Mexican-Americans; after adjusting for demographics, socioeconomic status and acculturation.
RESULTS: The six Hispanic subgroups were significantly diverse in all demographic aspects. Cubans had the highest hypertension prevalence (26%) followed by Puerto Ricans (25%) and Dominicans (20%). In contrast, Puerto Ricans had the highest diabetes prevalence (13%), while Cubans (7%), Dominicans (7%), and Central/South Americans (5%) had the lowest. Across subgroups, smoking and higher BMI were correlated with years in the US, rather than country of origin. Age, BMI, smoking, and living more than 10 years in the US, being a US citizen, and having insurance were independent predictors of both hypertension and diabetes. After adjusting for age, sex, BMI,smoking, socioeconomic status and acculturation, Puerto Ricans (OR=4.5 CI 2.04, 10.03), Cubans (OR=2.2, CI 1.08, 4.58), and Dominicans (OR=4.66 CI 1.87, 11.62) had higher prevalence of hypertension, relative to Mexican-Americans. After adjusting for the same factors, Puerto Ricans (OR=3.6 CI 1.06, 12.25) and Mexicans (OR=3.32, CI 1.24, 8.91) had significantly higher diabetes relative to Mexican-Americans.
CONCLUSIONS: We identified wide demographic variation by country of origin in the U.S. Hispanic population. Differences in self-reported prevalence of hypertension and diabetes persisted after adjusting for measured risk factors, including demographics, socioeconomic status and acculturation. Our results underscore the need for health disparities research to include representation from all Hispanic subgroups. Future studies should evaluate the impact of racial and cultural diversity within Hispanics subgroups on prevalence of hypertension and diabetes

DIFFERENT DEFINITIONS OF GLYCEMIC CONTROL PRODUCE MARKED VARIATIONS IN FACILITY-LEVEL ASSESSMENT D. Helmer[1]; M. Rajan[2]; L. Pogach[3]. [1]Michael E. DeBakey VA Medical Center, Houston, TX; [2]Center for Healthcare Knowledge Management, VA-NJ Health Care System, East Orange, NJ; [3]Center for Healthcare Knowledge Management, VA New Jersey Health Care System, East Orange, NJ. *(Tracking ID # 190254)*

BACKGROUND: Glycemic management is a critical responsibility of the general internist in the care of patients with diabetes. In routine practice, glycemic control is measured with the hemoglobin A1c (HbA1c) test. Various definitions of glycemic control using HbA1c results have been used to assess quality of glycemic management, often ignoring patient characteristics. We describe the variation in assessed perfor-

mance of Veterans Health Administration facilities using several of these definitions applied to the same data.
METHODS: We conducted a retrospective analysis of VHA administrative data for veterans with diabetes (n=138,458) who sought care at VHA facilities (n=102) in fiscal year 1999 (FY99) and FY00. Subjects were assigned to a single facility based on the last recorded home station. We categorized individuals' last, highest, lowest and mean HbA1c values in both FY99 and FY00 as HbA1c <7%, HbA1c <8%, and HbA1c >9% (or no value) using a cross-sectional approach. Facilities were then ranked by the percentage of patients with diabetes whose last HbA1c met each threshold. Spearman Rank Correlations and comparisons of decile rank were used to describe associations between rankings using different HbA1c thresholds.
RESULTS: In 102 facilities in FY99, the mean percentage of patients with diabetes with a last HbA1c <7% was 36% (range 21%-59%), with HbA1c <8% was 62% (range 47%-79%), and with HbA1c >9% was 20% (range 9%-37%). Compared to assessment using the last HbA1c, facility performance was worse at all thresholds using the highest HbA1c value in FY99 and better at all thresholds using the lowest HbA1c in FY99. Results using mean HbA1c were similar to last HbA1c: the mean percentage of patients with a mean HbA1c <7% was 33% (range 16%-56%), with mean HbA1c <8% was 60% (range 47%-80%), and with mean HbA1c >9% was 21% (range 8–36%). Spearman rank correlations between FY99 thresholds were 0.858 for HbA1c <7% and HbA1c <8%, −0.584 for HbA1c <7% and HbA1c >9%, and −0.821 for HbA1c <8% and HbA1c >9%. Spearman rank correlations between different thresholds within FY00 were similar to those for FY99. Spearman rank correlations between identical thresholds in FY99 and FY00 (e.g., FY99 HbA1c <7% and FY00 HbA1c <7%) were all weaker than correlations within the same year. In FY99, 18–60% of facilities were ranked in the same decile comparing HbA1c <7% to HbA1c <8% while 10–40% of facilities were ranked in the same decile rank comparing HbA1c <7% to HbA1c >9%. For HbA1c <7%, only 10–40% of facilities remained in the same decile rank comparing FY99 to FY00.
CONCLUSIONS: There are substantial differences in facility rankings when applying different definitions of glycemic control to the same set of patients and HbA1c values. This variation in facility-level assessment highlights the uncertainty of the link between measures of glycemic control and provider-controlled aspects of glycemic management, as well as the likely contribution of unmeasured patient factors. Health policy makers and managers should carefully select and define measures of glycemic control when implementing quality improvement efforts and assessing provider performance. A combination of measures may provide a more comprehensive appraisal of glycemic management at the facility level.

DIFFERENTIAL TAKE-UP OF THE MEDICARE PART D PRESCRIPTION DRUG BENEFIT A. Rabbani[1]; W. Yin[1]; J.X. Zhang[1]; S. Sun[2]; G.C. Alexander[1]. [1]University of Chicago, Chicago, IL; [2]Walgreens Health Initiatives, Deerfield, IL. *(Tracking ID # 190210)*

BACKGROUND: The Part D Prescription Drug Benefit is a far reaching and complex piece of legislation. Previously, we estimated that Part D decreased monthly out-of-pocket expenditures by 13.1% and increased monthly prescription utilization by 5.9%, estimates highly consistent with the projected impact of the benefit. However, little is known about how Medicare Part D utilization varied based on subjects' pre-Part D prescription coverage and comorbidities. Standard economic theory suggests that these characteristics should directly affect the demand for prescription drugs, and differences in Part D uptake along these characteristics may have large implications for the ultimate welfare impact of the policy.
METHODS: We examined claims from a national pharmacy chain from 2005 and 2006 accounting for approximately 15% of the U.S. prescription drug market. We focused on beneficiaries ages 66–79 as of January 1, 2006. We examined those adopting Part D vs. those who did not. We considered multiple enrollment cut points, compared the characteristics of Part D utilizers versus non-utilizers, and focused on association between pre-Part D insurance generosity, comorbid burden using a method of risk adjustment based on pharmacy claims, and Part D uptake after adjusting for patients' demographic characteristics, characteristics of pre-Part D prescription use (average 2005 annual copayments, number of prescriptions, drug utilization in pill-days, number of treatment classes as reported in the store data), pre-Part D Medicaid eligibility, and zip code linked U.S. Census data.
RESULTS: Part D enrollees had higher average 2005 prescription drug co-payments ($658 vs. $385), greater numbers of prescriptions filled (30.8 vs. 20.3), higher prescription utilization (959 vs. 646 pill days), and prescriptions from a greater number of treatment classes (3.8 vs. 2.9) (all p-values <0.001). On unadjusted analyses, Part D utilization was highest among subjects who had the least and most generous insurance in 2005, reflecting the heterogeneous sample of subjects that included those who had very ungenerous coverage as well as the dually eligible. After multivariate adjustment, there was a strong and consistent association between pre-Part D prescription coverage generosity, comorbid disease burden, and Part D enrollment. For example, each 10 percentage point increase in 2005 insurance generosity was associated with a 19% lower likelihood of Part D utilization and each standard deviation increase in comorbid score was associated with an 8% greater likelihood of Part D utilization. Beneficiaries with the lowest yet positive insurance generosity with the greatest comorbid burden were up to 2.5 times more likely to utilize Part D than people who had generous insurance and were the healthiest before the introduction of the program (60.65% vs. 37.56%, p<0.001). These results were robust to numerous sensitivity analyses.
CONCLUSIONS: We find markedly higher rates of Part D adoption among subjects with less generous pre-Part D prescription coverage and higher pre-Part D comorbid disease burden. These findings highlight that uptake of new health policies are seldom uniform. These results also may be useful in welfare analyses of Part D, and they demonstrate the importance of considering non-random selection into Part D when considering the impact of Part D on processes or outcomes of care.

DISCONTINUING POST-MENOPAUSAL HORMONE THERAPY: DOES TAPER VERSUS ABRUPT WITHDRAWAL MATTER? S.G. Haskell[1]; B. Bean-Mayberry[2]; K. Gordon[3]. [1]VA Connecticut Healthcare System, West Haven, CT; [2]VA Greater Los Angeles Health Services Research and Development (HSR&D) Center of Excellence, Los Angeles, CA; [3]VA Connecticut, West Haven, CT. *(Tracking ID # 190644)*

BACKGROUND: Background: Since the release of the 2002 Women' Health Initiative, there has been a decline in the use of Post Menopausal Hormone Therapy (HT), but it continues to be recommended for treatment of menopausal symptoms. Currently, no guideline exists for HT discontinuation. Many women may opt to taper; however, it remains unclear whether this practice reduces recurrence of menopausal symptoms or increases the chance of staying off of hormone therapy.
METHODS: Methods: We previously identified a retrospective cohort of 36,222 women veterans using HT in 2001 in the Department of Veterans Affairs. In 2004, we invited (by letter) a random sample of 4000 HT users to participate in the National Women Veterans Hormone Therapy Survey. Those who agreed to participate were sent a self-administered survey by mail which asked questions regarding reasons for continuing or discontinuing HT, method of discontinuation, recurrence of menopausal symptoms, and demographic and clinical information.
RESULTS: Results: We sent 4000 invitational letters for consent to participate in the survey, 1967 subjects responded to the initial letter and 1617 consented to the survey. One thousand seventy-five participants returned surveys (66% response rate among consented; 1075 of 1617). Of this group 849 (79%) had stopped HT and 226 (21%) continued HT. Among those who stopped hormone therapy, 623 (75%) stopped cold turkey (i.e., abruptly) and 208 (25%) tapered. There were no significant demographic differences between the cold turkey and tapering groups. In bivariate analysis those who tapered were less likely to smoke (17% vs 24%, p=0.04), more likely to try vitamin E (21% vs 15% p=0.05), use other dietary supplements (13% vs 8% p=0.04), increase exercise (25% vs 18% p=0.03), and use yoga (6% vs 2%, p=0.01) to treat menopausal symptoms. They also had higher incomes Women who tapered more often reported discussions of HT (66% vs 55% p=0.01) and menopausal symptoms (65% vs 57% p=0.04) with their VA primary providers. We found no significant difference in mean menopausal symptom score after stopping HT between tapering and non tapering groups (mean score 5, interquartile range 2–7 in both groups, p=0.87). Additionally, no significant difference in ability to remain off HT occurred between tapering and non-tapering groups, 98% vs. 97% remained off HT (p=0.37). In multivariate analysis, taperers remained

less likely to smoke (OR=0.69; 95% CI 0.45, 1.24), more likely to use vitamin E (OR 1.71, 95% CI 1.13, 1.24) or yoga (OR 2.37 95% CI.99, 1.57) and had higher incomes (OR=1.12 95% CI 1.01, 1.05). No significant association was found between recurrence of menopausal symptoms and choosing to taper (OR=1.01 95% CI 0.97, 1.02).
CONCLUSIONS: Conclusions: In a follow up survey of a sample of post menopausal women veterans who used HT between 2001 to 2004, 75% of respondents stopped abruptly and 25% tapered. Despite evidence of increased use of alternative treatments for menopausal symptoms among HT taperers, no significant difference in recurrence of menopausal symptoms or ability to stay off of hormone therapy occurred between women who tapered and women who quit abruptly.

DISCUSSING SUICIDE IN PRIMARY CARE S.D. Vannoy[1]; T. Fancher[2]; C. Meltvedt[2]; P. Duberstein[3]; J. Unutzer[1]; R.L. Kravitz[2]. [1]University of Washington, Seattle, WA; [2]University of California, Davis, Sacramento, CA; [3]University of Rochester, Rochester, NY. *(Tracking ID # 189582)*

BACKGROUND: In 2004, suicide was the 11th leading cause of death in the US. Many patients who die by suicide meet criteria for a depressive disorder; many have seen a physician in the several weeks prior to death. How physicians inquire about suicide when evaluating patients with depression may have important implications for prevention, yet little is known about how suicide is actually discussed in primary care.
METHODS: We performed a qualitative analysis of physician interactions with standardized patients (SP) (Caucasian women in their forties) portraying either major depression or adjustment disorder to answer 3 questions: 1. What language do doctors use when asking about suicidal ideation?; 2. How do they prepare patients for the inquiry?; and 3. How do they follow-up the inquiry? We reviewed 298 transcripts of primary care encounters involving unannounced SP's. Following the visit, 108 SP's reported that the physician asked about suicide either orally or in writing, via a medical history form. Through inductive review, we identified three stages in the suicide inquiry process: ***framing, inquiry*** and **follow-up**. ***Inquiry*** was identified by a text-based search of keywords and full review of the transcript by 3 authors. ***Framing*** and ***follow-up*** were assessed by analyzing the 3 statements preceding and following the inquiry.
RESULTS: 102 transcripts were available for analysis, 91 transcripts contained a clearly identified query related to suicidal thoughts or behavior. We found that ***framing*** was accomplished 3 ways: 1. exploration of depression symptoms ("Are there things that you usually enjoy that you noticed you're not enjoying that much"); 2. exploration of non-depressive mental health symptoms ("And do you think– do all those symptoms really go back over the same one-month period or longer than that?"); 3. off-topic dialog ("They're [menses] normal, regular? Do you have a gynecologist you see?"). We found that most ***inquiries*** included the terms "self-harm," "suicide" or "killing oneself". Some ***inquiries*** were indirect ("Have you ever felt like doing away with yourself?"). 10% of *inquiries* were considered loaded: seeming to communicate a strong indirect message that an affirmative answer was ideal ("No thoughts of harming yourself, right?"). 25% of physicians used 2 or more types of *inquiry*. We found that *follow-up* was accomplished by statements related to: 1. suicide ("If you got to that point, would you reach out to me"); 2. depression symptoms ("Do you sleep well?"); and 3. non-depressive mental health symptoms ("Do you ever have panic attacks, where you're anxious about things?"); or 4. were completely off topic ("Have you had breakfast this morning?"). ***Follow-up*** related to suicide included both supportive (as above) and pursuing statements ("Have you ever in the past?"). **No** transcripts asked about access to firearms.
CONCLUSIONS: Physicians rarely ask patients about suicide. When doing so, physicians employ a relatively small repertoire of linguistic approaches. Some words and styles may inhibit open dialog about suicide, but further research is necessary to identify the impact of such wording on patient behavior. Physician training should include more practice on holding discussions related to suicide.

DISPARITIES IN HOSPITAL CARE ASSOCIATED WITH INSURANCE STATUS O. Hasan[1]; E.J. Orav[1]; L.S. Hicks[1]. [1]Brigham and Women's Hospital and Harvard Medical School, Boston, MA. *(Tracking ID # 190301)*

BACKGROUND: Despite widely documented variations in health care outcomes by insurance status, few studies have examined such disparities in the inpatient setting. We compared in-hospital mortality and resource use for 3 common medical conditions across insurance groups in a nationally-representative cohort of hospitalized adults.
METHODS: We analyzed 154,634 adult non-elderly discharges (age 18 to 64 years) with a principal diagnosis of acute myocardial infarction (MI), stroke (CVA), and pneumonia (PNA) from the 2005 Nationwide Inpatient Sample (NIS), representing 1,054 hospitals across 37 states. For each condition, we developed multivariable models to assess the independent effect of insurance coverage (categorized as privately insured, uninsured, Medicaid, or Medicare) on in-hospital mortality and log transformed length of stay (LOS) and hospital charges. These models were adjusted for patients' demographic characteristics, comorbidities, and severity of principal diagnosis and hospital characteristics. Only patients discharged alive from the hospital were included in the multivariable models for length of stay and hospital charges. Generalized estimating equations were used to account for the clustering of patients within hospitals and hospitals within sampling strata. We present adjusted odds ratios with 95% confidence intervals and adjusted least square means (with antilog transformation) by insurance status below.
RESULTS: Among all participants, 12% were uninsured, 17% were Medicaid, and 24% were Medicare recipients. Compared to privately insured patients, in-hospital mortality was significantly higher for all other groups for MI (AOR: 1.65 [1.36–1.99] for uninsured, 1.25 [1.02–1.54] for Medicaid, and 1.38 [1.19–1.61] for Medicare). Uninsured patients also had higher mortality for CVA (AOR 1.49 [1.30–1.71]) and Medicaid and Medicare patients had higher mortality for PNA (AOR: 1.24 [1.05–1.47] for Medicaid, and 1.36 [1.16–1.58] for Medicare), compared to the insured. Similarly, mean LOS for MI and PNA was longer for Medicaid (3.8 days for MI and 4.1 days for PNA) and Medicare (3.7 days for MI and 4.1 days for PNA) patients compared to the privately insured (3.5 days for MI and 3.9 days for PNA) (all $p<0.001$), and mean LOS for CVA longer for the uninsured compared to the privately insured (4.9 vs. 4.5 days, $p<0.001$). There were no consistent differences in hospital charges for the three conditions across insurance groups. For example, for CVA, Medicaid patients had higher hospital charges ($23,353) and Medicare patients lower charges ($20,737) when compared to the privately insured ($22,002) (both $p<0.001$); however both groups had higher PNA associated charges than the privately insured ($14,065 for Medicaid and $13,881 for Medicare vs. $13,387 for privately insured; $p<0.001$). There were no differences in hospital charges between the uninsured and privately insured patients for any condition.
CONCLUSIONS: In our nationally-representative cohort, representing 750,442 working-age Americans hospitalized with three common diagnoses, significantly lower in-hospital mortality and LOS exist for privately insured patients compared to patients who are uninsured or insured by Medicaid or Medicare. Further research is needed to determine whether limited access to health care services or other social factors are responsible for these differences. Hospital administrators and policy-makers should pursue policies to reduce these nationwide insurance gaps in inpatient quality of care.

DISPARITIES IN PATIENTS UNDERGOING BARIATRIC SURGERY IN CALIFORNIA S. Jain[1]; C. Ko[1]; M. Mcgory[1]; M. Maggard[1]; R. Padrez[2]; S. Tunis[3]; D. Zingmond[1]. [1]University of California, Los Angeles, LA, CA; [2]University of California, San Francisco, SF, CA; [3]Center for Medical Technology Policy, SF, CA. *(Tracking ID # 190305)*

BACKGROUND: Obesity is epidemic in the United States. Patients increasingly select surgical treatment for weight loss. Despite increased use of surgical treatment, it is unknown whether surgical treatment is available to all surgery-eligible individuals.
METHODS: Retrospective study comparing characteristics of all patients receiving Roux-en-Y gastric bypass (RYGB) surgeries in California between 1995 and 2005 to obese respondents to the 2003 and 2005 California Health Interview Survey (CHIS). BMI was derived from height and weight reported to CHIS. Individuals were considered surgically eligible if they were obese (BMI>35 and BMI<40) with a comorbidity (diabetes mellitus, hypertension, hypercholesterolemia, coronary artery disease, or asthma); morbidly obese (BMI>40 and BMI<50); or super obese (BMI>50). Patient characteristics

examined include: gender, age, race/ethnicity, insurance, work status, comorbid illnesses, obesity-related illnesses, and adverse health habits (tobacco and alcohol use). We compared characteristics of the sample eligible for RYGB surgery with characteristics of individuals undergoing RYGB surgery. We also compared characteristics across surgery-eligible obese sub-populations. Finally, we examined underlying trends in the delivery of RYGB surgery in California between 1995–2005.
RESULTS: In the 2003 & 2005 CHIS, 2,356 of 85,064 respondents were classified as surgery-eligible (representing 1,385,927 obese adult Californians); 1,235 were obese with a comorbidity; 937 were morbidly obese; and 184 were super obese. Between 1995 and 2005, 74,200 RYGB surgeries were performed, with two-thirds occurring between 2002 and 2005. Based on these results, approximately 1% of surgery-eligible obese individuals receive surgery annually. After reaching a plateau in 2003 and 2004, a drop in the number of cases between 2004 and 2005 (13,675 to 12,051) was almost entirely attributable to fewer privately insured patients receiving surgery. As compared to the overall obese surgery-eligible population, patients who receive surgery are more likely to be younger, White, non-Hispanic, female, privately insured; and to have lower rates of comorbidities and adverse health habits. Among comorbidities reported in CHIS and identifiable from hospital discharge data, RYGB surgery patients had lower rates of diabetes (22% vs. 27%), coronary artery disease (2% vs. 11%), hypertension (44% vs. 58%), asthma (17% vs. 25%), and depression (14% vs. 18%) whereas only hypercholesterolemia was higher among RYGB patients (23% vs. 19%). Among surgery-eligible obese persons, the super obese are far more likely to be Hispanic (60% vs. 27% for the least obese category) and less likely to be working full time or to have insurance than other surgically eligible obese individuals.
CONCLUSIONS: A large number of individuals are eligible for RYGB surgery. In California alone, this is estimated at nearly 1.4 million individuals. Access to surgery is strongly linked to private insurance, creating disparities in care that disproportionately affect the super obese, who are less likely insured and more likely Hispanic in California. Tackling the challenge of obesity requires a comprehensive program on preventing obesity, while ensuring that individuals are able to receive surgery if necessary.

DO ELECTRONIC HEALTH RECORDS CREATE MORE ERRORS THAN THEY PREVENT? C.S. Soran[1]; S.R. Simon[2]; C. Jenter[3]; L.A. Volk[1]; E.S. Burdick[3]; D.W. Bates[3]; E.G. Poon[3]. [1]Partners HealthCare System, Inc., Wellesley, MA; [2]Harvard University, Boston, MA; [3]Brigham and Women's Hospital, Boston, MA. *(Tracking ID # 190109)*

BACKGROUND: While use of electronic health records (EHRs) and electronic prescribing can prevent many medication errors, it may also create opportunities for new errors. Therefore, we conducted a study to examine providers' perception of opportunities for errors introduced by the use of EHRs.
METHODS: In 2005, we surveyed a randomly selected sample of office-based physicians in Massachusetts regarding electronic health records (response rate=71%). In 2007, a follow-up survey was sent to the original survey respondents asking about their use of EHRs and measuring other characteristics of the physicians and their practices. On a 5-point Likert-type scale respondents indicated whether they agreed that EHRs had created new opportunities for errors and whether the EHRs had created more errors than they had prevented. We used logistic regression to determine if physician or practice characteristics were associated with the perception of new errors from the use of EHRs.
RESULTS: The 2007 survey was mailed to 1146 physicians and 907 responded (79.1%), of whom 371 (40.9%) reported using an EHR. Of the EHR users, 39.8% either agreed or strongly agreed that using the EHR had created new opportunities for errors. Only 2.9% of respondents either agreed or strongly agreed the EHR had created more errors than it has prevented, while 74.2% either disagreed or strongly disagreed with the statement. Physician gender, years in practice, participation in teaching activities, and number of physicians in the practice were not associated with agreement with either statement.
CONCLUSIONS: While many EHR users feel the EHR creates new opportunities for errors, nearly all physicians with EHRs feel that, overall, EHRs prevent more errors than they create. Therefore, the possibility of new errors should not deter EHR implementation. However, as all physicians and practice sizes equally reported new errors associated with EHRs, prevention should systematically identify and target these errors and should be directed at all types of physician users and vendor products.

DO HOSPITALISTS PERFORM MORE INPATIENT PROCEDURES THAN NON-HOSPITALISTS? R. Thakkar[1]; S. Wright[2]; R.S. Wigton[3]; P.C. Alguire[4]; R.T. Boonyasai[1]. [1]Johns Hopkins University School of Medicine, Baltimore, MD; [2]Johns Hopkins University, Baltimore, MD; [3]University of Nebraska Medical Center, Omaha, NE; [4]American College of Physician, Philadelphia, PA. *(Tracking ID # 189931)*

BACKGROUND: The number of hospitalist physicians in U.S. has grown rapidly over the past decade. Given their constant, on-site presence, hospitalists are well suited to perform many inpatient procedures. Yet little is known about the range of bedside procedures performed by hospitalists. We conducted this study to 1) characterize the type and frequency of the procedures performed by hospitalists and 2) understand how hospitalists compare to non–hospitalist physicians with respect to these procedures.
METHODS: We analysed data from a 2004 survey on bedside procedures mailed to non-specialist members of the American College of Physicians. We defined hospitalists as respondents who spent >10 hours per week in clinical activity and >40% of their clinical time in hospital-based activity. The analyses focused on the 8 procedures described by Society of Hospital Medicine as hospitalist core competencies (electrocardiogram interpretation, chest x-ray interpretation, central line placement, lumber puncture, thoracentesis, abdominal paracentesis, endotracheal intubation, and arthrocentesis) and 2 critical care procedures (Swan-Ganz catheter placement and ventilator management).
RESULTS: Of 1,059 respondents, 175 were classified as hospitalists, and 884 as non-hospitalists. Comparisons of the proportions of physicians within each group who perform these procedures are shown below.
CONCLUSIONS: A higher percentage of hospitalists are performing core inpatient and critical care procedures than are non-hospitalist physicians. Yet, many hospitalists do not engage in these clinical activities. Further analyses will assess whether practice characteristics or financial incentives influence these associations. Not doing inpatient procedures may delay patient care and impact upon revenues. Hospitalist groups should examine barriers that influence the performance of these core procedures.

Procedure	Hospitalist (%)	Non-hospitalist (%)	P value*
Electrocardiogram interpretation	87	94	0.006
Joint injection/ aspiration	60	52	0.07
Chest X-ray interpretation	57	48	0.05
Lumber puncture	50	22	<0.001
Abdominal paracentesis	49	22	<0.001
Thoracentesis	44	20	<0.001
Central line placement	39	13	<0.001
Endotracheal intubation	31	13	<0.001
Ventilator management	42	23	<0.001
Swan-Ganz catheter placement	10	7	0.15

DO HOSPITALIZED OLDER ADULTS WHO RECEIVE IMPROVED QUALITY OF CARE SUFFER LESS FUNCTIONAL DECLINE AFTER DISCHARGE? V. Arora[1]; C. Plein[1]; S. Chen[1]; J. Siddique[1]; G. Sachs[1]; D. Meltzer[1]. [1]University of Chicago, Chicago, IL. *(Tracking ID # 190844)*

BACKGROUND: Measuring quality of care for hospitalized older patients is especially important given the increasing numbers of hospitalized older patients and the risks of the "hazards of hospitalization" (delirium, pressure ulcers, etc.). Ideal quality measures for older inpatients are associated with meaningful outcomes. This study aims to assess the relationship between quality of care for hospitalized frail elders and functional decline, a relevant outcome for these patients.
METHODS: Hospitalized patients age 65 or older admitted to general medicine from June 2004 to May 2005 were asked to report their Activities of Daily Living (ADLs) for both the time of admission (present) and one month prior (retrospective). During a phone interview 30 day post-discharge, patients answered ADL questions for the time of discharge (retrospective) and for one month after discharge (present). Functional decline was defined as the emergence of a new ADL impairment in follow-up. Catastrophic functional decline was defined as 3 or greater new impairments. Medical charts were abstracted using a computer-based tool that reliably determines adherence to 16 ACOVE (Assessing Care of Vulnerable Elders) quality indicators (QIs). Composite quality scores were calculated per patient as the percent of QIs met of those that each patient was eligible for. Multivariable logistic regression, controlling for Charlson comorbidity score, VES-13 score, number of baseline ADL limitations, and number of QIs triggered, was performed to assess the effect of quality score on both functional decline and catastrophic functional decline. Analyses were repeated to test the effect of adherence to individual QIs on on both functional decline and catastrophic functional decline.
RESULTS: For 320 enrolled patients, mean adherence to six universally applied quality indicators was 57.9%. Adherence to geriatric-specific measures (34%) was significantly less than general measures (84%). In multivariate analyses, patients were 20% more likely to experience ADL impairment for each 10% increase in overall quality score [p=0.02]. A similar relationship was observed for adherence to individual QIs, specifically early discharge planning [OR 2.48 (1.22–5.05), P<0.02]. Likewise, patients who received formal assessment of cognitive [OR 3.61 (1.17–11.09), P=0.025] and functional status [OR 2.07 (1.06–4.07), P= 0.034] were more likely to experience catastrophic decline (3 or more ADL impairmeents) after discharge.
CONCLUSIONS: Those hospitalized older patients most likely to suffer decline after discharge receive higher quality of care. This may represent limited resources judiciously applied to those older patients most in need. This suggests that efforts to improve adherence to quality measures, without additional resources, may in fact result in redistribution of care away from those hospitalized olders most in need.

DO LATINOS HAVE WORSE SELF-REPORTED OVERALL HEALTH? IT DEPENDS ON HOW YOU ASK. B. Ruo[1]; D. Baker[1]; J. Thompson[1]; P. K. Murray[2]; G. Huber[1]; J.J. Sudano[2]. [1]Northwestern University, Chicago, IL; [2]Case Western Reserve University, Cleveland, OH. *(Tracking ID # 190215)*

BACKGROUND: Prior studies have found that Latinos have worse self-reported overall health (SROH) compared to Whites when measured by a single question with response options ranging from excellent to poor. Our goal was to determine whether differences in SROH were similar when measured by a visual analogue scale.
METHODS: We performed a cross-sectional study of adults age 45–64 who were recruited from two academic general internal medicine practices and two community clinics in Chicago and Cleveland. Interviews were conducted in English or Spanish based on patient preference. Based on participants self-report of race/ethnicity as White, Black, or Latino and their choice of interview language, we classified participants as White, Black, English-speaking Latino, and Spanish-speaking Latino. SROH was first determined by asking "In general, would you say your health is excellent, very good, good, fair, or poor?" For this analysis, responses were dichotomized as excellent/very good/good vs fair/poor. Secondly, SROH was measured using a visual analogue scale (VAS); patients reported their current level of health state by placing a mark on a vertical 20-cm graduated line. The scale is anchored with 0 equal to the worst imaginable health state and 100 equaling the best imaginable health state. We compared frequencies of responses and performed multivariable linear regression to examine the relationship between the 2 health status measures.. We modeled the VAS entering the single SROH question and race/ethnicity as predictor variables. We also examined interaction terms between race/ethnicity and SROH.
RESULTS: The study population (N=1123) was 30% White, 29% Black, 16% ESL and 25% SSL. The mean age was 53 years (SD=7); 55% were female. The mean VAS score was similar for Whites, Blacks, English-speaking Latinos, and Spanish-speaking Latinos (76±18, 76±18, 76± 16, 74±21, respectively; p=0.4). In contrast, for the single SROH question, the percentages reporting fair/poor health were 17%, 22%, 20%, and 40%, respectively (p<0.001). In multivariable analyses, fair/poor responses on the single SROH question were associated with a 29 point lower rating on the VAS (p<0.001). The interaction terms for race/ethnicity and fair/poor response were significant for Blacks, English-speaking Latinos, and Spanish-speaking Latinos (9.7, p=0.001; 7.4, p= 0.04, 9.1, p=0.002 respectively). These significant interaction terms suggest that non-Whites who rate their health as fair/poor have VAS scores 7–10 points higher than that of Whites who rate their health as fair/poor.
CONCLUSIONS: Spanish-speaking Latinos are more likely to rate their SROH as fair or poor compared to Whites, but they rate their health similarly when using a visual analog scale. This suggests the two measures are biased relative to each other, although it remains unclear why these differences occur and which measurement method more accurately reflects individuals' true health perceptions.

DO OPIOIDS AFFECT QUALITY OF DIABETES CARE? A.J. Rose[1]; J. Hermos[2]; S. Frayne[3]; L. Pogach[4]; D.R. Berlowitz[1]; D. Miller[1]. [1]Bedford VA Medical Center, Bedford, MA; [2]VA Boston Healthcare System, Boston, MA; [3]Palo Alto VA Medical Center, Menlo Park, CA; [4]VA New Jersey Health Care System, East Orange, NJ. *(Tracking ID # 189852)*

BACKGROUND: Quality of care for one chronic condition may be adversely affected by other, unrelated conditions, but this effect is inconsistent and dependent upon context. Chronic opioid therapy may be especially distracting to clinicians and patients due to issues around trust, negotiation, and control, but its impact on the quality of care for unrelated conditions has not been studied. We sought to determine whether diabetic patients who receive chronic opioid therapy are less likely to complete diabetes performance measures than patients who do not receive opioids.
METHODS: From all patients with diabetes who received care in VA facilities during Fiscal Year 2004, we identified those who received at least six prescriptions for major opioids (MO). Controls were randomly selected from diabetic patients who received no opioids. We studied three process measures (Hemoglobin A1c measured at least once, LDL Cholesterol measured at least once, dilated eye examination) and two intermediate outcome measures (A1c below 9% at least once and LDL below 130 mg/dL at least once). We performed unadjusted and adjusted analyses, accounting for demographics, comorbid conditions, health care utilization, and the clustering of outcomes by site using generalized estimating equations. Because many patients only received testing outside VA, we also performed sensitivity analyses for intermediate outcome measures, assuming that Medicare tests had an identical probability of being below performance thresholds as tests obtained within VA.
RESULTS: MO patients (n=36,620) were more likely than controls (n= 145,067) to be younger, of White race, and to have more comorbid conditions (p<0.001). MO patients also had more primary care visits than controls; for example, 19% vs. 45% had 2 or fewer visits, while 20% vs. 6% had 9 or more visits (p<0.001). In unadjusted analyses, MO patients were similarly likely to complete process measures, including testing A1c (86% vs. 85%), testing LDL (76% vs. 77%), and having an eye exam (66% vs. 62%). Using only VA lab results, MO patients were more likely to have an A1c below 9% (76% vs. 67%) and an LDL below 130 mg/dL (65% vs. 58%). However, our sensitivity analysis considerably decreased between-group differences for intermediate outcome measures as well (79% vs. 76% for glycemic control and 68% vs. 66% for lipemic control). Unadjusted and adjusted odds ratios are presented in the table; considering the sensitivity analyses, all 5 measures were close to the null value both before and after adjustment.
CONCLUSIONS: Chronic opioid therapy, when used to treat pain, does not adversely affect the quality of care for diabetes within the VA system. Further study is needed to understand the relationship between clinical complexity and the quality of care.

Table: Odds of completing performance measures in the major opioids group, compared to controls. The sensitivity analyses assume similar glycemic and lipemic control for Medicare lab tests as for tests obtained within VA. Odds ratios given, with 95% CI.

	Unadjusted	Adjusted
Hemoglobin A1c Measured	1.10 (0.98–1.22)	0.93 (0.85–1.01)
LDL-C Measured	0.96 (0.89–1.04)	0.90 (0.84–0.97)
Eye Examination	1.18 (1.14–1.23)	0.96 (0.92–1.00)
Hemoglobin A1c 9.0	1.52 (1.41–1.64)	1.15 (1.07–1.24)
Hemoglobin A1c 9.0 (sensitivity analysis)	1.17 (1.06–1.27)	1.07 (1.00–1.15)
LDL-C 130	1.36 (1.26–1.46)	1.05 (0.98–1.12)
LDL-C 130 (sensitivity analysis)	1.11 (1.04–1.18)	0.99 (0.93–1.06)

DO PATIENT PREFERENCES OR BELIEFS INFLUENCE THEIR UTILIZATION OF GENERIC DRUGS? W. Shrank[1]; S. Cadarette[2]; E. Cox[3]; M.A. Fischer[2]; J. Mehta[1]; M.A. Brookhart[2]; A. Jerry[2]; N.K. Choudhry[1]. [1]Brigham and Women's Hospital, Harvard Medical School, Boston, MA; [2]Brigham and Women's Hospital, boston, MA; [3]Express Scripts, St. Louis, MO. *(Tracking ID # 190337)*

BACKGROUND: Insurers and policy-makers are developing numerous strategies to stimulate more cost-effective prescribing and increase generic drug use. Increasingly, educational campaigns aimed at beneficiaries have been employed. However, little empirical evidence is available to link patient preferences about generic drugs and actual drug use.
METHODS: We performed a national mailed survey of a random sample of commercially insured adult patients, age 18–95, and explored patient perceptions about generic medications. We used factor analysis to characterize patient perceptions about generic medications across 5 domains: general preferences for generic drugs, perceptions about generic drug safety and effectiveness, perceptions about the value of generic drugs, comfort with generic substitution, and comfort communicating about generics with health care providers. Patient responses were linked to patient's pharmacy claims data to assess actual generic medication use. The relationship between patient perceptions about generic medications and the proportion of prescriptions patients filled for generics was assessed using logistic regression, controlling for a variety of patient socio-demographic, health and insurance characteristics. We conducted 5 separate logistic models, including one factor at a time, and a fully adjusted model with all 5 factors simultaneously to evaluate this relationship.
RESULTS: The response rate among beneficiaries for whom we had correct addresses was 48% (1047 respondents /2202 correct addresses surveyed), and we were able to link responses to pharmacy claims for 976 patients. When evaluating each factor individually, a one standard deviation increase in each of the 5 scales was associated with greater generic drug use: general perceptions about generic drugs was associated with a 3.1% increase in generic drug use (p=0.049), perceptions of generic drug safety and efficacy was associated with a 4.3% increase in generic drug use (p=0.006), perceptions about generic drug value was associated with a 3.3% increase in generic use (p=0.044), comfort with generic substitution was associated with a 6.3% increase (p<0.001), and comfort talking to providers about generics was associated with a 5.3% increase in generic drug use (p<0.001). In the fully adjusted model, after including all 5 factors, only 2 factors were significantly associated with generic drug use; a standard deviation increase in the scale measuring comfort with generic substitution was associated with a 4.9% increase in use (p=0.021), and a standard deviation increase in the scale measuring comfort communicating with providers about generic drugs was associated with a 3.9% increase in generic drug use (p=0.012).
CONCLUSIONS: Generic drug use is most clearly linked to the two actionable preferences we evaluated, comfort communicating with providers about generics and comfort with generic substitution. When developing educational campaigns to increase generic drug utilization, the content should attend to these domains.

DO PATIENTS WANT A MAGIC DIET PILL OR A QUICK EASY FIX? DOCTORS THINK SO, PATIENTS AREN'T SWALLOWING IT B. Shapiro[1]; B.R. Dawkins[2]; E. Velez[3]; C.R. Horowitz[1]. [1]Mount Sinai School of Medicine, New York, NY; [2]Community Resident, New York, NY; [3]James Weldon Johnson Tenant Association, New York, NY. *(Tracking ID # 190165)*

BACKGROUND: Clinicians are frontline in helping patients lose weight. Patients and clinicians, however, may have different agendas for losing weight. We therefore spoke with patients and clinicians to compare their views, in order to ultimately improve weight loss education among low income, minority patients most impacted by obesity.
METHODS: A community-academic partnership conducted two focus groups with overweight Black and Latino adults to discuss how clinicians should teach them about weight loss. Community partners were trained in focus group methods, co-deveoloped the moderator guide, and recruited women in their low-income housing complexes to participate. The partnership also developed and administered a clinician survey to determine what clinicians think their patients want and need to lose weight. Together, community and academic partners reviewed the extensive field notes and survey data and compared clinicians' and community members' responses.
RESULTS: Overall, 16 of 18 overweight Black and Latino women, and 32 of 35 clinicians (internal medicine residents, attendings and nurse practitioners) approached participated. Community residents prioritized emotional support and partnership, their clinicians working with them over a long term to lose weight, and getting concrete, and practical information that is appropriate for their culture and socioeconomic situation. In contrast, a minority (38%) of clinicians stated their patients prioritized getting emotional support and motivation, or having a concrete weight loss plan (12%). While not mentioned by any community residents, 35% of clinicians thought their patients wanted a pill or a quick easy fix. Community residents also expressed that they did not feel their doctors understood their socioeconomic situation and their limited access to healthy food. Clinicians answered that major barriers to helping their patients lose weight were cultural differences (88%), not knowing patients' food budgets (81%), or what foods were available (80%).
CONCLUSIONS: Clinicians recognized patients' needs for a supportive partner. Community residents also desired a long-term solution and a concrete plan, while many clinicians stated their patients wanted a quick fix or a pill. These findings suggest that clinicians may be missing opportunities to form effective therapeutic bonds with their patients and to provide the information their patients want. Clinicians' recognition of cultural barriers thwarting their ability to help patients does reveal an opportunity to give clinicians insight into their patients' priorities, and to develop more effective clinical weight loss education.

DO PHYSICIANS RELY ON PATIENT WISHES TO MAKE SURROGATE DECISIONS IN THE HOSPITAL? A.M. Torke[1]; M. Siegler[2]; A. Abalos[3]; R. Moloney[2]; G.C. Alexander[2]. [1]Indiana University Center for Aging Research, Indianapolis, IN; [2]University of Chicago, Chicago, IL; [3]Private Practice, Rocklin, CA. *(Tracking ID # 190741)*

BACKGROUND: When patients lack decision-making capacity, ethical and legal guidelines advocate that physicians and surrogate decision makers rely first upon patient preferences and second upon best interests. We have limited information about the factors physicians rely upon in clinical practice.
METHODS: House staff and attending physicians in 3 hospitals (2 community hospitals and 1 academic medical center) in a large Midwest metropolitan area completed a written survey at the end of a period of inpatient service to determine the ethical factors they relied upon in recent surrogate decisions. We used logistic regression to examine whether prior written or verbal expressions of patient preferences predicted physician reliance on patient wishes, controlling for patient and physician characteristics.
RESULTS: We surveyed 281 of 420 eligible physicians (response rate 67%). Physicians were 56% white and 27% Asian. Forty-six percent were women. Attending physicians made up 47% of the sample and the remainder were house staff. Seventy-three percent of physicians identified a patient cared for in the previous month who required a major surrogate decision. Few patients (10%) had a living will, and only 44% had previously expressed their wishes verbally. When asked to identify the single most important factor in decisions for their patient, physicians most commonly reported "what was best for the patient overall" (33%), "what the patient would have wanted you to do" (29%), "the patient's pain and suffering" (13%), and "the patient's prognosis" (11%). Factors listed as most important by fewer than 10% of respondents included: "respecting the patient as a person," "respecting

the wishes of the family/surrogate," "providing the standard of care," and "concern the surrogate might sue you." In univariate analyses, physicians were not significantly more likely to rely on patient wishes when the patient had expressed their wishes verbally. There was a trend for use of wishes when patients had living wills (42% v. 27%, p=.19). Physicians were more likely to name patient wishes as the most important factor in the ICU versus inpatient wards (43 v. 23%, p=.005) and less likely as patients aged (50% for patients 18–30 to 18% for those over 80; score test for trend of odds, p=.04). In multivariate analyses, reliance on patient wishes to guide decision-making decreased with increasing age (odds ratio [OR] 0.75 per 10-year increase, 95% CI 0.37–0.99) and was greater for patients in the ICU as compared with general wards (OR 3.01, 95% CI, 1.19–7.63). When asked about the best general ethical guidelines for surrogate decision making, 73% of physicians endorsed a standard that relies on patient preferences (61% for "advance directives" and 12% for "substituted judgment"). "The best interests of the patient" was rated most important by 25%.
CONCLUSIONS: Although most physicians regard patient preferences as the best theoretical guide for surrogate decision making, they rely on these preferences only 1/3 of the time in clinical practice. This discrepancy between ethical theory and practice may occur because so few patients document their wishes. However, there may be additional emotional or psychological factors in the clinical care of patients that account for this difference. Furthermore, patient wishes become less important in advanced age. Further research should examine how patient age may modify the principles that physicians use to guide surrogate decision making.

DO PRE-EXISTING FAMILY SUPPORT AND HOUSEHOLD COMPOSITION PREDICT SUCCESS IN A DIABETES SELF-MANAGEMENT INTERVENTION WITH URBAN AFRICAN-AMERICAN AND LATINO ADULTS? A. Rosland[1]; M. Spencer[2]; E. Kieffer[2]; B. Sinco[2]; G. Palmisano[3]; M. Heisler[4]. [1]University of Michigan Medical School, Ann Arbor, MI; [2]University of Michigan School of Social Work, Ann Arbor, MI; [3]REACH Detroit Partnership, Detroit, MI; [4]University of Michigan Medical School/Ann Arbor VA Hospital, Ann Arbor, MI. *(Tracking ID # 189862)*

BACKGROUND: Successful interventions to improve diabetes self-management behaviors (SMB) and outcomes are necessary to reduce disparities faced by African American and Latino adults with diabetes. Disease-specific social support has been cross-sectionally associated with better diabetes SMB and glycemic control among low-income and minority adults. However, little is known about the prospective effects of baseline family support on SMB interventions. We examined the independent effect of baseline disease support and household composition on participants' physiologic and behavioral changes during a diabetes SMB intervention.
METHODS: We analyzed pre and post intervention survey data from African American and Latino participants in the REACH Detroit Partnership community-based diabetes intervention. Over the six-month intervention period participants worked toward behavioral goals with support from a community health worker, self-management training classes, and healthy eating and physical activity community programs. Perceived disease-specific support was measured with a validated scale, and indices of the frequency of 4 SMBs (checking sugar, taking medicines, checking feet, following a healthy eating plan) and 5 healthy eating behaviors (eating less sweets, fried food, and fruit-flavored drinks; pouring fat off meat; eating high fiber bread) were composed. HbA1C and LDL cholesterol were obtained from medical records. We used multivariate regression to analyze associations between baseline support and household composition with physiologic and behavioral outcomes, adjusting for participant sociodemographics, disease severity, and, when the dependent variable was a change in outcome, for baseline level of the outcome.
RESULTS: Out of 148 participants with pre-intervention surveys, 113 completed surveys immediately after the intervention period, and 93 had complete pre and post- physiologic measurements. At baseline, disease-specific support was associated with increased self-management behavior (p 0.01) and healthy eating practices (p 0.04), but not with HbA1C levels. Household composition variables were not associated with baseline behaviors or HbA1C. In prospective analyses, increased baseline support was associated with larger improvements in healthy eating (p 0.03) and HbA1C (p 0.03) during the intervention. Based on these models, HbA1C was predicted to decrease by 1.2% with the highest level of support and increase by 0.2% with the lowest level of baseline support. In contrast, increased number of people in the household was associated with worsening of A1C (p 0.04) and LDL cholesterol (p 0.03) during the intervention. For each additional person in the household A1C rose by 0.26% and LDL cholesterol rose 4.9 points. In further analyses, being married and presence of children in the home were not associated with HbA1c, LDL, or behavior changes, but presence of other adults in the home was associated with improvement in healthy eating (p 0.03).
CONCLUSIONS: Pre-existing disease-specific support from family and friends is a potentially important influence on participants' ability to improve diabetes SMB or physiologic control during an intervention. Larger numbers of household members may either facilitate or impede efforts to improve SMBs. Interventions should develop appropriate ways to involve family members and bolster family support in efforts to reduce outcomes disparities for African American and Latino adults with diabetes.

DOCTOR-PATIENT COMMUNICATION AND THE RACIAL DISPARITY IN RECOMMENDATIONS FOR JOINT REPLACEMENT L. Hausmann[1]; D. Kresevic[2]; P.Z. Cohen[3]; R. Grant[2]; C. Kwoh[4]; M. Mor[4]; M. Geng[4]; B.S. Ling[4]; S.A. Ibrahim[4]. [1]VA Pittsburgh Healthcare System, Pittsburgh, PA; [2]Louis Stokes DVA Medical Center, University Hospitals Case Medical Center, Cleveland, OH; [3]VA Pittsburgh Healthcare System, University of Pittsburgh School of Medicine, Dept. of Orthopaedic Surgery, Pittsburgh, PA; [4]VA Pittsburgh Healthcare System, University of Pittsburgh, Pittsburgh, PA. *(Tracking ID # 190457)*

BACKGROUND: There is marked racial disparity in the utilization of joint replacement (JR) in the management of end-stage knee/hip osteoarthritis (OA). The role of orthopedic doctor-patient communication in this disparity has never been evaluated. We therefore sought to examine doctor-patient communication and recommendations for JR in African American (AA) and white patients with knee/hip OA seeking treatment in an orthopedic clinic.
METHODS: The sample consisted of AA and white patients who were potential candidates for joint replacement and were seen at the Pittsburgh and Cleveland VA orthopedic clinics. After assessing several patient characteristics (i.e., age, gender, education, BMI, comorbidity, disease severity, willingness to undergo JR, and prior orthopedic clinic visits), we audio-recorded the orthopedic doctor and patient encounter. Trained research staff coded the recordings using the Roter Interaction Analysis System (RIAS). The RIAS classifies doctor-patient communication into 34 categories of dialogue, which we then combined into 10 summary categories each for doctors and patients. Coders also rated positive patient and doctor affect displayed in each recording. Whether JR was recommended during the visit was abstracted from electronic medical records by research staff. Logistic regression models that adjusted for study site and clustering by provider were used for all analyses. We first examined the relationship between patient race and receipt of a recommendation for JR. We then tested univariate associations between recommendation and each patient characteristic and communication variable. Backwards-stepwise selection was used to create a final model containing all variables that had an independent association with recommendation (p<.05) from those with a univariate association (p<.10).
RESULTS: Analyses included data from 222 white and 52 AA patients who were seen by 55 orthopedic doctors. Patients were aged 50 to 89, were mostly male (95%), and most (62%) had no prior orthopedic clinic visits. Recommendations for joint replacement were made for 9.6% AA and 18.8% white patients. This difference was significant when no additional patient characteristics or communication variables were considered (OR=.37, 95% CI=.17-.79). When significant patient characteristics and communication variables were included in the model, African Americans were still less likely than whites to receive recommendations for JR (OR=.32, CI=.13-.79). In this final model, recommendations for JR were associated with greater disease severity (p<.04) and fewer comorbid conditions (p<.04). With regard to doctor-patient communication, four communication patterns were associated with recommendations for JR. Specifically, a recommendation for JR was more likely when communication during the visit was characterized by

patients asking more medical questions (OR=1.32, CI=1.07–1.61), patients making fewer partnership-building (OR=.34, CI=.19-.61) and emotional (OR=.51, CI=.26-.98) statements, and doctors exhibiting more positive affect (OR=1.16, CI=1.03–1.30).
CONCLUSIONS: In this VA sample, AA patients were less likely than whites to receive recommendations for JR from an orthopedic surgeon. This difference remained even after controlling for patient characteristics and patterns of doctor-patient communication that were also associated with recommendations for JR. Additional research is needed to identify factors that contribute to the racial disparity in recommendations for JR.

DOES A DASH-LIKE DIET REDUCE MORTALITY? FINDINGS FROM A POPULATION-BASED FOLLOW-UP STUDY A. Parikh[1]; S. Lipsitz[2]; S. Natarajan[3]. [1]New York University School of Medicine, New York, NY; [2]Brigham and Women's Hospital, Division of General Medicine and Primary Care, Boston, MA; [3]VA New York Harbor Healthcare System and New York University School of Medicine, New York, NY. *(Tracking ID # 190758)*

BACKGROUND: Although the DASH diet has been shown to lower blood pressure in patients with hypertension, the long-term effects of the diet on all-cause and cause-specific mortality is unclear.
METHODS: Using a prospective cohort design, we evaluated the effect of a DASH-like diet on mortality in 4547 hypertensive adults who participated in the Third National Health and Nutrition Examination Survey (NHANES III), representing a total of 41,762,593 U.S. adults. Participants with a history of heart attack, stroke, or congestive heart failure at baseline were excluded from analysis. Nutrient intakes were calculated from a 24-hour dietary recall using the NHANES III Dietary Data Collection System and the U.S. Department of Agriculture (USDA) Survey Nutrient Database. Using established methods, we constructed a nine-point composite scale of total calories, fiber, cholesterol, calcium, magnesium, sodium, potassium, and percentage of total energy from fat, saturated fat, and protein to identify consumers of a DASH-like diet. In addition, we studied individual servings of food groups such as grains, fruits and vegetables, dairy, meat, and legumes, as well as the overall quality of participants' diets using the Healthy Eating Index developed by the USDA. Causes of mortality were obtained from the NHANES III Linked Mortality File, which contained death certificate data from the National Death Index. The relationship between diet and mortality was evaluated using Cox proportional hazard models while controlling for key confounders. All analyses accounted for the complex sampling frame by incorporating weighting, strata, and cluster variables.
RESULTS: Of the 4547 participants studied, 343 (7.5%) were determined to be consumers of the DASH-like diet. During an average of 8 person-years of follow-up, there were a total of 491 cardiovascular disease deaths, 260 ischemic heart disease deaths, 96 stroke deaths, and 1040 all-cause deaths. After adjusting for key confounders (age, sex, race, education, income, obesity, smoking, blood pressure, hyperlipidemia, diabetes, physical activity) and accounting for the complex survey design by utilizing survey weights, strata, and clusters in the Cox proportional hazards models, participants consuming a DASH-like diet at baseline had lower mortality from stroke (HR 0.12, 95% CI 0.03–0.50, $p<0.05$), and all-causes (HR 0.64, 95% CI 0.45–0.92, $p<0.05$). Cardiovascular mortality (HR 0.97, 95% CI 0.59–1.57, $p>0.05$) and ischemic heart disease mortality (HR 1.31, 95% CI 0.79–2.18, $p>0.05$) did not significantly differ between groups.
CONCLUSIONS: These results support the hypothesis that the DASH diet may lower mortality in a nationally representative sample. Adherence to the DASH diet should continue to be encouraged for the prevention of stroke and all-cause mortality.

DOES AN INCREASE IN SERUM CREATININE AFTER STARTING ACE INHIBITORS INFLUENCE THEIR DISCONTINUATION? D.H. Carnahan[1]; K. Haynes[2]; M. Sammel[2]; J.H. Holmes[2]; B.J. Turner[2]. [1]University of Pennsylvania, Wallingford, PA; [2]University of Pennsylvania, Philadelphia, PA. *(Tracking ID # 190625)*

BACKGROUND: Despite known clinical benefits, use of ACE inhibitors (ACE-I) may be limited by concerns over side effects. One of the most worrisome side effects is a decline in kidney function. Although an increase in the serum creatinine up to 20% over baseline is within the acceptable range according to treatment guidelines, we hypothesized that inappropriate discontinuation of ACE-I within this acceptable range would be more likely as baseline creatinine values increased.
METHODS: Using a retrospective cohort from The Health Improvement Network (THIN), we studied all individuals aged 40 years or more from the United Kingdom from 2003 to 2005 who received an initial prescription for an ACE-I after at least one year of registration with the practice prior to this prescription. Exclusion criteria include: no serum creatinine checked before or after ACE-I initiation; a baseline serum creatinine >2.5 mg/dl; a >20% increase in serum creatinine; a serum potassium >5.5 mg/dl within 3 months of the initiation of ACE-I or diagnosis of Angioedema. The primary outcome was discontinuation of the ACE-I within 6 months of the initial prescription. We used generalized estimating equations to examine the relationship between baseline creatinine (continuous) and a binary category for the percentage increase in creatinine (<10%, 10–20%) with the primary outcome as well as their interaction, adjusting for patient demographics, clinical characteristics, year of initial ACE-I prescription, concurrent use of angiotension-receptor blocker (ARB) and physician practice.
RESULTS: Among 98,513 subjects newly started on ACE-I therapy, 25,657 (26%) met study criterion. Mean age was 65.9 years and 51.4% were male. Based on administrative codes, 55.8% had hypertension, 19.8% diabetes, 16.4% coronary artery disease, 5.7% stroke, 3.4% proteinuria, and 2.9% heart failure. 3,939 (13%) subjects had a 10–20% increase over their baseline creatinine. The ACE-I was discontinued in 6,695 subjects (22.7%) and was similar across our binary variable for the percent increase in creatinine (<10% = 22.7%, 10–20% = 22.9%). In the multivariable analysis, there was a statistically significant interaction between the baseline creatinine and the percent increase in creatinine ($p=0.01$), such that with every 1 mg/dl unit increase in the baseline creatinine subjects with a <10% increase were 25% more likely to be discontinued (AOR 1.25, CI: 1.04 – 1.49) while those with a 10–20% increase in creatinine had nearly twice the odds of discontinuation (AOR 1.97, CI: 1.39 – 2.79). Other predictors of discontinuation included: Age (AOR 1.07 per decade of life, CI: 1.04 – 1.09), female sex (AOR 1.74, CI: 1.63–1.86) and concurrent ARB use (AOR 3.05, CI: 2.06 – 4.48) while Diabetes was associated with a decreased discontinuation (AOR, 0.77 CI: 0.71 – 0.84).
CONCLUSIONS: In this retrospective cohort, we demonstrated that ACE-I therapy is often discontinued despite an increase in creatinine within an acceptable range. Moreover, discontinuation is more likely as baseline creatinine increases; so that, the patients with greater renal impairment who would gain most from the renal protection and mortality benefits of ACE-I may be discontinued inappropriately.

DOES CLINICAL TRIAL EVIDENCE ON CAM TRANSLATE INTO CLINICAL PRACTICE: A NATIONAL SURVEY OF PHYSICIANS AND CAM PRACTITIONERS J. Tilburt[1]; F.A. Curlin[2]; E. Emanuel[3]; T.J. Kaptchuk[4]; F.G. Miller[3]. [1]Mayo Clinic, Rochester, MN; [2]University of Chicago, Chicago, IL; [3]National Institutes of Health (NIH), Bethesda, MD; [4]Osher Center, Harvard Medical School, Boston, MA. *(Tracking ID # 189437)*

BACKGROUND: In order for evidence from clinical research to translate into medical practice, providers must first be aware of the research. The objective of this study was to describe clinicians' self-reported awareness of two prominent CAM trials, their ability to interpret research results, and their acceptance of research evidence in their practice. It also sought to determine which characteristics, experiences and attitudes are associated with CAM trial awareness.
METHODS: We mailed a 12-page questionnaire to national random samples of 600 general internists, 600 rheumatologists 600 acupuncturists, and 600 naturopaths.To measure awareness of CAM trials, we asked participants to read summaries of two recent prominent CAM clinical trials and indicate whether they were familiar with each. We also asked them to rate their confidence in their ability to critically evaluate research publications and their acceptance of

research evidence, including measures about the overall importance and relative role of clinical experience, research results, and patient preferences in their clinical decisions, and the usefulness of published results from randomized controlled trials. Respondents were considered "aware of CAM trials" if they reported being familiar with at least one of the trials presented. To test for differences between groups who were and were not aware of CAM trials, we used Chi-squared and t-tests for unadjusted comparisons. Variables that were associated with awareness in unadjusted analyses, were then tested in multi-variable models to determine independent associations with awareness of CAM trials.
RESULTS: 1,561 of 2,400 providers responded (65% overall response rate): 440 (73%) acupuncturists, 442 (74%) naturopaths, 334 (56%) general internists, and 345 (58%) rheumatologists. 59% of all respondents (88% of rheumatologists, 60% of internists, 47% naturopaths, 49% of acupuncturists) were familiar with at least one of the studies. There was broad confidence in respondents' ability to interpret research results. 79% of Acupuncturist, 90% of Naturopaths, 83% of Internist, and 92% of Rheumatologists were moderately or very confident in their ability to critically interpret research literature. But many fewer providers reported being "very confident" (20% of Acupuncturist, 25% of Naturopaths, 16% of Internists, and 32% of Rheumatologists). In multivariate analyses, those who were male [OR=1.3 (1.05–1.62), p=.02], rheumatologists [OR=6.5 (4.2–10.2), p=<.001], those who reported any research experience [OR=1.45 (1.13–1.86),], those who rated their ability to interpret research results as "very confident" [OR=1.5 (1.14–1.97), p=.004], and rating results of randomized trials as "very useful" [OR=1.5 (1.17–1.97),p<.001] were all more likely to be aware of CAM trials.
CONCLUSIONS: Large proportions of conventional and alternative healthcare providers are aware of CAM trials. This implies that evidence from CAM trials has the potential to translate into clinical practice, so long as providers are given the experiences, training and opportunities to apply that evidence in their specific practice contexts. In order for all evidence from clinical research (including CAM research) to more fully achieve its social value, barriers to clinical translation of research results must be overcome.

DOES DIABETES AFFECT PROSTATE CANCER PROGNOSIS? A SYSTEMATIC REVIEW C.F. Snyder[1]; K.B. Stein[2]; B.B. Barone[3]; K.S. Peairs[2]; H. Yeh[1]; R.L. Derr[2]; A.C. Wolff[2]; M.A. Carducci[2]; F.L. Brancati[1]. [1]Johns Hopkins School of Medicine; Johns Hopkins Bloomberg School of Public Health, Baltimore, MD; [2]Johns Hopkins School of Medicine, Baltimore, MD; [3]Johns Hopkins Bloomberg School of Public Health, Baltimore, MD. *(Tracking ID # 189525)*

BACKGROUND: Both diabetes and prostate cancer are prevalent conditions; however, little is known regarding how comorbid diabetes affects prostate cancer prognosis.
METHODS: We searched the EMBASE and MEDLINE databases from inception to August 2007 to identify articles that evaluated the effect of comorbid diabetes on cancer prognosis. We used search terms related to diabetes, cancer, and prognosis, survival, or mortality. Ten articles related to prostate cancer met our inclusion/exclusion criteria. Data abstracted from the articles included population studied, study design, data sources, statistical methods, findings, and study quality. Results were summarized using qualitative methods, focusing primarily on survival/mortality and secondarily on other prognostic indicators (e.g., recurrence). Meta-analysis was not possible due to insufficient reporting.
RESULTS: Of the 10 articles, 7 assessed mortality or survival. One study reported worse 30-day mortality for men with diabetes (odds ratio (OR): 1.87; 95% confidence interval (CI): 1.11–3.15; p=0.02). One study found a significant relationship between type 2 diabetes and prostate cancer death (p<.035). Five studies reported long-term all-cause mortality or survival; only the largest of these studies reported a statistically significant relationship. It found that patients with diabetes had worse survival (hazard ratio (HR): 1.19; 95% CI: 1.04–1.37). One study evaluated acute morbidities and gastrointestinal (GI) and genitourinary (GU) complications among radiotherapy patients. It found higher 5-year actuarial rates of combined Grade 2–4 GI and GU late complications among diabetic men vs. non-diabetic men (34% vs. 23%; p=.013) but found no association between diabetes and acute morbidities. Two studies investigated associations of diabetes with treatment choice. One found that among patients aged 35–64 years, men with diabetes were more likely to receive treatment with radiotherapy (OR: 2.24; 95% CI: 1.29–3.87). The second study found that, compared to surgery, men with diabetes were more likely to undergo external beam radiation (OR: 1.54; 95% CI: 1.12–2.13) and hormonal therapy (OR: 1.63; 95% CI: 1.17–2.27). One study investigated risk of cancer recurrence. It found no association in the overall analysis by diabetes status for patients undergoing surgery or radiation therapy; however, in an analysis of the patients undergoing radiation therapy stratified by prognostic risk, patients in the low risk group who were diabetic were more likely to recur (HR: 3.79; 95% CI: 1.28–11.19; p=.01). This same study found that among patients who were younger than 70 at diagnosis and who underwent radiation therapy, diabetic patients had a significantly higher treatment failure rate (HR: 2.17; 95% CI: 1.02–4.62; p=.04). One study investigated biochemical failure but found no association with diabetes. The quality of the studies included in the review was highly variable.
CONCLUSIONS: Our review suggests that comorbid diabetes adversely affects treatment choice, complication risk, and mortality in men with prostate cancer. More high quality studies are needed to investigate further the effect of comorbid diabetes on prostate cancer prognosis.

DOES HOSPITAL RACIAL COMPOSITION AFFECT THE TREATMENT MEN RECEIVE FOR LOCALIZED PROSTATE CANCER? C. Pollack[1]; P. Groeneveld[2]; M. Chantal[3]; M. Putt[3]; K. Liao[3]; K. Armstrong[3]. [1]Philadelphia VA Hospital, Philadelphia, PA; [2]Philadelphi VA Medical Center, Philadelphia, PA; [3]University of Pennsylvania, Philadelphia, PA. *(Tracking ID # 189551)*

BACKGROUND: Large disparities exist in the treatment and outcome of localized prostate cancer between black and white men. The vast majority of African-Americans (80%) receive care at a fraction of U.S. hospitals (20%), and prior research has indicated that significant differences may exist between hospitals that treat large numbers of black patients versus those with predominatly white patients with regard to quality of care and access to medical technology. The extent to which the racial composition of the hospital helps explain black-white differences in prostate cancer treatment remains unknown.
METHODS: Incident cases of localized prostate cancer were identified from 1999 Medicare inpatient and outpatient claims. Treatment was defined as either prostatectomy (with or without radiation) or radiation only. Patients were linked to the hospitals where they received their initial treatment. Hospital racial composition was determined using demographic data from all hospitalized Medicare beneficiaries. Additional hospital characteristics will be derived from the American Hospital Association. We fitted a multilevel, multivariable logistic regression model to examine whether hospital racial composition was associated with the type of treatment that men received. The initial model included age, race, co-morbidity, block group-level socioeconomic characteristics, and U.S. Census region; subsequent models included categorized hospital racial-composition variables and interactions between these variables and patient race.
RESULTS: Of the 76,292 incident cases of localized prostate cancer, 9,780 (12.8%) underwent prostatectomy and 24,541 (32.2%) underwent radiation therapy. Of the patients who underwent active treatment, black patients were significantly less likely to undergo prostatectomy compared to white patients (25% vs. 28.9%, p<0.0001, adjusted odds ratio[AOR] 0.78, 95% confidence interval [CI] 0.70–0.87). 4,324 patients (12.6%) were treated at hospitals with >30% black patients. Patients treated at hospitals with >30% black patients were significantly less likely to have a prostatectomy (AOR 0.73, CI 0.61–0.88); however, in these hospitals, there were no significant differences in the rates of prostatectomy between black and white patients treated at these hospitals.
CONCLUSIONS: Of Medicare patients who receive treatment for prostate cancer, black men are less likely to undergo prostatectomy and this difference may, in part, be due to the racial composition of the hospital where they receive their care.

DOES MENTORING MATTER? EARLY RESULTS FROM THE UCSF FACULTY MENTORING PROGRAM M.D. Feldman[1]; P.A. Arean[1]; S.J. Marshall[1]; M. Lovett[1]; P. O'Sullivan[1]. [1]University of California, San Francisco, San Francisco, CA. *(Tracking ID # 189685)*

BACKGROUND: Mentoring is a core component of success in academic medicine, yet few health sciences institutions have supported comprehensive mentoring programs for their faculty. The University of California, San Francisco recently committed significant resources to establish the largest and most comprehensive mentoring program for health sciences faculty in the U.S. A robust evaluation of the processes and outcomes of mentoring is planned, and consequently a baseline survey of all potential mentees was conducted in 2007 to investigate the overall mentoring climate at UCSF and to examine the characteristics associated with having a career mentor.
METHODS: All junior faculty up to the Associate rank with appointments of greater than 50% were invited by e-mail to complete a web based 38 item mentoring survey including demographics and a six item academic self-efficacy scale. No incentives were offered to complete the survey. We used descriptive statistics to characterize mentorship at UCSF; Chi Square and odds ratio analyses to determine if gender, ethnicity and faculty series groups were more or less likely to be assigned a mentor; and t-tests to determine differences in self-efficacy between mentored and non-mentored faculty. The UCSF Committee on Human Research approved the research.
RESULTS: 452 of 823 faculty completed the survey (55% response rate). The majority of respondents (89%) were in the School of Medicine, 53% were women, 62% white, 8% African-American and 4% Latino. About two-thirds reported that they currently have a career mentor; of these, 65% said they found their mentor themselves and 20% had the mentor assigned to them. One-third of faculty reported they need help finding a mentor. We then examined what characteristics were associated with having a career mentor. Faculty in the clinician and clinician educator series (compared with the more research oriented series) were significantly less likely to have a mentor. ($p<0.001$). Likewise, faculty who reported having less time for teaching and patient care and who had more protected time for research were more likely to have a mentor ($p<0.001$). Having a mentor was associated with greater satisfaction with time allocation at work. Faculty with 40% or less time in direct patient care were 2.74 times more likely to have a mentor ($p=.001$). Surprisingly, gender ($p=.52$) and ethnicity (Caucasian vs. others; $p=.74$) were not related to having a mentor. Junior faculty with a mentor ($n=298$) had significantly higher academic self-efficacy scores, 6.10 ($sd=1.37$) compared to those without a mentor ($n=138$) 5.44 ($sd=1.39$) at $p<0.001$.
CONCLUSIONS: About one-third of faculty did not have a career mentor. Our findings differ from earlier research in that women and underrepresented minority faculty were not less likely to report having a mentor. We found that faculty who spend more time teaching and doing clinical work (clinician educator faculty) were less likely to have a mentor than clinician investigator faculty. This is a disturbing finding that may explain in part the challenge of retaining clinician educator faculty in academia. Our findings related to self-efficacy are intriguing and suggest that being in a mentoring relationship may contribute to enhanced self- efficacy for faculty. Since self-efficacy has been linked with career satisfaction and success, this is potentially an important outcome of mentoring programs.

DOES PATIENT ROLE-ORIENTATION PREDICT PATIENT-INITIATED DISCUSSIONS WITH PROVIDERS? INSIGHTS FROM THE VA PROJECT TO IMPLEMENT DIURETICS (VAPID) S. Egts[1]; A. Baldwin[1]; A. Ishani[2]; H. Wilson[1]; M. Vanderweg[1]; A.J. Christensen[1]; P. Kaboli[1]. [1]Center for Research in the Implementation of Innovative Strategies in Practice (CRIISP), Iowa City VAMC, Iowa City, IA, Iowa City, IA; [2]Minneapolis VAMC, Minneapolis, MN. *(Tracking ID # 189794)*

BACKGROUND: Evidence-based guidelines for uncomplicated hypertension state thiazide-type diuretics (thiazides) should be first-line therapy; however, many patients are not prescribed this cost-effective treatment. One area not sufficiently studied to improve guideline adherence is the patient's role in promoting evidence-based care. Our work investigates the relationship between patients' attitudes toward care (preferred role orientation) and discussion rates about thiazides between patients and their primary care provider.
METHODS: Patients with a diagnosis of hypertension and not currently taking a thiazide were selected from 13 VA outpatient clinics in the Midwest. Patients either were not at their blood pressure goal or were at goal and taking a calcium channel blocker (CCB), not considered first line therapy for uncomplicated hypertension. Subjects were randomized into one of five groups. Three groups received tiered interventions encouraging patients to talk to their providers about adding or switching to a thiazide: Group A received an educational letter, Group B received the letter with a monetary incentive, and Group C received the letter, monetary incentive, and a reminder phone call. Two control groups included an "intervention" control group of patients whose providers saw intervention patients and a "pure" control group of patients whose providers saw no intervention patients. The primary outcome of interest was whether a discussion occurred about starting a thiazide. Determination of a discussion was based on chart review and/or return of a postcard signed by the provider. The Patient Provider Orientation Scale (PPOS) was used to measure patients' attitudinal preferences for taking an active, involved role in their own care ("patient centered") versus a more passive role. Association between PPOS scores and discussion rates was measured using logistic regression.
RESULTS: To date, 479 patients have completed the intervention. All intervention groups had significantly higher discussion rates than the control groups ($P<0.05$) and increasing the intensity of the intervention was associated with increasing discussion rates ($P<0.05$). Further, having a discussion was predictive of initiation of a thiazide ($P<0.05$). However, degree of patient-centeredness, as measured by the PPOS scale, did not predict whether a thiazide discussion with their provider occurred (OR=1.02; 95% CI 0.99, 1.04).
CONCLUSIONS: Providing VA patients with information about adding or changing to a thiazide for hypertension can lead to high rates of discussion with providers about hypertension therapy. Interestingly, the degree of patient-centeredness did not affect whether a discussion occurred. This somewhat unexpected observation suggests either that the intervention does not challenge patient role orientation or that it may appeal to both patient-centered and physician-centered patients. Additional analyses will evaluate whether patient-provider congruency in orientation is a more significant factor than patient attitudes alone. Future studies should investigate the efficacy of using patients to promote other areas of evidence-based medicine to overcome clinical inertia.

Table 1: Thiazide Discussion Rates (%)

Baseline Blood Pressure	Pure Control	Intervention Control	Group A	Group B	Group C
All Patients (N=479)	2.3	10.7	57.9	64.8	80.2
Not at Goal (N=338)	4.2	14.7	59.5	58.2	81.5
At Goal on CCB (N=141)	0.0	0.0	54.3	82.8	76.7

DOES PRIORITIZING CLINICAL PRACTICE GUIDELINES IMPROVE LIFE-EXPECTANCY COMPARED TO USUAL CARE M.A. Dalal[1]; E.H. Bradley[1]; R.S. Braithwaite[2]. [1]Yale University, New Haven, CT; [2]Yale University, West Haven, CT. *(Tracking ID # 190311)*

BACKGROUND: Quality-of-care measurements are often based on compliance with clinical practice guidelines and do not weigh the relative importance of these guidelines (e.g. is it more important to use a clinic visit to meet blood pressure goals or glucose control goals in a diabetic?). However, increasing numbers of guidelines apply to individual patients, and their magnitude of benefit may vary considerably. The purpose of our study is to evaluate whether prioritizing guidelines according to magnitude of benefit confers substantial life-expectancy (LE) gains compared to current practice, as defined by compliance with quality-of-care measures.
METHODS: We developed a simulation model comparing the benefits of prioritized care with usual care for a hypothetical 40 year-old obese female smoker with hyperlipidemia and hypertension. The main outcome measures were life-expectancy gains and ten-year survival. To identify applicable guidelines, we searched the United States

Preventive Services Task Force recommendations and the National Guidelines Clearinghouse, including class A, B or equivalent recommendations. For each identified guideline we searched a previously published compendium and its source publications for risk-stratified guideline-specific life-expectancy gains. We incorporated the associated mortality benefits into a state-transition model. To model usual care, we ranked and offered guidelines based on commercial health plan compliance to the 2006 Health Effectiveness Data and Information Set (HEDIS) quality metrics. To model prioritized care, we ranked and offered guidelines in order of mortality benefit. We incorporated published estimates of guideline-specific adherence to avoid overestimating benefits. For the base-case we assumed that one visit would occur per year and that two guidelines could be offered per visit. We performed sensitivity analysis by varying the number of guidelines offered per visit, the extent of adherence and the magnitude of guideline benefit.
RESULTS: We found 12 guidelines applicable to the base-case patient of which 6 had available LE gain estimates. We found a 28-fold variability in the magnitude of lifetime benefit conferred [smoking cessation, 2.8 life-years (LY); blood pressure reduction, 1.7 LY; cholesterol reduction, 1.5 LY; weight loss 1.1 LY, cervical cancer screening, 0.22 LY; breast cancer screening 0.10 LY]. The simulated ten-year survival was 90% in usual care and 92% in prioritized care. (2% absolute risk reduction in death attributable to prioritization) Over ten years, usual care confers 0.03 LY above no care and prioritized care confers an additional 0.07 LY above usual care. (233% gain attributable to prioritization) These gains were maintained over a wide range of sensitivity analyses, although were sensitive to assumptions regarding the number of guidelines addressed per visit (1 guideline per visit, 9.54 LY benefit from usual care and an additional 0.04 LY from prioritized care; 3 guidelines per visit, 9.60 LY benefit from usual care and an additional.04 LY from prioritized care).
CONCLUSIONS: Prioritizing guidelines based on magnitude of benefit increases life expectancy compared to usual practice. Modifying quality measures to consider magnitude of benefit has the potential to improve clinical outcomes.

DOES PROVIDING HIGH QUALITY TAKE LONGER? DURATION OF OFFICE VISITS AND QUALITY OF CARE IN THE U.S. L.M. Chen[1]; W.R. Farwell[1]; A.K. Jha[1]. [1]MAVERIC, VA Boston Healthcare System, Boston, MA. *(Tracking ID # 190147)*

BACKGROUND: With the growing focus on the quality and cost of health care, clinicians are often asked to achieve two seemingly incompatible goals: improving quality while minimizing cost. Duration of the office visit is one critical element of the cost of care. We sought to determine whether quality of care is associated with duration of face-to-face physician contact.
METHODS: We used the National Ambulatory Medical Care Survey (NAMCS), a nationally representative survey of office visits to non-federal physicians, to examine outpatient care from 1995 to 2005. We identified visits eligible for at least one of four validated quality indicators. The three preventive counseling indicators were: 1) smoking cessation counseling for smokers during general medical exams (GMEs), 2) dietary counseling for those at high or moderate risk for coronary artery disease, and 3) exercise counseling for this same group. The single screening indicator was blood pressure measurement during GMEs. We estimated the proportion of eligible visits meeting each indicator, and the association between indicator performance and visit duration. Based on the relative value units assigned to an outpatient office visit in 2005, we also modeled the cost associated with raising the quality of all eligible but low-performing visits.
RESULTS: Thirty percent of included visits were eligible for at least one quality indicator. Among eligible visits, tobacco cessation counseling was performed in 26%, diet counseling in 24%, exercise counseling in 17%, and blood pressure measurement in 76%. Better performance was associated with longer visits for each of the four indicators: tobacco cessation counseling added 2.99 minutes ($p<0.01$), dietary counseling added 2.63 minutes ($p<0.01$), exercise counseling took an additional 3.44 minutes ($p<0.01$), and blood pressure measurement added 1.95 minutes ($p<0.01$). Eligible visits meeting indicators were 9–14% longer than those not meeting indicators. We found that it would take an additional 8.0 million physician hours ($1.7 billion in additional costs) annually to ensure that all visits complied with these quality measures.
CONCLUSIONS: Visits that met validated quality indicators for counseling and screening were longer than comparable visits that did not meet these standards. Improving quality and lowering costs are two commonly held goals for the U.S. healthcare system. However, in some instances, it is likely that improving quality may lead to increased costs.

DOES RACE AFFECT CANCER SCREENING AMONG WOMEN IN VA CARE? B. Bean-Mayberry[1]; E.M. Yano[1]; M.K. Mor[2]; M. Wang[1]; M.J. Fine[2]. [1]VA Greater Los Angeles HSR&D Center of Excellence, Sepulveda, CA; [2]VA Pittsburgh Center for Health Equity Research and Promotion and University of Pittsburgh, Pittsburgh, PA. *(Tracking ID # 190087)*

BACKGROUND: While the Department of Veterans Affairs (VA) Healthcare System serves many vulnerable patient populations, minimal research has focused on preventive care for women in VA and whether cancer screening measures vary by race. Our aim was to evaluate gender-specific cancer screening rates among women veterans and to assess if performance differences exist by race.
METHODS: We performed a secondary analysis using a national sample from VA External Peer Review Program (fiscal years 2001–2003) linked to administrative data. We used multiple logistic regression analyses for 2 age-appropriate, gender-specific cancer screening measures, screening mammograms and Pap smears, adjusting for patient demographics, health care utilization, body mass index, and geographical region. For each measure, we defined age-appropriate subgroups eligible to receive each test using VA and national guidelines.
RESULTS: In a cohort of 14,851 women, 71% were white, 17% black, 2% other race, and 10% unknown race. The overall frequency of screening mammography in women aged 52–69 years was fairly high (82%), with no significant differences among racial groups (white 82%, black 81%, other 82%, and unknown 82%; p=.92). In logistic regression analyses, race was not an independent predictor of screening mammography (OR for blacks=0.98; 95% CI 0.80–1.20; OR other race=0.98; 95% CI 0.56–1.73; OR unknown race=0.88; 95% CI 0.67–1.15). The overall frequency of screening for cervical cancer for non-hysterectomized women, aged 18–64 years was also high (90%), with no significant differences among racial groups (white 90%, black 90%, other 85%, and unknown 91%; p=.07). In logistic regression analyses, race was not an independent predictor of cervical cancer screening (OR for blacks=1.13; 95% CI 0.94–1.35; other race=OR 0.62; 95% CI 0.39–1.00; and unknown race=OR 1.11; 95% CI 0.90–1.36).
CONCLUSIONS: Screening rates for breast and cervical cancer are high for women veterans and do not vary by race. VA has accomplished a form of equity in preventive healthcare that many non-VA systems still strive for. These preventive care measures will need to be consistently monitored as the number and diversity of women veterans in the VA rapidly expands.

DOES SURGICAL WEIGHT LOSS IMPROVE (OR CURE) OBSTRUCTIVE SLEEP APNEA? A META-ANALYSIS. D.L. Greenburg[1]; C.J. Lettieri[2]; A.H. Eliasson[2]. [1]Uniformed Services University, Bethesda, MD; [2]Walter Reed Army Medical Center, Washington, DC. *(Tracking ID # 189853)*

BACKGROUND: Obesity and obstructive sleep apnea (OSA) are common comorbidites of each other. Bariatric surgery has been hypothesized to be a useful treatment for both as it results in reductions in the body mass index (BMI) and respiratory disturbance index (RDI). Most studies to date have focused their reporting on the difference between the RDI before and after surgical weight loss rather than the value of the postoperative RDI. We hypothesize that despite dramatic reductions in the average RDI many individuals will be left with persistent OSA following surgical weight loss.
METHODS: We performed an electronic literaure search of MEDLINE and EMBASE for the terms obstructive sleep apnea, sleep-disordered breathing, bariatric surgery, surgical weight loss, and obesity. Selected references were also evaluated. We included case series of greater than 8 patients which reported preoperative and postoperative apnea-hypopnea or respiratory disturbance indices. Results of polysomnography were scored using these synonomous indices to determine the presence and/or severity of obstructive sleep apnea. Values of 0–4 were considered normal whereas values of 5–14, 15–29, >=30 were considered consistent with mild, moderate, and severe obstructive sleep apnea

respectively. Data were abstracted for meta-analysis from each article by all coauthors. Quality of reporting was assessed using criteria by Downs and Black. Data were pooled using a random effects model.
RESULTS: Our search identified 2309 studies and we reviewed 57 abstracts. From these we identified 10 studies (n=321) which met our inclusion criteria. Most studies were small and of poor quality. Prior to undergoing bariatric surgery the mean BMI and RDI were 54.1kg/m2 (95%CI=50.1–57.3) and 55.4 events per hour (95%CI=48.4–62.4). Postoperative polysomnography occurred an average of 562 days after bariatric surgery. The mean postoperative BMI and RDI improved to 38.0 kg/m2 (95%CI=36.4–39.5) and 15.8 events per hour (95%CI= 12.1–19.5). Despite the observed redutions in the RDI, over 62% of individuals had obstructive sleep apnea following surgical weight loss. Most of these individuals had moderate or severe OSA at the time of follow-up.
CONCLUSIONS: Surgical weight loss significantly lowers the BMI and RDI. However, many patients have persistent OSA despite weight loss and marked improvements in their RDI. Patients and clinicians should understand that continued therapy directed toward OSA may be warranted to prevent complications from residual disease.

DOES THE USE OF SPECIFIC COMPLEMENTARY AND ALTERNATIVE MEDICINE THERAPIES NEGATIVELY PREDICT IMMUNIZATION USE? L. Jones[1]; C.N. Sciamanna[1]; E. Lehman[1]. [1]Pennsylvania State University, Hershey, PA. *(Tracking ID # 189940)*

BACKGROUND: Previous studies have noted that users of complementary and alternative medication (CAM) are more likely to receive preventive services, such as immunizations. We undertook the following analysis to understand which CAM therapies explain this relationship, given the heterogeneity of such therapies and to investigate the possibility that some therapies may increase the association while use of others may decrease the association. We had particular concerns that use of some CAM therapies would be associated with missing out on important preventive care, in keeping with the teachings and traditions of those therapies.
METHODS: We analyzed data from the 2002 National Health Interview Survey Alternative Medicine Supplement, a nationally representative US survey of 31,044 adults, which asked about the use of 29 specific products (e.g., herbs, prayer, yoga, acupuncture). We limited our analyses to individuals (n=9898) who should have received both the influenza (in the past year) and pneumococcal vaccination (ever), such as those with diabetes or emphysema. We used bivariate analyses to determine the prevalence of use of each therapy and the association of its use with having received both vaccinations. We then used multivariable logistic regression to identify the independent effect of reporting use of each therapy with receiving both vaccinations, adjusting for demographic variables (age, gender, race, ethnicity, educational, region, number of outpatient visits) and accounting for multiple comparisons. All analyses were performed to account for the complex, multi-level sampling design of NHIS.
RESULTS: Use of CAM therapies ranged widely, from those used commonly [e.g., praying for one's own health (65.1%), herbs (23.5%), chiropractic (20.6%)] to those used less commonly [e.g., chelation therapy (0.2%), Qi Chong (0.3%), naturopathy (0.8%)]. Overall, 31.8% reported receiving both vaccinations, which was higher among users of any CAM therapy (33.1% in users v. 20.9% in non-users, $p<0.001$). After adjusting for demographic variables and accounting for multiple comparisons, users of deep-breathing exercises [(13.7% of sample, aOR =1.37 (1.18, 1.59)], megavitamin therapy [(5.4% of sample, AOR=1.50 (1.18, 1.92)] and praying for one's own health [(65.1% of sample, aOR= 1.19 (1.07, 1.32)] were more likely to report receiving both immunizations. The other 26 CAM therapies were not significantly associated with receiving both immunizations. Further analyses revealed that use of prescription medications [(87.1% of sample, aOR=2.42 (1.99, 2.95)] was strongly associated with receiving both immunizations.
CONCLUSIONS: Use of specific CAM therapies varies widely, with most CAM therapies being used uncommonly. Users of certain CAM therapies, such as megavitamin therapy and deep-breathing exercises and prayer for one's health are more likely to report receiving needed immunizations. Fortunately, the use of no specific treatment was a significant negative predictor of receiving immunizations. There have been concerns raised that alternative providers may discourage the use of more traditional biomedical treatments such as immunizations. This study suggests that this is probably not the case.

DRAWING THE LINE ON DIABETES: ROUNDING OUT DIAGNOSTIC CRITERIA THROUGHOUT EAST HARLEM B. West[1]; P. Parikh[1]; G. Arniella[2]; C.R. Horowitz[1]. [1]Mount Sinai School of Medicine, New York, NY; [2]North General Hospital, New York, NY. *(Tracking ID # 190127)*

BACKGROUND: Diabetes and pre-diabetes are epidemic and disproportionately impact minority populations. Both conditions can be managed to thwart progression, but are grossly underdiagnosed, and therefore many individuals remain untreated. East Harlem (EH), a low-income, minority community, has the highest diabetes mortality rate in New York City and an estimated 40% of local adults have pre-diabetes or diabetes. We investigated diagnostic guidelines used by organizations performing screenings in EH to determine how best to diagnose and ultimately manage these hyperglycemic states.
METHODS: We interviewed nurses, doctors, outreach workers, and community members for their perspectives about screening, collected screening forms and diagnostic criteria from all EH healthcare organizations, and attended local events to screen and be screened for diabetes and observe testing techniques. We then compared the specific blood glucose parameters for normal, pre-diabetes, and diabetes used by each organization to those of the American Diabetes Association (ADA), and protocols for education, referral and follow-up. Based on this information, we developed a standardized tool to allow all screening facilities in EH to conduct uniform screenings and present clear and concise results to community residents.
RESULTS: We gathered information from 9 sites: 3 hospitals, 2 neighborhood health centers and 4 community organizations conducting health screenings. Screeners rarely requested information on factors that could influence test results, such as time of last meal, family history of diabetes, and physical activity. No tool mentioned pre-diabetes at all. There was a broad range in finger-stick technique among screening sites, including practices known to adversely impact test accuracy. Fasting glucoses considered abnormal ranged from over 100 mg/dl, to over 120, to over 140, with varied response protocols, from asking if the person was fasting and tailoring results to the answer, to simply stating "normal" or "not normal." Only one organization had panic values for urgent care. No tool contained a referral network, and while copies of results were maintained, it was unclear which if any persons would be called after the event to confirm follow-up with a provider. To ensure that individuals receive information that is consistent, accurate, and actionable, and that screeners are equipped with accurate information, we developed and piloted a bilingual tool containing precise guidelines for testing and interpreting results as well as a referral system for those with abnormal glucose levels. It also contains educational information for community members so that they can better understand pre-diabetes and diabetes.
CONCLUSIONS: In comparing glucose screenings in one small urban community, we found that screeners omitted pre-diabetes and differed widely in glucose levels considered abnormal, finger-stick techniques, referral and follow-up protocols, and ways in which to present results. These discrepancies may put community members at an increased risk for receiving information that is inaccurate, inconsistent and inadequately linked to a supportive healthcare network. If glucose screenings are to continue and be purposeful, then standard testing and follow-up procedures should be used. It is the entirety of the screening process, from registration through treatment, which shapes the individual experience and ultimately impacts the health of the community.

ECOLOGY MATTERS: SAFETY NET PATIENTS' PERSPECTIVES OF DIABETES SELF MANAGEMENT SUPPORT Y. Kim[1]; M.A. Situ[1]; I. Mclean[1]; M. Handley[2]; T. Rundall[3]; D. Schillinger[2]. [1]University of California, San Francisco, San Francisco, CA; [2]UCSF Center for Vulnerable Populations, San Francisco General Hospital, San Francisco, CA; [3]UC Berkeley, Berkeley, CA. *(Tracking ID # 189364)*

BACKGROUND: While most self management support (SMS) interventions focus on the patient as the target for behavior change, research in the field of social epidemiology shows that SMS behavior may be influenced by contextual factors beyond the individual. We employed qualitative methods to explore contextual factors influencing patients' experiences with two models of diabetes SMS: technologically-facilitated automated telephone self-management (ATSM) and interpersonally-oriented group medical visits (GMV).

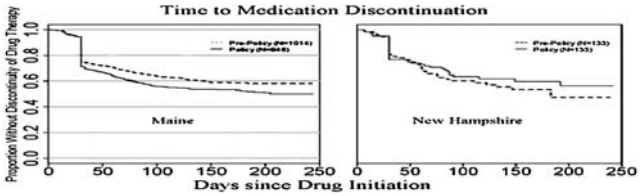
METHODS: This study was embedded in a practice-based clinical trial of 339 diabetic patients from safety net clinics in San Francisco randomized to receive usual care, ATSM, or GMV over 9 months in English, Spanish, or Cantonese. ATSM participants responded to prompts during weekly automated calls, with nurse practitioner follow-up as needed. GMVs met monthly, with topics that participants chose around self-care. Among those having responded to ≥1 ATSM call or attended ≥1 GMV, we purposefully sampled 126 participants and administered semi-structured interviews to examine contextual factors that influenced patient experiences with SMS. A multidisciplinary team identified domains and contextual themes using grounded theory. We created a multi-level framework to map themes that emerged.
RESULTS: Participants represented a range of languages (44% English, 40% Spanish, 16% Cantonese), health literacy (55% limited health literacy), insurance (50% uninsured, 23% Medicaid 18% Medicare) and ethnicity (47% Latino, 22% Asian, 20% African American, 8% White), with mean age 55 years, HgbA1c 9.8% (SD 1.7) at enrollment. We identified 2 major domains that related to (1) SMS **"engagement"**, defined as patients' participation with and usage of the SMS program, and (2) SMS **"activation"**, defined as patients' experiences with the self-management behavior change processes. Contextual factor themes that either facilitated or impeded **engagement** were psychosocial barriers, family support, effects on access, ease of use, language/literacy appropriateness, nurse follow-up, poverty and transportation barriers. Themes that either facilitated or impeded **activation** were self-motivation, better understanding of disease, pain, family obligations, behavior-change reminders, group support, cultural resonance, emotional well-being, neighborhood safety and food insecurity. These themes were consistent with a 4-level ecological paradigm, with internal contextual factors (e.g. depression), local factors (e.g. family obligation), system-related factors (e.g. access), and environmental factors (e.g. neighborhood safety, food insecurity) influencing both SMS engagement and activation.
CONCLUSIONS: The current study provides conceptual validation for an ecological model of self management support (SMS). Our results extend this model by demonstrating that contextual factors affect not only behavior change ("activation") but also participation in SMS programs ("engagement"), and by providing insight into the ways in which SMS programs can be evaluated and improved relative to the needs and assets of vulnerable populations, the safety net settings where they receive their care, and the communities in which they live. Future SMS program development and implementation should account for and attempt to influence these multiple levels to maximize patient engagement and activation.

ECONOMIC AND CLINICAL EFFECTIVENESS OF HOSPITALIST MODEL IN PNEUMONIA CARE: A SYSTEMATIC REVIEW R. Sandhu[1]; S.U. Nigwekar[1]. [1]Rochester General Hospital, Rochester, NY. *(Tracking ID # 189969)*

BACKGROUND: Hospitalists have emerged as one of the fastest growing physician groups in the United States. However, studies looking at the effectiveness of hospitalist model of care have shown mixed results. We conducted a meta-analysis to study economic and clinical effectiveness of hospitalist model in patients hospitalized for pneumonia (PNA).
METHODS: We searched MEDLINE, ISI Web of Science, EMBASE and Cochrane Library for studies comparing hospitalist model with non-hospitalist model in patients hospitalized for PNA. Two reviewers independently identified relevant trials and abstracted data on the following outcomes- length of stay (LOS), health care costs, 30-day rehospitalization rate, in-house mortality rate and six core measures of PNA care proposed by the Joint Commission on Accreditation of Healthcare Organizations (blood cultures prior to antibiotic administration, timely antibiotic administration, oxygen assessment upon presentation, deep venous thrombosis (DVT) prophylaxis, pneumococcal vaccination and tobacco use counseling). Statistical analyses were performed using a random effects model with the Cochrane RevMan software and results were expressed as weighted mean difference (WMD) with 95% confidence intervals (CI) for continuous variables and as odds ratio with 95% CI for dichotomous variables. Heterogeneity among the included trials was analyzed using the heterogeneity Q statistic and the I2 test.
RESULTS: Eight studies published from 1998 to 2007 and including 30,232 participants met our inclusion criteria. Six studies were specifically designed to compare hospitalist model to non-hospitalist model in patients hospitalized for PNA and in two studies, subsets of patients were hospitalized for pneumonia. Mean length of stay was significantly lower in the hospitalist model compared to the non-hospitalist model (8 studies, 30,232 patients, WMD −0.63 days, 95% CI −1.05 to −0.22 and mean health care cost was also significantly lower in the hospitalist model (5studies, 29,380 patients, WMD −407.02 US dollars, 95% CI −421.42 to −392.61). There was no statistically significant difference between the 2 models in terms of 30-day rehospitalization and in-house mortality rates. There was significant heterogeneity across the included studies with respect to LOS (I2 = 92.1%; Q=88.91, P<.0001). There was no significant heterogeneity across the studies for cost, 30-day rehospitalization and in-house mortality analysis. Only one study analyzed the core measures and reported that the hospitalist patients were more likely to receive only 2 (DVT prophylaxis and pneumococcal vaccination) out of 6 quality care processes compared to the patients cared by non-hospitalists. Patient sample sizes of studies done prior to 2005 (5 studies) were significantly smaller compared to those done after 2005 (3 studies). However the outcome results comparing the 2 models of care did not change when analyzed separately as studies done prior to and after 2005.
CONCLUSIONS: Our meta-analysis shows that for a common in-patient diagnosis such as PNA, hospitalist model of care is associated with modest improvement in LOS and health care costs. Similar improvement, however, is not seen in clinical outcomes like rehospitalization and mortality rates. Only one study analyzed the core measures of PNA care. Further studies looking at core measures are needed to identify potential areas of intervention for the hospitalists.

ECONOMIC AND CLINICAL IMPACTS OF PRIOR AUTHORIZATION FOR ANTIPSYCHOTIC AND ANTICONVULSANT MEDICATIONS AMONG MEDICAID BENEFICIARIES WITH BIPOLAR DISORDER Y. Zhang[1]; A.S. Adams[2]; D. Ross-Degnan[3]; F. Zhang[4]; S. Soumerai[3]. [1]University of Pittsburgh, Pittsburgh, PA; [2]Harvard Medical School and Harvard Pilgrim Health Care, Boston, MA; [3]Harvard University, Boston, MA; [4]Harvard Medical School, Boston, MA. *(Tracking ID # 190656)*

BACKGROUND: To control the rapid growth in prescription drug spending, both private and public insurance programs have increasingly relied on prior authorization (PA) policies, especially for new atypical antipsychotic (AA) and anticonvulsant (AC) medications. However, the effects of such policies on psychoactive medication use are unknown. This study examined the impact of a PA policy in Maine on AA/AC utilization, discontinuations in therapy, and drug expenditures among Medicaid beneficiaries with bipolar disorder.
METHODS: We identified patients with bipolar disorder from Maine (study state) and New Hampshire (comparison state) using Medicaid and Medicare utilization data (2001–2004). We used an interrupted time-series and comparison group design to measure changes in AA/AC market share and expenditures among continuously enrolled patients (N=6,712). We used survival analysis to analyze the PA impact on treatment discontinuations and rates of switching medications among two newly treated cohorts before (7/02–2/03) and during the policy (7/03–2/04).
RESULTS: The PA policy reduced the prevalence of use of non-preferred AA and AC medications (those requiring PA) by 8 percentage points to 29% at the end of the 8-month policy period. The policy did not increase the prevalence of use of preferred agents (those not requiring PA), nor rates of switching. We found that the PA policy reduced total spending on medications for bipolar disorder by $27 per patient during the 8 month policy period. However, the hazard rate of treatment discontinuation (all bipolar drugs) for the policy cohort was 2.28 [95% CI: (1.36, 4.33)] higher than the pre-policy cohort, adjusting for secular trends in the comparison state.
CONCLUSIONS: The PA policy decreased non-preferred AA/AC use but also increased treatment discontinuations among individuals with bipolar disorder. The small reduction in pharmacy spending for bipolar treatment associated with the policy may have been due to higher rates of discontinuation rather than switching. Our findings indicate that the PA policy in Maine may increase patient risk without appreciable cost savings to the state.



EFFECT OF A COMPREHENSIVE MEDICATION RECONCILIATION PROCESS ON MEDICATION DISCREPANCIES ON ADMISSION TO A VETERANS ADMINISTRATION HOSPITAL A. Kartha[1]; A. Correia[1]; B.G. Fincke[2]. [1]VA Boston Healthcare System, West Roxbury, MA; [2]Boston University/ Center for Health Quality Outcomes and Economic Research (CHQOER), Bedford, MA VA Medical Center, Bedford, MA. *(Tracking ID # 190320)*

BACKGROUND: Medication discrepancies at hospital admission are common and cause harm. To prevent medication discrepancies, The Joint Commission mandates medication reconciliation on hospitalization. This usual reconciliation process is done at most hospitals by the admitting provider or nurse with limited time, electronic medical records (EMR) or pharmacist involvement. The effectiveness of such reconciliation processes is not well characterized. The Veterans Affairs (VA) is the largest healthcare system in the United States and has the world's largest integrated EMR. This study characterizes the nature of medication discrepancies on hospital admission in the VA and evaluates the effect of a comprehensive medication reconciliation process on these discrepancies.
METHODS: All patients admitted to medical and surgical floors of our urban, academic veterans hospital were eligible. Admitting providers initially reconciled the patients medications and entered admission orders. Clinical pharmacists then performed a comprehensive medication reconciliation process within 24 hours using patient and caregiver interviews, patient medication lists and vials, EMR review and by contacting outpatient providers. They entered a medication reconciliation note in the EMR documenting any discrepancies and contacted inpatient providers when indicated. We defined a medication discrepancy as a difference between this comprehensive pharmacist outpatient medication list and admission orders. We classified discrepancies as Unintentional (true errors) or Intentional (intended therapeutic changes) based on discussion with the ordering provider by research staff. We characterized Unintentional discrepancies by Frequency and Type: omission (deletion of drug used before admission), commission (addition of drug not used before admission), dose, interval and other. Clinical importance was determined by an expert panel as Class 1 (unlikely to cause discomfort or clinical detioration), Class 2 (potential to cause moderate discomfort or detioration) or Class 3 (potential to cause severe discomfort or detioration).
RESULTS: Among 139 consecutively admitted inpatients, 39 were excluded (37 lacked a pharmacist note and in 2 cases an inpatient provider could not be contacted). Among 100 subjects, mean age was 70 years, 97% were male, mean number of medical problems per subject was 8.5, median length of stay was 4.5 days and 84% were admitted to medicine. 62% of subjects had 112 unintentional discrepancies (mean 1.8 unintentional discrepancies per subject). 26% had two or more and 7% had 4 or more. Of 112 unintentional discrepancies, 76 were omissions (68%), 24 dose (21%), 8 interval (7%) and 4 commissions (4%). 25 (22%) unintentional discrepancies were Class 2. 48 (43%) discrepancies persisted in 26 patients at the time of discharge, of which 6 (12%) were Class 2.
CONCLUSIONS: Unintentional medication discrepancies are common upon admission at a VA hospital. A comprehensive medication reconciliation process helps to identify and reduce many discrepancies that persist after the usual reconciliation process. Among these discrepancies, medication omissions are most common and over 20% have the potential to cause harm. Concerningly, a large number of discrepancies including some with a potential to cause harm persist at hospital discharge even after providers are made aware of discrepancies. Future analyses will determine reasons for persistent discrepancies and their clinical impact.

EFFECT OF A QUALITY ASSESSMENT AND IMPROVEMENT CURRICULUM ON RESIDENT KNOWLEDGE AND SKILL IN IMPROVEMENT L.M. Vinci[1]; J.L. Oyler[1]; J. Johnson[1]; V. Arora[1]. [1]University of Chicago, Chicago, IL. *(Tracking ID # 189705)*

BACKGROUND: While quality improvement (QI) curricula for internal medicine residents have been developed, few have been rigorously evaluated. Our Quality Assessment and Improvement Curriculum (QAIC) is a required course which uses the American Board of Internal Medicine (ABIM) Practice Improvement Module (PIM) to teach PGY2 residents QI skills. The aim of this study is to assess the effect of QAIC on resident QI knowledge and skills.
METHODS: QAIC was introduced for PGY2 residents during their ambulatory rotations in 2006. Residents complete a practice assessment using the PIM. In groups, residents review their PIM data, then select, implement and measure the impact of, a small QI project in their continuity clinic. Residents were asked to complete the Ogrinc Quality Improvement Knowledge Assessment Test (QIKAT), a set of three scenarios with short answer questions regarding, writing an aim statement, choosing a measure, and proposing an intervention. To evaluate the effect of the curriculum on resident skills, a previously used self-assessment was used. Residents were asked to rate their level of comfort with 12 core QI skills (i.e. writing an aim statement, using small cycles of change, etc.) on a four item scale ranging from 1 (not at all comfortable) to 4 (extremely comfortable). PGY2 residents completed the QIKAT and self-assessment before and after QAIC. To account for the effect of accumulating experience, these tools were also administered to PGY3 residents (who did not take QAIC) and served as a historical control group. QIKATs were graded by 3 independent blinded raters using a previously applied scoring system. Inter-rater reliability was confirmed. Pre- and post- PGY2 performance was compared using paired t-tests for the QIKAT and paired Wilcoxon signed rank tests for the self-assessment of QI skills. The post PGY2 group was compared to the PGY3 historical control using t-tests for the QIKAT scores and chi square tests for the self-assessment of QI skills.
RESULTS: 87% (26/30) of PGY2 residents completed a pre and post self-assessment and the QIKAT. 83% (24/29) of PGY3 residents completed the self-assessment and QIKAT. The PGY2 residents showed a significant improvement in QI skills and knowledge, as evidenced by an increase in QIKAT scores [Pre 6.98 (6.23–7.72) vs. Post 9.70 (8.92–10.50);$p<0.001$]. The PGY2 post curriculum scores were also significantly higher than the PGY3 contols [Post 9.59 (8.82,10.36) vs Control 7.34 (6.48,8.20); $p<0.001$]. Of note, there was no difference between the pre-curriculum PGY2s and the PGY3 control group [Pre 7.05 (6.39,7.71) vs. Control 7.34 (6.48,8.20);$p=0.58$]. On the self assessment of QI skills, PGY2s showed significant improvements in nearly all QI skills after the curriculum. For example, 23/26 reported increases in their ability to use small cycles of change ($p<0.001$), 24/26 in studying the process ($p<0.001$), and 16/26 in using measurement to improve skills ($p<0.001$). The PGY2 post group also outperformed the PGY3 controls on the self-assessment of QI skills in nearly all tasks. For example, 82% of post-PGY2s rated their comfort level with PDSA cycles moderate to high vs 22% of controls ($p=0.001$).
CONCLUSIONS: A quality assessment and improvement course using the ABIM PIM resulted in significant improvements in resident knowledge and skills in quality improvement. Use of a historical control group can be a helpful way to account for the effects of accumulating resident experience in a pre-post study of resident education.

EFFECT OF HOSPITALIST ATTENDING PHYSICIANS ON TRAINEE EDUCATION: A SYSTEMATIC REVIEW P. Natarajan[1]; S. Ranji[1]; A.D. Auerbach[1]; K.E. Hauer[1]. [1]University of California, San Francisco, San Francisco, CA. *(Tracking ID # 189745)*

BACKGROUND: Hospitalist programs are increasingly prevalent in teaching hospitals. Consequently, internal medicine and pediatrics residents and medical students may receive much of their inpatient education from hospitalists. The objective of this study was to characterize the effects of hospitalists on trainee education.
METHODS: We searched MEDLINE, DARE, NHS EED, HTA, and Cochrane (last searched November 2007) resources for citations using the term "hospitalist," as well as national meeting abstracts from SHM (2002–2007), SGIM (2001–2007), and Pediatric Academic Societies (2000–2007), and bibliographies of included articles. Citations were included if written in English and met all of the following criteria: (1) involvement of hospitalists; (2) comparison to non-hospitalist attendings; and (3) evaluation of trainee knowledge, skills, or attitudes. A standardized abstraction form was developed based on the Best Evidence Medical Education (BEME) Collaboration protocol. Each

citation meeting inclusion criteria was independently extracted by three reviewers.
RESULTS: We initially identified 711 articles and 7,062 meeting abstracts. Of these, 32 articles were retrieved for full-text review, with six meeting all inclusion criteria, while 10 abstracts were retrieved with 3 meeting all inclusion criteria. Two citations were abstracted twice to compare hospitalists to both non-hospitalist general internists and specialists. Two citations described pediatric hospitalists while the rest included internal medicine hospitalists. Three citations surveyed residents, four surveyed medical students, and three surveyed both residents and medical students. All citations measured trainee attitudes and were coded as Level 1 by the Kirkpatrick hierarchy. The most common measures surveyed included trainees' overall satisfaction, satisfaction with teaching, and ratings of effectiveness of feedback. Other common measures included trainees' ratings of the attending's fund of knowledge, enthusiasm/interests, availability, role model qualities, and involvement of trainees. In all studies that compared hospitalists to a control group composed of both non-hospitalist general internists and specialists, trainees were more satisfied with teaching and with the overall experience with hospitalists. Despite high ratings for both groups of attendings, all studies demonstrated a significant increase in trainees' satisfaction overall and all but one with teaching satisfaction for hospitalists. One of the two studies which distinguished non-hospitalist general internists from specialists showed that trainees preferred hospitalists in terms of overall satisfaction, teaching, and feedback. The other did not demonstrate an advantage of hospitalists over non-hospitalist general internists, citing similar demographic attending features between hospitalists and general internists. No studies evaluated residents' or students' learning or performance based on attending type.
CONCLUSIONS: The data suggests that trainees are generally more satisfied with inpatient education from hospitalists. However, comparisons of hospitalists to general internists have yielded mixed results with some studies showing equivalent learner satisfaction. Whether the increased satisfaction with hospitalists translates to improved learning is unclear.

EFFECT OF RACE/ETHNICITY AND PERSISTENT RECOGNITION OF DEPRESSION ON MORTALITY IN ELDERLY MEN WITH TYPE 2 DIABETES AND DEPRESSION

L.E. Egede[1]; L.K. Richardson[1]; M. Mueller[1]. [1]Medical University of South Carolina, Charleston, SC. *(Tracking ID # 190190)*

BACKGROUND: To evaluate the effect of depression on risk of death among elderly men with type 2 diabetes, and determine whether this risk differs by race/ethnicity and persistent recognition of depression.
METHODS: Data on a cohort of 14, 500 male veterans with type 2 diabetes were analyzed. Diagnosis of depression and diabetes were based on ICD-9 codes using established algorithms. Persistent recognition of depression was defined as individuals with ICD-9 code for depression documented at 0/1, ¡Ý2, and ¡Ý3 visits after the initial diagnosis of depression. Cox proportional hazards regression models were used to compare survival times by depression status and by race/ethnicity and persistence of recognition of depression among depressed patients adjusting for relevant covariates. SAS was used for statistical analysis.
RESULTS: Over 10 years (847,164 person-years of follow-up), 2, 305 deaths were documented. Compared to non-depressed veterans, hazard ratios for depressed veterans was 2.0 (95% CI 1.7–2.2) in unadjusted model and 1.6 (95% CI 1.3–1.8) in adjusted model. Among those with depression, persistent recognition was associated with significantly lower hazard ratios (0/1 vs. ¡Ý2, HR 0.80 [0.57–1.11]; and 0–2 vs. ¡Ý3, HR 0.58 [0.40–0.89]). Hazard ratios were greater for whites compared to blacks (1.60, 95% CI 1.25–2.53) or compared to other ethnic groups (1.78, 95% CI 1.25–2.53).
CONCLUSIONS: Depression increases the risk of death in elderly men with type 2 diabetes, persistent recognition of depression is associated with lower mortality, and whites have higher mortality compared to blacks or those from other ethnic groups.

EFFECTIVE INPATIENT TEACHING: IDENTIFYING PREDICTORS

C.B. Stowe[1]; C.K. Powell[2]; E.B. Clyburn[1]; W.P. Moran[1]; W.T. Basco[1]. [1]Medical University of South Carolina, Charleston, SC; [2]USC School of Medicine, Columbia, SC. *(Tracking ID # 190170)*

BACKGROUND: As more teaching institutions adopt the hospitalist model for inpatient care, a new generation of internists has become responsible for the education of internal medicine house staff, prompting questions about their effectiveness as clinical educators. We aimed to 1) compare teaching skills of hospitalists to traditional academic generalists and 2) identify primary predictors of highly rated teaching skills.
METHODS: We analyzed house staff evaluations of attendings on the general medicine rotation from 2000–2004 at an academic medical center. We also obtained specific attending characteristics by reviewing faculty Curricula Vita. The primary outcome was the overall rating of the faculty member's teaching skills from these evaluations. Using bivariate analysis, we compared the scores of dedicated hospitalists to those of traditional academic generalists who served as faculty on the hospitalist services. Finally, we used ordinal regression to determine which of the attending background characteristics predicted better overall teaching skills.
RESULTS: There were 426 evaluations completed by house staff working with 7 hospitalists and 7 traditional academic generalists. Evaluations were required, resulting in a 100% response rate. Using bivariate analysis, house staff rated the overall teaching skills of traditional academic generalists higher than those of hospitalists (3.80 vs. 3.47, P<0.01). Using ordinal regression, we found that only one factor correlated with highly rated teaching skills: having served as chief resident or a medicine fellow (Parameter estimate −0.61 for not serving as chief or fellow, P<0.01).
CONCLUSIONS: After adjusting for variables in these data, the teaching skills of the hospitalists and those of the traditional academic generalists did not differ. Having undergone faculty training in the form of serving as chief resident or fellow was the predictor characteristic that correlated with highly rated teaching skills. These analyses suggest that faculty development training may provide clinicians with teaching skills that residents find valuable. Future directions could include implementation of a faculty development course to improve teaching skills at our institution.

EFFECTIVE PAIN MANAGEMENT FOR PATIENTS WITH SICKLE CELL VASO-OCCLUSIVE CRISIS: A SYSTEMATIC REVIEW OF BARRIERS AND INTERVENTIONS TO IMPROVE QUALITY

M.C. Beach[1]; C. Haywood[1]; S. Lanzkron[1]; J. Strouse[1]; R.F. Wilson[1]; H. Park[1]; C. Witkop[1]; E. Bass[1]; J. Segal[1]. [1]Johns Hopkins University, Baltimore, MD. *(Tracking ID # 190106)*

BACKGROUND: Effective pain management during vaso-occlusive crisis (VOC) is essential to the delivery of high quality care for patients with sickle cell disease (SCD). We synthesized the findings of studies in which barriers to effective pain management during VOC were identified, and studies which evaluated interventions to improve quality of VOC pain management.
METHODS: As part of a broader project funded by the Agency for Healthcare Research and Quality to examine safety, efficacy, and barriers to use of hydroyurea for sickle cell disease, we performed a systematic review of literature through July 2007 using electronic and hand searches to identify studies in which barriers to effective pain management were identified and studies which evaluated interventions to improve pain management quality for patients with VOC. Two reviewers abstracted data from the articles, and graded the strength of the evidence as high, moderate, low, or insufficient using predetermined criteria.
RESULTS: Twenty-five studies were included in our review. Sixteen studies identified barriers to effective pain management and 9 studies tested the effectiveness of interventions to improve the quality of pain management. Most (n=9) of the 16 studies describing barriers used qualitative methods (e.g. focus groups, in-depth semi-structured interviews), 6 used quantitive methods (e.g. questionnaires), and one study used both. Subjects in the 16 studies describing barriers were patients/caregivers (n=9), health professionals (n=4) and both (n=3). Barriers identified in more than one of these studies were negative provider attitudes (n=14), lack of provider knowledge (n=5), lack of provider time (n=2), and inadequate pain assessment tools (n=2). Of the nine intervention studies, the majority evaluated the effect of clinical protocols/ pathways (n=6), while one used audit and feedback, and two changed the structure of care through the use of a Day Hospital and a fast-track admission process. Only one of the clinical interventions included staff sensitivity training. Three of the 9 intervention studies were done in the pediatric setting, 2 in the adult setting, and the

remaining 4 did not specify whether the patients were adults or children. Four of the nine intervention studies showed improvement in one or more direct outcomes (e.g. chart-abstracted measures of pain management quality or patient ratings), while the remaining 5 studies showed improvement in one or more indirect outcome (e.g. length of stay or costs).
CONCLUSIONS: There were high and moderate levels of evidence that negative provider attitudes and poor provider knowledge, respectively, are barriers to the effective provision of pain medications for patients with VOC. There was also moderate evidence that interventions can improve effective provision of pain medications for VOC. Interventions to improve quality of pain management can be effective and should take into account barriers such as negative provider attitudes by working to change the attitudes and minimizing their impact.

EFFECTIVE RECRUITMENT AND ENROLLMENT IN RESEARCH THROUGH COMMUNITY-LED STRATEGIES B.L. Brenner[1]; S.M. Lachapelle[2]; G. Arniella[3]; C.R. Horowitz[1]. [1]Mount Sinai School of Medicine, New York, NY; [2]Little Sisters of the Assumption Family Heatlh Services, New York, NY; [3]North General Hospital, New York, NY. *(Tracking ID # 190151)*

BACKGROUND: Community based participatory research (CBPR) is an important strategy for partnering with and reaching populations who bear a greater burden of illness but have historically been difficult to engage. We used a CBPR approach to test the effectiveness of several different strategies for identifying adults with pre-diabetes in East Harlem and recruiting them into a diabetes prevention trial.
METHODS: The East Harlem Partnership for Diabetes Prevention is a CBPR partnership led by a Community Action Board of 25 people who represent the ethnic, racial and linguistic diversity of East Harlem. The Board identified pre-diabetes as a critical community health problem and conducted assessments to design, implement and evaluate a one year pilot intervention to address this condition. This process led the Board to test the effectiveness of an 8 session, peer-led lifestyle education intervention– Project HEED (Help Educate to Eliminate Diabetes), with a randomized controlled trial design. For eligibility, the CAB chose to identify overweight East Harlem adults with pre-diabetes by administering oral glucose tolerance tests at local sites. The CAB chose five different recruitment and enrollment strategies: (1) Mail information about pre-diabetes and referral pads, and phone all internists in East Harlem encouraging them to refer patients; (2) Promote the study at public events, i.e., health fairs and farmers' markets; (3) Organize special recruitment events; (4) Recruit at existing organizations such as at senior centers and public housing projects; and (5) Partner-led recruitment, engaging CAB members and key people in organizations and churches to lead the outreach, recruitment and enrollment at their sites. In this latter approach, local leaders developed and implemented recruitment techniques based on their knowledge of and relationships with their clients. We collected data on enrollment rates using the different strategies, and demographic data on the persons enrolled.
RESULTS: We approached 554 community residents from April – July 2007; 39% through partner-led efforts, 37% through public events, 15% from presenting at local organizations and 9% at special recruitment events. None were referred by clinicians. Of all the strategies, partner-led recruitment was most efficient and successful in attracting people who consented, had pre-diabetes and were enrolled in the trial; 33% of people approached through this strategy enrolled, as compared to 6–15% for the other strategies. Fully 72% of those 99 persons enrolled in the pilot were identified via this method. Furthermore, we enrolled a predominantly low-income (45% with annual incomes under $15,000), undereducated (58% did not complete high school), uninsured (49%), unemployed (70%), non-English speaking (72%), food insufficient (25%) population.
CONCLUSIONS: Using a CBPR approach, in which community leaders developed and managed a process to identify and enroll adults with pre-diabetes into a trial, led to rapid recruitment of predominantly low-income, uninsured, Spanish-speaking people, who are historically quite challenging to engage in research. This program highlights the value of grassroots and organizational commitment to identify, reach out and motivate potential study participants using techniques that may be unfamiliar to researchers, but are nevertheless rigorous and effective.

EFFECTIVENESS OF ANTIBIOTICS IN ACUTE EXACERBATIONS OF CHRONIC OBSTRUCTIVE PULMONARY DISEASE M. Rothberg[1]; O. Brody[1]; P. Penelope[2]; M. Lahti[3]; P. Lindenauer[4]. [1]Tufts University School of Medicine, Springfield, MA; [2]University of Massachusetts Amherst, Amherst, MA; [3]University of Massachusetts, Amherst, MA; [4]Tufts University, Springfield, MA. *(Tracking ID # 189729)*

BACKGROUND: Acute exacerbations of chronic obstructive pulmonary disease (AECOPD) are a leading cause of hospitalization in the United States. Although current guidelines recommend treatment with antibiotics, the evidence supporting these recommendations is limited. Most clinical trials examining the effect of antibiotics have been small, were performed in the ambulatory setting, and lacked patient level data about the concomitant use of bronchodilators and corticosteroids. The objective of this study was to examine the association between antibiotic treatment and a composite measure of treatment failure among a broadly representative group of patients hospitalized for AECOPD.
METHODS: We conducted a retrospective cohort study of patient hospitalized for AECOPD in 2001 at 360 U.S. hospitals that participated in a large database that is used for measuring quality of care and resource utilization and contains detailed information about diagnoses, tests and treatments. Patients were included if they were >39 years old and had a principal diagnosis of AECOPD or a principal diagnosis of respiratory failure paired with a secondary diagnosis of AECOPD. Patients admitted directly to the ICU, having any other diagnosis representing bacterial infection, or whose length of stay was <2 days were excluded. Those who received at least 2 consecutive days of antibiotics beginning on hospital day 1 or 2 were considered to have received antibiotic treatment. We developed multivariable models to estimate the effect of antibiotic treatment on a composite measure of treatment failure, defined as the initiation of mechanical ventilation after hospital day 2, inpatient death, or readmission within 30 days. Models were adjusted for a wide range of patient (e.g. demographics, comorbidities), physician (e.g. specialty) and hospital factors (e.g. size, teaching status); other treatments (e.g. steroids, bronchodilators); and the propensity for treatment with antibiotics. Generalized estimating equations were used to account for the effects of patient and physician clustering.
RESULTS: Of the 35,053 patients who met our enrollment criteria, 27,812 (79.3%) received antibiotic treatment, with 55% receiving a quinolone, 38% a cephalosporin and 27% a macrolide. Compared to patients who did not receive treatment with an antibiotic, treated patients were younger (median age 70 vs. 71), more likely to be in managed care (20% vs. 19%), to be white (78% vs. 73%), and to receive steroids (87% vs. 74%) or a blood gas (58% vs. 53%) ($p<0.01$ for all comparisons). Inpatient mortality (1.5% vs. 1.7%), the initiation of mechanical ventilation after hospital day 2 (1.2% vs. 1.4%) and diarrhea (1.2% each) were similar among the 2 groups of patients, however those treated with antibiotics were less likely to be readmitted within 30 days (18% vs. 19% $p=0.0004$) and their risk of treatment failure was lower (20% vs. 22% $p<0.0001$). After adjustment for covariates and propensity, the use of antibiotics was still associated with a decreased risk of treatment failure (OR 0.89, 95% CI 0.83–0.95). The effect of antibiotics on mortality was of similar magnitude, but not statistically significant (OR 0.85, 95% CI 0.68–1.06).
CONCLUSIONS: For patients hospitalized with AECOPD, treatment with antibiotics results in a decrease in treatment failure, primarily due to lower readmission rates among those treated.

EFFECTS OF PSYCHIATRIC COMORBIDITY ON ACUTE MYOCARDIAL INFARCTION MORTALITY: DIFFERENCES ACCORDING TO THE COMORBIDITY IDENTIFICATION APPROACH. T.E. Abrams[1]; M.V. Sarrazin[2]; G.E. Rosenthal[3]. [1]University of Iowa/ Iowa City VA Medical Center, Iowa City, IA; [2]VAMC Iowa City, Iowa City, IA; [3]University of Iowa, Iowa City, IA. *(Tracking ID # 190458)*

BACKGROUND: Cardiovascular disease is most common cause of mortality and morbidity in the US and current estimates indicate high comorbid rates of Mental Health disorders (MHD) among those suffering from cardiovascular disease. However, prior work on the associations between MH disorders and outcomes after acute myocardial infarction (AMI) has yielded conflicting results. Thus, we sought to measure associations between MH disorders and AMI mortality, and to determine if associations were influenced by the identification approach of MH disorders

METHODS: Our study sample included 21,745 consecutive Veterans Administration (VA) hospitalizations in 2004–06 with a principle diagnosis of AMI (ICD-9 code 410.xx) as identified from the Patient Treatment File. Data elements included demographical, clinical, and laboratory data obtained from two administrative data files, the Outpatient Care Files and the Decision Support System (DSS). MH disorders, including depression, anxiety, PTSD, schizophrenia, and bipolar illness, were identified using one of two approaches: 1) secondary ICD-9 codes from the index hospitalization, or 2) ICD-9 codes recorded from an outpatient encounter in the prior 12 months. The primary outcome, 30-day mortality, was determined from the VA Vital Status File. Severity of illness was measured using admission values of 8 common laboratory tests from the DSS. Generalized estimating equations (GEE) were used to adjust mortality for socio-demographics, medical comorbidities, laboratory severity, and cardiac injury (assessed by troponin levels).
RESULTS: MH disorders were identified in 2,503 (10%) patients from inpatient diagnoses and 4,523 (18%) patients from prior outpatient diagnoses. Patients identified with psychiatric illness were younger (65.3 vs. 69.3; p<.001 and 62.2 vs. 69.0; p<.001) for outpatient and inpatient approaches, respectively. For both approaches those with psychiatric illness were more likely to be female. Patients with psychiatric illness identified by the inpatient approach had lower mean number of comorbid medical illnesses (3.1 vs. 3.4; p<.001) whereas those identified by the outpatient approach had similar mean number of comorbid medical illnesses (3.3 vs. 3.3; p=.06). Agreement between the two approaches was fair (kappa=0.34). Unadjusted mortality was similar for patients with outpatient MH codes (13.1% vs. 12.0%; p=.06), but was lower in patients with inpatient codes (7.9% vs. 12.0%; p=.001). However, in GEE analyses, adjusted odds of death was higher for veterans with a MH outpatient codes (OR=1.18; 95% CI, 1.07–1.28), but were similar for veterans with inpatient codes (OR=0.84; 95% CI, 0.65–1.04).
CONCLUSIONS: Risk-adjusted mortality was higher for patients with prior MH disorders identified by prior outpatient codes, but not for those identified by secondary inpatient codes. Thus, associations between comorbid MH disorders and AMI mortality are complex and differ depending on the approach of identifying MH disorders. These findings suggest that the two approaches capture unique constructs of MH disorders and studies using claims data should consider using multiple approaches for identifying MH disorders. Lastly, the higher mortality of patients with prior MH outpatient codes indicates greater unmeasured disease severity or variations in health care delivery that may merit further examination.

EFFICACY OF GENOTYPE-GUIDED WARFARIN PRESCRIBING: A SYSTEMATIC REVIEW K.N. Kangelaris[1]; S.W. Bent[2]; R.L. Nussbaum[2]; J.A. Tice[2]. [1]University of Michigan, San Francisco, CA; [2]University of California, San Francisco, San Francisco, CA. *(Tracking ID # 189932)*

BACKGROUND: In August 2007, the FDA issued a labeling change for warfarin emphasizing the "opportunity for healthcare providers to use genetic tests to improve their initial estimate" of warfarin dosing. This is the first FDA recommendation to consider genetic testing when initiating a commonly prescribed medication and may set a precedent for the future use of genetic technologies in clinical practice. We conducted a systematic review of the efficacy of genetic testing to reduce significant bleeding or thromboembolic events when initiating warfarin therapy.
METHODS: We searched PUBMED, EMBASE, International Pharmaceutical Abstracts, and www.clinicaltrials.gov to identify published and ongoing clinical trials in the English-language literature. Selection criteria included: randomized clinical trial comparing pharmacogenetic dosing (PGD) of warfarin using common genetic variants of CYP2C9 and/or VKORC1 versus a standard-dosing algorithm in adult, warfarin-naïve patients. Outcomes included percentage of patients with out-of-range International Normalized Ratio (INR) and adverse events. Two investigators independently abstracted data and assessed study quality using a validated instrument.
RESULTS: Only 3/933 studies met the inclusion and exclusion criteria (423 patients). Five additional randomized trials are currently accruing patients. The 3 selected studies differed substantially in their quality, interventions and outcome measures (see Table). Two studies evaluated the contribution of CYP2C9 variants; one assessed both CYP2C9 and VKORC1 variants. Dosing algorithms for the control arm varied significantly. As suggested by previous observational studies, PGD improved prediction of the final warfarin maintenance dose. However, only one study showed that PGD improvement in clinically relevant endpoints such as percentage time INR in-range and time to first therapeutic INR. There was a trend towards fewer adverse events with PGD, but the risk difference decreased as study quality increased.

Table: Randomized trials of pharmacogenetic warfarin initiation

Author year, n (n PG/S arms)	Quality*	Follow-up, days	Genes tested	Standard dosing	INR in range: PG/S, %	Adverse events: PG/S, %
Hillman 2005, n=38 (18/20)	3	28	*CYP2C9*	5 mg Marshfield algorithm	41.5/ 41.7	11.1/ 30.0
Caraco 2007, n=185 (92/93)	1	22/40**	*CYP2C9*	DAWN AC computer algorithm	45.4/ 24.59	3.3/ 12.9‡
Anderson 2007, n=200 (101/99)	4	46	*CYP2C9*, *VKORCI*	10 mg × 2 ays, then 5 mg	49.8/ 51.9	4.0/5.1

PG, pharmacogenetic arm; S, standard dosing arm
* Jadad score (0.5, higher is better)
** PG/S; differing f/u times between intervention groups
† Statistically significant result (p < 0.001)
‡ 14 of total 15 were considered "minor bleeding"

CONCLUSIONS: Our findings suggest that using genetic testing to select initial warfarin dose may result in decreased risk of adverse events. However, small sample sizes and the variation in study design prevented definitive estimates of effectiveness, much less cost-effectiveness of this intervention. We recommend that clinicians await the results of the larger, high quality randomized trials before adopting genetic testing as the standard of care for warfarin initiation.

EFFICACY OF PATIENT VERSUS HEALTHCARE PROVIDER BASED INTERVENTIONS IN INCREASE SCREENING RATES, KNOWLEDGE AND AWARENESS OF COLORECTAL CANCER SCREENING: A SYSTEMATIC REVIEW C. Dash[1]; I. Guessous[1]. [1]Rollins School of Public Health, Department of Epidemiology, Atlanta, GA. *(Tracking ID # 190000)*

BACKGROUND: Interventions to increase knowledge of and awareness about colorectal cancer (CRC) screening target patients or healthcare providers, but it is unknown which approach is more effective. The goal of our review was to identify and assess interventions aimed at increasing awareness about CRC screening among average risk patients and healthcare providers and to compare their efficacy.
METHODS: Studies were identified by searching Medline between 1995 and June, 2007 (English and French). Three comprehensive search themes (CRC screening, screening exam, and awareness) were developed and combined using the Boolean operator "and". All intervention studies that had a component for increasing CRC awareness in either patients or providers or both were selected for review. Studies that did not assess change in screening outcomes or attitude/knowledge outcomes as a result of the intervention were excluded.
RESULTS: Fifty-two studies met the eligibility criteria. 32 (60%) were RCT, and 90% of the non-randomized intervention studies reported outcomes pre- and post-intervention. The majority (66%) involved use of one or more multimedia components to provide education on CRC risk factors and screening options. Interventions among the 44 studies that targeted patients were multimedia educational material (brochures/ video/computers) (66%), health educators (lay or healthcare providers) (20%), patient/preventive health navigators (9%), and media/community outreach (14%). Interventions among the 14 studies that targeted

providers were provider/clinician education (71%), provision of screening tool kits (29%), questionnaires/reminders to identify patients that require screening (21%), help with patient notification of test results (14%), and organization level CRC screening quality improvement programs (14%). Of the studies that reported screening outcomes, 73% (29/40) reported a significant change in the outcome post-intervention. Components of awareness intervention directed towards screening recipients or patients that were found to be most effective were patient navigators, in-person counseling by nurse/provider educators, and targeted/tailored multimedia educational materials. Successful components of the healthcare provider based interventions were educational and other initiatives targeted to individual providers rather than organizations. We found no evidence that studies targeting providers were more likely to report significant effect of the intervention on the screening outcome as compared to those targeting patients [Number (%) of studies reporting significant effect of intervention on screening outcomes: patients: 20/29 (69%), providers: 4/5 (80%), Fisher exact test P=0.53]. We also did not find enough evidence to conclude that studies targeting providers were more likely to report significant effect of the intervention on attitude/knowledge outcomes compared to those targeting patients [Number (%) of studies reporting significant effect of intervention on attitude/knowledge outcomes: patients: 18/19 (95%), providers: 5/5 (100%), Fisher exact test P=0.79]. Short follow up periods and lack of cost-effectiveness estimates were some of the weaknesses of the intervention studies.
CONCLUSIONS: Most interventions are effective at increase CRC screening rates. We did not find any statistically significant difference between healthcare provider and patient based interventions in increasing screening rates and knowledge.

ELECTRONIC HEALTH RECORD COMPONENTS AND THE QUALITY OF CARE S. Keyhani[1]; P. Hebert[2]; J.S. Ross[1]; A. Federman[2]; A.L. Siu[1]. [1]James J. Peters Bronx VAMC/ Mount Sinai School of Medicine, New York, NY; [2]Mount Sinai School of Medicine, New York, NY. *(Tracking ID # 190238)*

BACKGROUND: Electronic Health Records (EHRs) have been promoted as an important tool to improve the quality of care. However, past studies examining the relationship between EHR and quality have been limited by EHR heterogeneity and lack of information on EHR components. We examined the association between EHR components, a complete EHR and the quality of care at ambulatory visits.
METHODS: Using data from the 2005 National Ambulatory Medical Care Survey and the National Hospital Ambulatory Medical Care Survey, we conducted a cross-sectional analysis of all visits with an established primary care provider and examined the association between individual EHR components and 3 outcomes: 1) blood pressure control 2) receipt of recommended therapy for chronic conditions and 3) use of diagnostic testing. We also examined similar associations for complete EHRs which we defined as one that includes physician and nursing notes, electronic reminder system, computerized prescription order entry, test results and computerized test order entry. We considered blood pressure controlled when systolic blood pressure was less than 140 and diastolic blood pressure was less than 90. We defined use of aspirin for ischemic heart disease or cerebrovascular disease, a beta blocker for ischemic heart disease (IHD), an angiotensin converting enzyme inhibitor or angiotensin receptor blocker (ACEI/ARB) for diabetic patients with hypertension, and an inhaled steroid for asthma as receipt of recommended therapy. We defined ordering of a complete blood count, electrocardiogram, chest x-ray, urinalysis or any imaging test during a primary care visit as measures of diagnostic testing that may be obviated by better record-keeping in an EHR. We constructed multivariate models to examine the association between each EHR component and each outcome described above controlling for patient socio-demographic, health, physician practice and geographic factors.
RESULTS: Electronic physician notes (20.1%) was the most commonly reported, and electronic reminders (12%) was the least commonly reported EHR component. Less than 8% of visits were in offices with a complete EHR. The sample size for each chronic condition ranged from 545 for IHD to 4433 visits for blood pressure control. We found no association between electronic physician notes and blood pressure control or receipt of recommended therapies, with the exception of inhaled steroids among asthmatics [n=811, adjusted odds ratio (OR) 2.86, 95% CI 1.12 to 7.32]. We found no association between electronic reminder systems and blood pressure control [n=4433, adjusted OR 1.27, 95% CI 0.84 to 1.92] or receipt of appropriate therapies, with the exception of ACEI or ARB in diabetics with hypertension [n=1228, adjusted OR 2.58, 95% CI 1.22 to 5.42]. We found no association between electronic physician notes or electronic test results and any measure of diagnostic testing. We found no relationship between having a complete EHR and any of the quality measures investigated.
CONCLUSIONS: The mere existence of an EHR, or a particular component of an EHR does not appear to improve the quality of ambulatory care. Future research focusing on how an EHR is used and how care is integrated through an EHR may offer some insight as to why many of the anticipated quality improvements from electronic health records are not being realized.

EMERGING REGIONAL HEALTH INFORMATION ORGANIZATIONS IN NEW YORK STATE L.M. Kern[1]; A. Wilcox[2]; J. Shapiro[3]; K. Yoon-Flannery[1]; E. Abramson[1]; E. Flink[4]; A. Colello[4]; R. Kaushal[5]. [1]Cornell University, New York, NY; [2]Columbia University, New York, NY; [3]Mount Sinai School of Medicine, New York, NY; [4]New York State Department of Health, Troy, NY; [5]Weill Medical College of Cornell University, New York, NY. *(Tracking ID # 190600)*

BACKGROUND: To improve health care quality and efficiency, regional health information organizations (RHIOs) have developed across the country. RHIOs aim to promote the adoption of health information technology (HIT) and facilitate the implementation of health information exchange (HIE), but few have succeeded to date nationwide. Through the HEAL NY program, New York State is investing $200–250 million in HIT and HIE, which is more taxpayer dollars than any other state. Our objective was to understand the scope of projects being pursued through Phase 1 of this program, which included $53 million in awards.
METHODS: We conducted a telephone survey of the 26 HEAL NY Phase 1 RHIOs in January-February 2007. We used a novel instrument with 26 open-ended questions about the activities of the RHIOs and categorized responses to the questions according to domains created a priori.
RESULTS: With a 100% response rate, we found that the HEAL NY Phase 1 RHIOs had a variety of project goals, rationales, clinical settings, stakeholders, and technologies. They were also community-driven, with leadership and funds coming from the communities while academic medical centers generally played a smaller role. The RHIOs were motivated by a desire for access to clinical data, with 86% of RHIOs planning to exchange medication lists and 77% laboratory results. Half of the RHIOs (50%) had formal governance structures and more than half (62%) lacked a business model for financial sustainability.
CONCLUSIONS: HEAL NY Phase 1 RHIOs are diverse, community-driven initiatives at early stages of organizational preparedness. As RHIOs are still evolving as a potential model for reforming health care, future prospective studies will be needed to determine which RHIOs succeed (in exchanging data, achieving sustainability and improving health care) and why.

ERECTILE DYSFUNCTION DRUG USE AND RISKY SEXUAL BEHAVIOR IN HIV+ AND HIV- MEN R.L. Cook[1]; K.A. Mcginnis[2]; D.A. Fiellin[3]; J.L. Goulet[4]; A.J. Gordon[2]; J. Samet[5]; K. Mattocks[4]; S. Crystal[6]; K.L. Kraemer[2]; S. Braithwaite[4]; M. Rodriquez-Barradas[7]; A. C. Justice[4]. [1]University of Florida, Gainesville, FL; [2]University of Pittsburgh, Pittsburgh, PA; [3]Yale University, New Haven, CT; [4]VA Connecticut Healthcare System, West Haven, CT; [5]Boston University, Boston, MA; [6]Rutgers University, New Brunswick, NJ; [7]Debakey VA Medical Center, Houston, TX. *(Tracking ID # 190842)*

BACKGROUND: The use of erectile dysfunction drugs (EDD) may be associated with risky sexual behavior. Prescribing physicians should know whether patients who receive EDD are more likely to engage in risky sex, especially inHIV infected patients. Our objectives were to determine the proportion of sexually-active HIV+ and HIV- men who received EDD and to determine whether EDD use is associated with risky sex.
METHODS: We used Year 2 Follow-up Veterans Aging Cohort Study (VACS) survey data, collected from 2004–2005. Men were recruited from general medicine and infectious disease clinics in 8 VA medical centers.

1451 (68%) of 2125 HIV+ men and 1225 (73%) of 1684 HIV- men reported past year sexual activity and were included in the analyses. The sexually-active sample was predominantly non-white (68% black, 19% white, 9% Hispanic, and 4% other) and middle-aged (mean age 51 years old).We defined EDD users as men who received 2 or more prescriptions (based on Pharmacy Benefits Management data) for EDD in the previous year. Risky sex was defined as having more than 1 sexual partner in the previous year with lack of condom use at last intercourse. We used multivarible logistic regression to determine whether EDD use, HIV status, age, race/ethnicity, and alcohol or drug abuse/dependence (based on ICD-9 code data) were associated with risky sex.
RESULTS: Overall, 29% of sexually active men received EDD prescriptions in the previous year. Receipt of EDD was associated with increasing age (7% for those <40 years, 24% for 40–49 years, and 34% for 50+ years). EDD use was more common among HIV- than HIV+ men (32% vs. 25%; p <0.001). Risky sex was more common in HIV- men compared to HIV+ men (15% vs. 10%; p<0.001), especially in men ages 50–59 (15% vs. 5%; p<0.001). In multivariate analyses, EDD use was not significantly associated with risky sex overall (OR=1.17; 95% CI=0.89–1.52) or when stratified by HIV status. Overall, risky sex was reported more frequently by men who were HIV- (OR=1.70; 1.34–2.16), who had a diagnosis of alcohol abuse/dependence (OR=1.79; 1.08–2.97), or a diagnosis of both alcohol and drug abuse/dependence (OR=1.59; 1.16–2.17). Older age and black race were associated with decreased risky sex behavior.
CONCLUSIONS: EDD use was common in male veterans, increased with age, and was used less among HIV+ men. Despite its past association with risky sex in other populations, EDD was not significantly associated with risky sex in this sample, irrespective of HIV status. Risky sex was associated with alcohol and drug abuse/dependence, which emphasizes the continued need to address substance abuse in clinical settings. Further examination of the relationship of EDD to other types of risky sexual behaviors and in specific subgroups of men is still warranted.

ETHICAL ISSUES IN PAY-FOR-PERFORMANCE: OPINIONS OF SGIM MEMBERS
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BACKGROUND: Although pay-for-performance (P4P) compensation is widespread, many ethical questions remain unanswered. We sought to determine opinions of SGIM members and personnel who manage P4P programs regarding whether and how P4P can be ethical for patients and physicians.
METHODS: We organized focus groups at five SGIM regional meetings (Midwest, Mid-Atlantic, Southern, New England, and Northwest) and another in San Francisco to represent California regional members. Facilitators first presented an overview of P4P then conducted discussions based on a topic guide. Sessions focused on the ethical ramifications of P4P, recommendations to create fair and effective compensation systems, and the ethical and scientific foundation of P4P. We assessed similar themes with key informants who lead or manage P4P programs for payers, insurers, or P4P coalitions through in-depth one-on-one interviews. Focus groups were audiotaped and transcribed and key informant interviews were transcribed by hand. Thematic analysis was used to code and categorize data. A validation exercise was conducted by all participating coders on an initial transcript; ad interim analysis was conducted by a single investigator.
RESULTS: A total of 76 individuals participated in six focus groups and we interviewed nine key informants. Ad interim results from formal analysis of the Midwest, Southern, and Northwest regional focus groups, which included 48 subjects, are reported. Participants had substantially more comments regarding potential adverse ethical effects of P4P compared to benefits. All three focus groups questioned the validity and comprehensiveness of quality measures used in P4P and felt that narrow, inadequate measures could lead to adverse patient outcomes such as non-individualized care or adverse selection of vulnerable, noncompliant, or difficult patients. Other salient themes included concern about the detrimental effects of P4P on professionalism, gaming, job satisfaction and conflicts of interest. Some participants felt that properly designed performance-based compensation could improve health care quality and motivate physician excellence. Subjects made recommendations that might make P4P both more ethical and effective such as providing higher bonuses to physicians caring for vulnerable patients, using process rather than outcomes measures, providing incentives for use of patient registries, and improving systems and infrastructure. Participants generally did not regard P4P as inherently unethical, but strongly recommended research on P4P arrangements to improve measures and evaluate the safety and efficacy of their implementation.
CONCLUSIONS: Focus group participants expressed substantial concerns that current P4P arrangements may lead to unethical consequences for patients and primary care physicians. They had a variety of ideas regarding how P4P could be made more ethical and effective. Most prominently, informants recommended research on P4P to improve measures and evaluate safety and efficacy. Policy makers should consider the opinions of primary care physicians by designing P4P programs to ensure ethical outcomes for patients and physicians and then carefully studying the restructured arrangements.

EVALUATING THE IMPACT OF SHARED MEDICAL APPOINTMENS ON A MEDICAL STUDENT CHRONIC DISEASE CURRICULUM
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BACKGROUND: Modern medical practice increasingly deals with the management of chronic disease, such as diabetes, yet there exists an imbalance between acute and chronic disease in medical education: required skill sets are not adequately provided in current medical curricula. Shared medical appointments (SMAs) (group visits) based on the chronic care model constitute a promising approach to addressing the burdens of chronic illness management and, as a system redesign, they may constitute a training site to better prepare physicians for systems-based practice for diabetes, but their impact on medical education has not been assessed. Our SMA also provides a model of a multidisciplinary team approach to diabetes (each of our SMAs is staffed by 1 attending physician, 1–2 residents, 1 nurse practitioner, 1 psychologist, 1 pharmD and 1 RN), an approach increasingly recognized as being essential for the management of complex, chronic diseases. We hypothesized that participating in SMAs would have a positive impact on medical students' attitudes about diabetes and confidence in team skills.
METHODS: All medical students in the advanced core ambulatory chronic care experience through Case School of Medicine during 4 rotations (each 4 weeks long) were asked to participate. Students enrolled in the VA for the ambulatory chronic care experience were scheduled to participate in weekly diabetes SMAs. In addition, the VA has other SMA experience opportunities for other chronic conditions: heart failure and high blood pressure, with each occurring twice weekly. The comparison group consisted of medical students who enrolled for the ambulatory chronic care experience at other sites where SMAs are not conducted. To assess impact on medical education, we compared change scores on diabetes attitudes (Diabetes Attitude Survey: DAS-V3) and confidence regarding health care team skills for 3rd year medical students in the comparison and intervention groups.
RESULTS: Pre and post data were available for 12 intervention and 11 comparison students. For the intervention group, the mean number of diabetes SMAs sessions attended was 4, and 11 sessions for other SMAs. The comparison group did not participate in any SMA sessions. Despite the small n's, analysis of change scores (pre – post) revealed significant improvement on attitudes toward diabetes (p.05, df=21), compared to the comparison group, for the SMA group on 2 of the 5 DAS scales regarding recognition of psychosocial impact of DM (t=2.16: 0.55 versus −1.4 mean change) and recognition of the seriousness of type 2 diabetes (t=2.4:.91 versus −1.33 mean change), and for 1 of the 3 confidence items indicating increased confidence in ability to convey logic of clinical recommendations to providers from other disciplines (t=2.1: 0.0 versus −.50 mean change).
CONCLUSIONS: Our preliminary data on educational impact suggest that SMAs have the potential to have important ramifications for combining high quality medical education and patient care. Moreover, including medical students in diabetes SMAs did not compromise clinical outcomes: analysis of change scores for the 280 patients with pre- and post-SMA participation data revealed a significant mean change in A1c (%) of −0.9 (+/− 1.7) (Wilcoxon signed rank test, p<.0001).

EVALUATION OF MEDICAL STUDENTS' PHYSICAL EXAMINATION SKILLS: PERFORMANCE ON AN OBJECTIVE STRUCTURED CLINICAL EXERCISE (OSCE) A. Ekpenyong[1]; T. Uchida[2]. [1]Rush University Medical Center, Chicago, IL; [2]Stroger Hospital of Cook County, Chicago, IL. *(Tracking ID # 189453)*

BACKGROUND: The medical literature clearly documents poor performance of physical examination (PE) skills by medical students. The goal of our study was to evaluate the performance of basic PE skills by our students on an OSCE and to compare it to their performance of other clinical skills.
METHODS: In May of 2006, 118 third-year medical students participated in a 6-station OSCE using standardized patients (SPs) to evaluate performance in 4 basic clinical skills domains: PE, communication/interpersonal skills (CIS), history-taking, and note-writing. Students had 15 minutes to perform a focused history and PE of a common chief complaint such as abdominal pain, chest pain, low back pain or shortness of breath. It was up to each student to determine which items of the PE were relevant to each case. Objective performance of the PE was scored by the SPs using an expert-designed checklist. Students were also asked to self-assess their PE skills on a Likert-type scale from 1–10.
RESULTS: Over the course of the 6 OSCE stations, students were expected to perform 46 PE items. Using the types of cases mentioned above, the following items were performed correctly by less than 10% of the class: tested back for range of motion (0%), listened to the heart in 4 areas with bell (0.8%), palpated point of maximal impulse (4.5%), checked for presence of inguinal and umbilical hernias (5.9%), checked for costovertebral angle tenderness (6.8%), checked for jugular venous pressure (7.6%), tested neck for range of motion (8.7%). In many instances, students did not receive credit for PE items because they were not performed correctly. For example, palpation, auscultation and percussion items not done directly on the skin did not receive credit. In addition, there were significant differences ($p<0.01$) between the performance of students in the 1st and 4th quartiles of several PE maneuvers including: auscultating the anterior lung fields bilaterally, percussing the posterior lung fields bilaterally, ausculatating the heart in all 4 areas, percussing the abdomen in 4 quadrants, eliciting rebound tenderness in the right lower quadrant, and eliciting pain in the right lower quadrant with percussion. Objective scores calculated as percentages were divided by 10 to make them comparable to the self-assessed scores which ranged from 1–10. The average score for the PE (4.68) was markedly lower than the average score for CIS (7.86), history-taking (7.06) and note-writing (7.30). Furthermore, the average self-assessed scores were significantly higher than the objective scores (PE (7.32), CIS (8.30), history (7.79), note (7.43)). Overall, there was no correlation between students' objective scores and their self-assessed scores. All students overestimated their PE performance, but when divided into quartiles, higher-performing students overestimated their performance less than lower-performing students.
CONCLUSIONS: Overall, our students scored lower on their physical exam skills than the other clinical skills domains. The PE items which discriminated the most between the 1st and 4th quartiles tended to be items which had to be done bilaterally or in more than one anatomic area, or items which may cause discomfort to the patient. There was no correlation between objective performance and self-assessed performance of the PE. All students overestimated their PE performance, but lower-performing students overestimated their performance more than higher-performing students.

EVIDENCE OF DISPARITY IN THE APPLICATION OF QUALITY IMPROVEMENT EFFORTS FOR THE TREATMENT OF ACUTE MYOCARDIAL INFARCTION: THE AMERICAN COLLEGE OF CARDIOLOGY'S GUIDELINES APPLIED IN PRACTICE INITIATIVE IN MICHIGAN A.B. Olomu[1]; M. Grzybowski[2]; V. Ramanath[3]; A. Rogers[4]; B. Chen[5]; B. Motyka[5]; C. Roychoudhury[5]; E. Jackson[3]; K.A. Eagle[3]. [1]Michigan State University, East Lansing, MI; [2]Wayne State University, Detroit, MI; [3]University of Michigan, Ann Arbor, MI; [4]University of California, San Francisco, CA; [5]MPRO, Farmington Hills, MI. *(Tracking ID # 190019)*

BACKGROUND: Racial disparities exist in the treatment of patients with cardiovascular disease in the United States. The American College of Cardiology's Guidelines Applied in Practice (ACC's GAP) program has been shown to increase the rates of evidence-based medication use in patients with AMI. OBJECTIVE: To evaluate if a structured initiative for improving care of patients with AMI (GAP) led to equal care of white and nonwhite patients admitted to GAP hospitals in Michigan.
METHODS: Medicare patients comprised two cohorts-those admitted prior to GAP implementation (n=1,368) and those admitted after GAP implementation (n=1,489). The main outcome measure was adherence to guideline medications/recommendations and use of the GAP discharge tool. To evaluate differences in prescibed medications, only patients without contraindications to the use of evidenced-based medications were included. Chi-square and Fisher's exact tests were used to determine differences between whites (n=2367) and nonwhites (n=490).
RESULTS: In-hospital GAP tool and aspirin use significantly improved for both races. Beta-blocker (BB) use in-hospial improved significantly for nonwhites only (66% vs 83.3%, $p=0.04$). At discharge, nonwhites were 28% and 59% less likely to have had the GAP discharge tool used ($p=.030$) and receive smoking cessation counseling ($p<.001$), respectively, than whites. Among whites, GAP improved discharge prescription rates for aspirin by 10.8% ($p<.001$) and BBs by 7.0% ($p=.047$). However, among nonwhites, aspirin prescriptions increased by 1.0% and BB prescriptions decreased by 6.0% (both p-values nonsignificant).
CONCLUSIONS: ACC's GAP program led to significant increase in rates of evidence-based care in both whites and nonwhite Medicare patients. However, our results show evidence of disparity in the application of quality improvement tools at discharge between whites and nonwhites.. Policies designed to reduce racial disparities in health care must address bias in the delivery of quality improvement programs.

EXPECTATIONS FOR ORAL CASE PRESENTATIONS FROM CLINICAL CLERKS: OPINIONS OF INTERNAL MEDICINE CLERKSHIP DIRECTORS E.H. Green[1]; S. Durning[2]; L. Decherrie[3]; M.J. Fagan[4]; B. Sharpe[5]; W. Hershman[6]. [1]Albert Einstein College of Medicine, Bronx, NY; [2]Uniformed Services University of the Health Sciences, Bethesda, MD; [3]Mount Sinai School of Medicine, New York, NY; [4]Brown Medical School, Providence, RI; [5]University of California, San Francisco School of Medicine, San Francisco, CA; [6]Boston University, Boston, MA. *(Tracking ID # 189985)*

BACKGROUND: The oral case presentation is an important tool for the evaluation of trainees by their teachers. However, little is known about the expectations of leaders of undergraduate internal medicine education for case presentations by third year medical students.
METHODS: We included 20 questions relating to the oral case presentation on the Clerkship Directors of Internal Medicine (CDIM) annual voluntary survey to its 110 US and Canadian members. We asked about the relative importance to the respondents of 18 potential attributes in a third year medical student oral case presentation using a 5 point Likert scale (1 = not important, 5 = very important) as well as their expectations for the length of a new patient presentation. Analysis was done using chi-squared.
RESULTS: The CDIM received 82 of 110 surveys from institutional members (response rate =75%). Of those surveys, 79 (95%) had completed the questions regarding oral case presentations. Respondents felt that student oral presentations should take 8±4 minutes. Some aspects of the oral presentation were more important than others ($p<.001$) Eight items, including organization according to usual standards, inclusion of a chief complaint, accurate description of symptoms, inclusion of all facts needed to support an assessment and plan, a targeted physical exam, inclusion of a prioritized problem list, and a detailed assessment and plan for important items, were rated as very important by >50% of respondents.
CONCLUSIONS: Undergraduate medical education leaders from diverse group of North American medical schools share common expectations for oral case presentations. They expect students to present a comprehensive report of the history of the present illness tied with a focused physical exam, reasonable problem list, assessment, and plan in an ordered monologue. Thus, students are expected to be reliable "reporters" (complete, accurate, focused) who show progress toward "interpreters" (analysis) of clinical data. Future efforts at instructing students in oral case presentation as well as clinician-teachers in evaluating oral case presentation can utilize these commonly held beliefs.

Attributes of Oral Presentations Rated Very Important

Attribute	Very Important (%)
Organized according to usual standards	85%
Accurate description of the symptoms	82%
Identifies a chief complaint	80%
Detailed A&P for important items	75%
Events that preceded the current hospitalization	66%
Includes all facts that are needed	66%
Prioritized problem list	66%
targeted physical examination	62%
Structured to make a case	43%
Clearly Spoken	30%
Uses appropriate medical terminology	23%
Description of Impact of Illness of Patient	19%
Excludes all facts that are NOT needed	16%
Includes detailed social history	15%
Assessment of ALL problems	13%
complete physical examination	10%
Detailed family history	8%
full review of systems	5%

EXPERIENCES OF DISCRIMINATION AND SELF-REPORTED HEALTH IN A DIVERSE POPULATION OF DIABETIC VETERANS D. Frank[1]; C. Rees[2]; B. Young[3]. [1]VA Puget Sound, Seattle, WA; [2]University of Washington, Seattle, WA; [3]VA Puget Sound, University of Washington, Seattle, WA. *(Tracking ID # 190302)*

BACKGROUND: Perceptions of racial/ethnic discrimination can adversely affect health and may partially explain health disparities. We sought to examine whether life experiences of racial/ethnic discrimination (EOD) were associated with self-reported physical health in a diverse Veterans Affairs (VA) population. In addition, we investigated the association of experiences of discrimination and satisfaction of diabetes care.
METHODS: The VA Pathways study is an ongoing prospective cohort study of diabetic patients designed to evaluate racial/ethnic differences in diabetes and development of diabetes complications. Participants were mailed questionnaires which included a previously validated measure with 6 questions assessing experiences of racial/ethnic discrimination ever in their lives (EOD) including: at school, getting a job, getting housing, at work, getting medical care, from police or the courts. In addition, questionnaires assessed self-reported demographics (race/ethnicity, income and education). Self-reported health and satisfaction with health care received for their diabetes were rated on an ordinal scale. We used ordinal logistic regression models to determine the association of EOD with general health status, microvascular and macrovascular complications, and satisfaction with diabetes care, adjusting for income and level of education.
RESULTS: 1, 706 patients participated: 1,290 Whites, 162 African Americans, 74 Hispanics, 35 Asian Americans, and 27 American Indians. Experiences of discrimination (EOD) was reported by 24% of respondents. Respondents who self-reported EOD had a 30% reduction in the odds of reporting good health compared to those who did not report EOD (OR 0.71 CI.57,.88 p=0.002). EOD was not associated with risk of self-reported macrovascular or microvascular complications of diabetes. Among patients reporting EOD, the odds of being satisfied with the care of their diabetes were 45% lower compared with patients who did not report EOD (OR 0.56 CI 0.44, 0.70 p<.001). Among those who reported EOD in a medical setting, the odds of being satisfied with their diabetes care were significantly lower than for patients who did not report EOD (OR 0.40 CI 0.26,.61 p<.001).
CONCLUSIONS: Patients who reported experiences of racial/ethnic discrimination ever in their lives did not have a higher rate of self-reported complications from diabetes compared those not reporting EOD. However, report of EOD was associated with self-reported poorer health and lower satisfaction with diabetes care. Additional research is needed to understand the nature of the association between life experiences of racial/ethnic discrimination and self-reported health and satisfaction with diabetes care.

EXPERTISE REVERSAL EFFECTS: CAN WE HURT OUR LEARNERS WITH POORLY DESIGNED OR TARGETED WEB-MODULE INSTRUCTION? H. Song[1]; A.L. Kalet[1]; J. Plass[1]. [1]New York University, New York, NY. *(Tracking ID # 190467)*

BACKGROUND: Theory has it that the human mind has limited working-memory capacity and overloading this unnecessarily (e.g. teaching a student something they already know well) can lead to degradation of learning- or an apparent reversal of expertise. This implies that poor instructional design may actually harm learners. In this study we describe apparent expertise reversal effects detected as a result of a large scale study of the educational effectiveness of the Web Initiatives in Surgical Education (WISE-MD) a series of hypermedia, case-based computer screen based learning modules adopted by 24 US medical schools to deliver a comprehensive core surgery clerkship curriculum.
METHODS: Over 2 years we sought to enroll all medical students on Surgery Clerkship at 3 collaborating US medical schools in a study of the educational impact of the 45 minute WISE-MD module on Carotid Disease. Consenting students completed a 16 item pre and post quiz assessing relevant knowledge recall and transfer (chosen after rigorous item analysis) and a post module survey assessing satisfaction, learning effectiveness and efficiency.
RESULTS: Among the (351/419,84%) students who consented to the study, 129 (37%) had complete pre and post test quiz scores. No data is available on non-consenting students. Overall student's showed a 27% increase in knowledge scores and as would be expected prior knowledge as measured by the pre module quiz was negatively correlated with the change in post-pre modules quiz scores (r=-.569, p=.000). The table shows categorization of students as experts if they scored higher than the median score on the pre-quiz, doing this identifies 17/129 (13%) of students who showed apparent expertise reversal. Careful analysis of 14 cases which had log data shows that 4/14 cases showed a low level of engagement with the web-module, but the remaining students spent significant time on the module and evidenced active engagement with the material.
CONCLUSIONS: Instructional approaches that are effective with novices can be ineffective or harmful to more knowledgeable learners, suggesting that careful assessment of a learner's prior knowledge and an understanding of the factors that cause expertise reversal effects is critical to any educational research on computer based learning. A more careful analysis of this apparent expertise reversal effects is warranted to understand it's implications for designing adaptive learning environments in WISE-MD and other web-based education modules for medical learners.

Relationship between prior expertise and knowledge gain

		Level of prior knowledge		
		Score < median	Score >= median	Total
Knowledge Gain	Positive	47	61	108
	Negative	4	17	21
	Total	51	78	129

EXPLORING COMPONENTS OF ETHICAL BEHAVIOR IN INTERN PHYSICIANS M.D. King[1]; J. Cavanaugh[2]; A.L. Kalet[1]. [1]New York University, New York, NY; [2]NYU Internal Medicine Residency, New York, NY. *(Tracking ID # 190168)*

BACKGROUND: While ethics courses are taught in every medical school in the United States, very little is known about the degree to which these courses prepare trainees for the ethical dilemmas they will face in their daily clinical experiences. Based on the Four Component Model of ethical actions and the presumption that the ability to correctly identify an ethical dilemma is the first step to satisfactory resolution of that dilemma, this study assesses the ability of trainee physicians to identify common clinical ethical dilemmas and attempts to correlate that ability with the other behavioral and attitudinal components of ethical action.
METHODS: The New York University Internal Medicine Residency Program uses, as a formative evaluation tool, an observed structured clinical examination (OSCE) in which standardized patients (SPs) enact challenging and common clinical ethical dilemmas. The four OSCE stations used in this study presented the following common ethical dilemmas: assessing decisional capacity, disagreeing with the unethical

behavior of a supervisor, obtaining informed consent, and confessing a medical error. At each station, background information was given to interns but directions on how to behave in the case were not provided. Interns had ten minutes to interact with SP. At the end of each case, a single open-ended question was asked to prompt the interns to identify the ethical dilemma. Each intern's response was recorded and subsequently compared to a predetermined standard definition by three separate evaluators. Data regarding moral reasoning, moral orientation, and ethical implementation were also collected at the time of the OSCE.
RESULTS: Of the 55 intern physicians who participated in this OSCE, three completely and accurately identified all ethical dilemmas while four could not correctly verbally identify any of the ethical dilemmas. The rate of complete dilemma identification for each case was: 45.7% for decisional capacity case, 11.3% for disagreeing with unethical supervisor case, 43.4% for informed consent case, and 52% for confessing a medical error case. While responses varied among cases, a common reason for responses being scored as incorrect was the identification of a clinical dilemma instead of an ethical dilemma. There were no statistically significant relationships between measures of ethical sensitivity, moral reasoning, moral orientation, and ethical implementation.
CONCLUSIONS: If their performance on this OSCE is a decent measure of their preparedness to identify and resolve common ethical dilemmas, there is room for improvement in the ethical sensitivity in intern physicians–all of whom have completed ethics courses at their respective medical schools. The lack of relationships between the components of ethical behavior supports newly emerging findings from larger and longitudinal studies. These findings suggest that skills training strategies need to be employed to teach ethics in medical school and residency programs.

EXPLORING PATIENT, FAMILY MEMBER, AND HEALTHCARE PROVIDER PERSPECTIVES TO DEVELOP A PATIENT-ORIENTED WEBSITE FOR WOMEN NEWLY DIAGNOSED WITH BREAST CANCER M.L. Clayman[1]; G.T. Makoul[1]. [1]Northwestern University, Chicago, IL. *(Tracking ID # 190658)*

BACKGROUND: Despite the wealth of information available to breast cancer patients, much information is difficult to understand and may be difficult to access. We endeavored to use patient, family member, and provider interviews as a basis to develop a patient education program that provides accurate and easy-to-understand information for newly diagnosed breast cancer patients.
METHODS: We conducted a series of semi-structured interviews with breast cancer patients and their family members, as well as healthcare providers (surgical oncologists, medical oncologists, radiation oncologists, plastic surgeons, nurses, and therapists). Patients completed the index interview immediately after their first consultation with the surgical oncologist, and participated in follow-up telephone interviews every 2 weeks for 6 months. Family members were also interviewed after the first surgical oncology consultation, with follow-up phone interviews at 3 and 6 months. For providers, we conducted a single interview.
RESULTS: We completed interviews with 30 patients, 18 family members, and 22 healthcare providers. Patients ranged in age from 34–80 years. Patients indicated a need for information about the process of care and practical effect of treatment on their daily lives. Both patients and family members reported a desire for information that is relevant to their unique clinical situations, presented in a way that allows them to control pace, amount and depth of content and is sensitive to the emotional impact of cancer and cancer care. Providers identified transition points in the care process as major gaps in communication with patients. In addition, several providers expressed concern that patients find "bad" information on the Internet (i.e., information that is erroneous, irrelevant to that patient's condition, or focused on unusual outcomes). We developed a website design to address the needs expressed by interview participants. The website content was reviewed by clinicians to ensure accuracy. Our website, www.cancercarelinks.org, includes a dynamic flowchart that allows women to see the entire trajectory of care and a section that allows women to personalize their healthcare team, similar to an interactive address book. Twelve of the women who participated in the original interview study reviewed the website and completed an anonymous survey. These patients ranged in age from 29 to 59 years. On a 1–10 scale, with 10 being the maximum, patients rated the site as very clear (mean=9.1), informative (9.5), trustworthy (9.6), useful (9.4), easy to understand (9.4) and easy to use (9.4).
CONCLUSIONS: Breast cancer care is complex, with patients seeing several providers. Patients and providers have indicated unmet communication needs that point to a lack of integration and communication within the process of care. Women want a patient-oriented and easy to understand website that offers accurate information. The CancerCareLinks website incorporates the patient perspective, and is highly rated.

EXTENDED DURATION, TRIPLE COMBINATION PHARMACOTHERAPY VERSUS STANDARD DURATION, TRANSDERMAL NICOTINE ALONE FOR MEDICALLY-ILL SMOKERS: A RANDOMIZED TRIAL IN A PRIMARY CARE SETTING M.B. Steinberg[1]; S. Greenhaus[1]; A.C. Schmelzer[1]; M.T. Bover[1]; J. Foulds[1]; J.L. Carson[1]. [1]University of Medicine and Dentistry of New Jersey, New Brunswick, NJ. *(Tracking ID # 190662)*

BACKGROUND: Smokers with medical illnesses are most susceptible to the harms of continued tobacco use yet continue to smoke at high rates. Medication combinations are commonly used for other conditions such as diabetes and hypertension but the labeling of cessation medications advises against combinations and generally specifies a set duration of 8–12 weeks treatment. This study is the first trial to evaluate more intensive treatment using a 3-medication combination for an extended duration in smokers with medical illness.
METHODS: Subjects were recruited from the local community and medical center via flyers. They included regular smokers of 10 or more cigarettes per day (confirmed by high expired carbon-monoxide (CO)), 18 years or older, with one or more pre-defined medical illnesses but no contraindications to pharmacotherapy. 127 smokers were randomly allocated by telephone randomization to either nicotine patch alone for a 10-week, tapering course (n=64) or the combination of nicotine patch, nicotine oral inhaler, and bupropion SR for an ad-lib duration (n=63). Subjects in the combination arm were advised to continue medications until free from withdrawal symptoms. The primary outcome was abstinence over the previous 7 days (verified by low expired CO). Subjects were followed up monthly for 6 months in a general internal medicine clinic setting. Follow-up sessions (lasting approximately 10 minutes) were conducted in person by the research nurse and included measuring expired CO, dispensing additional medications, and recording any adverse events. Analyses were conducted on an intention-to-treat basis and subjects lost to follow-up were considered still smoking.
RESULTS: Both groups were similar with regards to baseline characteristics. Mean age was 49 years (range: 22–86). 65% were female; 61% White, 32% Black, and 6% Hispanic. On average, subjects had 12 previous quit attempts; 65% smoked 20 or more cigarettes per day and 79% smoked within 30 minutes of waking. 27% had cardiovascular disease, 24% COPD, 13% cancer, 16% diabetes, 39% hypertension, and 36% depression. The most common adverse events were skin rash (11%), insomnia (9%), dream disturbances (9%), and nausea (3%). Adverse event rates did not differ significantly between the groups, although insomnia and dream disturbances tended to be higher in the combination group (11% and 13%, respectively) versus patch only (2% and 5%, respectively). The mean duration of treatment was longer in the combination versus patch only group (89 vs. 35 days; $p<0.001$) and mean time to relapse was significantly longer in the combination versus patch only group (96 vs. 59 days; $p<0.01$). Abstinence rates at 6 months were 35% (combination) vs. 19% (patch only) ($p=0.04$) with a relapse hazard ratio of 0.55 (95% confidence interval 0.36–0.83) for the combination vs. patch only.
CONCLUSIONS: More intensive and prolonged therapy in outpatient smokers with medical illnesses using triple combination medications led to a 45% increase in abstinence rates at 6 months compared to patch alone. This is the first trial to demonstrate the advantage of this three medication combination for longer duration over "standard" pharmacotherapy in medically-ill smokers. This medication protocol should be considered for treating tobacco dependence in primary care.

EXTENDED-RELEASE NALTREXONE INJECTABLE SUSPENSION FOR TREATMENT OF ALCOHOL DEPENDENCE IN URBAN PRIMARY CARE: A FEASIBILITY STUDY, PRELIMINARY ANALYSIS J.D. Lee[1]; E. Grossman[1]; D. Dirocco[1]; J.P. Rotrosen[1]; L. Chuang[1]; K. Hanley[1]; D. L. Stevens[1]; M.N. Gourevitch[1]. [1]New York University, New York, NY. *(Tracking ID # 190690)*

BACKGROUND: The feasibility of extended-release naltrexone injectable suspension (XR-NTX) for treatment of alcohol dependence in primary care settings is uncertain. We are investigating 3-month treatment retention, patient satisfaction, and alcohol use among alcohol-dependent patients treated with XR-NTX in two urban public hospital medical clinics.
METHODS: Eligible patients are alcohol-dependent adults seeking XR-NTX treatment and able to attend 3 monthly medical management (MM) sessions and one month-4 follow-up visit. MM sessions emphasize benefits of eliminating drinking, accessing Alcoholics Anonymous (AA) and outside counseling, relapse prevention, and treatment adherence. XR-NTX doses are monthly (380mg intramuscular). Questionnaires administered at each visit document drinking frequency and quantity, medication side effects, alcohol cravings, and AA and counseling participation. Visits and medication are free; patients receive monetary incentive (20$) for the final follow-up visit. Primary outcomes of interest are treatment retention (vs. dropout), patient satisfaction as measured by qualitative questionnaires and the Client Satisfaction Scale, and days abstinent from alcohol pre- vs. in-treatment.
RESULTS: Twenty-five patients have enrolled since 7/1/2007. Referral sources include inpatient detoxification (1), primary care providers (3), alcohol outpatient programs (5), radio, online, and print ads (12), and word-of-mouth (4). Patient characteristics are as follows: mean age 44 years old; 23% female; 15% black, 20% Hispanic, 68% white; 35% uninsured. Of 23 who received their first injection, were enrolled for >1 month and were eligible for a 2nd injection, 14 (61%) received it, 2 (9%) postponed but intend to return, 6 (26%) were lost to follow-up, and 1 (4%) declined the second injection and switched to oral naltrexone therapy. Nine of 13 eligible patients (69%) received a 3rd injection. Participants have consistently reported reduced cravings and diminished alcohol effects. Patient treatment satisfaction to date has been rated via qualitative measures as high. Pre-treatment, patients reported that they had been abstinent for a mean of 47% of the previous 30 days; in-treatment, this percentage increased to 85%.
CONCLUSIONS: XR-NTX treatment appears feasible and acceptable for alcohol-dependent patients in a primary care setting.

FAILURE TO DISCOUNT FOR CONFLICT OF INTEREST WHEN EVALUATING MEDICAL LITERATURE: A RANDOMIZED TRIAL OF PHYSICIANS G.K. Silverman[1]; G.F. Loewenstein[1]; B. Anderson[2]; P.A. Ubel[3]; J. Schulkin[2]. [1]Carnegie Mellon University, Pittsburgh, PA; [2]American College of Obstetricians and Gynecologists, Washington, DC; [3]University of Michigan, Ann Arbor, MI. *(Tracking ID # 190723)*

BACKGROUND: Physicians are regularly confronted with research that is funded or presented by industry. Do physicians discount for conflicts of interest when weighing evidence for prescribing a new drug?
METHODS: We mailed surveys to 515 randomly selected physicians in the American College of Obstetricians and Gynecologists' Collaborative Ambulatory Research Network; 251 complete surveys (49%) were returned. Participants were presented with an abstract from a single randomized trial finding positive results for a fictitious new drug. Physicians were randomly assigned to receive one version of an accompanying hypothetical scenario, which varied between participants on three dimensions: prestige of the journal in which the study was published (high vs. moderate), total number of trials published of this new drug (1 vs. 5), and level of conflict of interest ("no conflict": study funded by NIH, presented by independent physician at Grand Rounds; "presenter conflict": study funded by NIH, presented by pharmaceutical representative; "researcher conflict": study funded by pharmaceutical company, presented by independent physician). Participants answered questions about their likelihood of prescribing the new drug as a first-line therapy.
RESULTS: After reading the initial, randomly assigned scenario, physicians did not discount for conflicts of interest or lower journal prestige in reporting their likelihood of prescribing the new drug. However, when participants were then asked how their prescribing likelihood would change if conflict of interest or journal prestige were changed, the respondents indicated that they would change their likelihood of prescribing in the expected directions. When participants were asked to guess how favorable the results of this study were toward the new drug, relative to the other trials published so far, their perceptions were not influenced by conflict of interest information.
CONCLUSIONS: While physicians believe that they should discount the value of information from conflicted sources, they were unable to do so when such conflicted evidence was presented in isolation. This brings into question the effectiveness of disclosing the funding sources of published studies and implies that the current reliance on pharmaceutical representatives for drug information needs to be replaced.

FDA'S PURGE OF OLDER MEDICATIONS FROM THE U.S. MARKET: THE CASE OF QUININE AND LEG CRAMPS J.L. Wofford[1]; A.B. Fleischer[1]; S. Singh[2]. [1]Wake Forest University School of Medicine, Winston-Salem, NC; [2]Wake Forest University School of Medicine, Winston Salem, NC. *(Tracking ID # 189548)*

BACKGROUND: The FDA's purge of quinine-containing products from the U.S. market in 2007 was seemingly sudden, without explanation, and left clinicians without pharmacologic alternatives for the clinical indication of leg cramps In an effort to explore the reasons behind the FDA's decision making, we conducted a systematic review to explore the benefit versus harm, and prevalent use of quinine for leg cramps.
METHODS: We used three separate databases (1) MEDLINE/Google Scholar, (2) FDA's Adverse Event Reporting System, and (3) National Ambulatory Medical Care Survey (NAMCS). For evidence supporting the use of quinine for leg cramps, we searched MEDLINE/Google Scholar (search date- September 2007) using the MESH terms ([3]quinine[2] and/or"leg cramps") to identify systematic reviews or randomized controlled trials related to efficacy, and published reports of toxic effects from quinine. We used the Adverse Event Reporting System (AERS), a FDA database for post-marketing safety surveillance program, to examine the details of adverse events reported during one quarter (Year 2006–3rd quarter). To establish the prevalent use of quinine in the U.S., we analyzed NAMCS (2000 through 2006) to estimate the number of office visits associated with the use of quinine.
RESULTS: From a total of 65 citations from our initial MEDLINE/Google search strategy, 3 RCTs and one meta-analysis showed evidence of effectiveness. Sixteen citations (3 reviews, 3 case series, and 10 case reports) reported quinine adverse drug events (ADEs). From the FDA AERS database, 113 separate ADEs were reported by 147 different reporters. Quinine ADEs were most often reported by health professionals (31.7%) followed by consumers. Death was the result of the ADE in 14.1% (16/113) of reported ADEs, and in another 13.1% (15/113), the ADE was judged as life threatening. Quinine ADEs that resulted in death were more often reported by consumers. Quinine use was reported during 129 NAMCS office visits, 2000 through 2006, which, when weighted, produced an estimated national average of 795,000 office visits each year.
CONCLUSIONS: At the time of its removal from the market, the use of quinine for leg cramps was prevalent, had reasonable supporting evidence, but was associated with at least occasional adverse effects. The FDA purge of quinine from the market should teach clinicians that existing evidence about older medications may have little to do with FDA decision making to remove a drug from the market, that the FDA's strategies toward older medications may have significant impact on cost-effective prescribing, and that better communication of FDA actions to clinicians is warranted.

FEASIBILITY OF AT-HOME INDUCTION IN PRIMARY CARE-BASED BUPRENORPHINE TREATMENT: IS LESS MORE? J.D. Lee[1]; E. Grossman[1]; D. Dirocco[1]; M.N. Gourevitch[1]. [1]New York University, New York, NY. *(Tracking ID # 190704)*

BACKGROUND: Buprenorphine/naloxone (BPN) induction national guidelines recommend observed initial dosing and in-person Week One follow-up. Urban safety net settings or small practices often lack resources to replicate this model. We offered primary care BPN treatment using an 'at-home' induction protocol at a single public hospital clinic. Data on an initial cohort of patients presenting for BPN induction was collected longitudinally.
METHODS: Eligible patients were opioid-dependent adults seeking BPN treatment. Referrals sources included inpatient detoxification, jail, treatment providers, internet locators, and word-of-mouth. An initial physician visit included assessment, and, if appropriate, BPN induction education, telephone contact instructions, a customized illustrated at-home induction pamphlet, and a one-week buprenorphine/naloxone

prescription. Telephone contact as needed on days 1–3 supported induction and dose adjustment. Follow-up visits with urine toxicology occurred at 7 days and thereafter at varying intervals. Primary outcomes of interest were patient-reported induction complications, 1, 12, and 24 week treatment retention, defined as a visit or active prescription at or after these intervals, and urine toxicology results.
RESULTS: Patients (n=78) induced 'at-home' were predominantly male (82%), mean age 42 yrs., and unemployed (77%). Most were using heroin (81%) vs. prescription opioids (10%) prior to induction, and 9% were transitioning from methadone maintenance to BPN. Most had Medicaid (62%), 14% were uninsured, and 6% homeless. No cases of induction-associated precipitated withdrawal (worsening withdrawal symptoms immediately following initial BPN dosing) were reported. Self-reported induction events included prolonged withdrawal symptoms: 42% of methadone-to-BPN inductions, none among heroin-to-BPN inductions. Telephone support was tracked for a subsample (n=15) of patients: 2 of 15 called on Day 1–3 post-induction as instructed, and an additional 5 were successfully contacted. Phone contact was brief and appropriate for non-MD staff. Treatment retention at 1, 12, and 24 weeks was 77% (n=78), 62% (n=38), and 50% (n=30). The overall rate of urines negative for opioids has been 54%.
CONCLUSIONS: At-home BPN induction appears feasible and safe. Heroin-to-BPN induction complications were infrequent, while methadone-to-BPN inductions are frequently characterized by prolonged opioid withdrawal symptoms. Telephone support was underutilized, though easily handled by non-MD staff. Comparison studies of at-home vs. directly observed induction are warranted. Low intensity treatment paradigms may expand opioid treatment options in a variety of primary care settings.

FEASIBILITY OF HBA1C FOR DIABETES SCREENING ON AN INPATIENT HOSPITAL SERVICE IN A HIGH RISK URBAN COMMUNITY J.A. Mazurek[1]; S.M. Hailpern[1]; T. Goring[1]; C. Nordin[1]. [1]Jacobi Medical Center, Albert Einstein College of Medicine, Bronx, NY. *(Tracking ID # 190135)*

BACKGROUND: HbA1c has been proposed as a screening tool in community settings and outpatient clinics in communities at high risk for diabetes. We tested the hypothesis that HBa1c could also be used to identify patients at high risk for diabetes on the inpatient service of a public hospital in Bronx, NY, a borough with an estimated prevalence of diabetes of 12.5%.
METHODS: HbA1c testing was performed on 1132 consecutive admissions to the general medicine service over a four-month period. We did not pre-select patients for any specific diagnoses. Patient records were checked for evidence of prior diagnosis of diabetes by review of admission note, clinic records, or prior prescriptions for diabetes medications. Admission diagnoses were divided into six diagnostic groups: cardiac, pulmonary, neurologic, renal/GU, gastrointestinal, infectious disease. BMI was dichotomized at 25 kg/m2. HbA1c was dichotomized at 7%. In follow-up analyses, hospital records were checked for repeated testing of HbA1c and serum glucose for up to one-year post-hospitalization.
RESULTS: Of the 1132 admissions to the general medicine service, 37% (n=422) had a previous diagnosis of diabetes. The remaining 710 defined the study cohort. The mean HbA1c of the cohort was 6.03%. Of these, 8.6% (n=60) had HbA1c > 7%. There was no significant association between age, sex, blood pressure, lipid levels, or area of residence in the Bronx and HbA1c7% (p>0.05). Further, there was no significant association between admission diagnosis and proportion of patients with HbA1c 7% (p=0.638, Fisher's exact test). No diagnostic group had an incidence of <6% or >11%. In multivariate logistic regression, BMI and admission glucose were significantly associated with HbA1c 7.0% (p<0.001 for both). However, of the 60 non-diabetic patients with HbA1c 7%, 28% (n=17) had a BMI <25 kg/m2. Similarly, 60% (n=36) had maximum hospital glucose <200 mg/dl. In addition, of the 17% (n=119) of patients with maximum glucose 200 mg/d, only 20% (n=24) had HbA1c 7%. Using HbA1c as a "gold standard", serum glucose had a sensitivity of only 40% for diabetes during hospitalization. Follow-up of the 60 patients with HbA1c 7% as in-patients found 68% (n=41) had a documented HbA1c test either before (n=7) or within one year after (n=34) admission. Of these, 46% (n=20) had second HbA1c >7%, and another 15% (n=6) had follow-up HbA1c between 6.5% and 7%. Of the 119 patients without prior diagnosis of diabetes with peak glucose 200 mg/dl, 29% (n=35) had a documented follow-up glucose within one year. Of these, only one had glucose 200 mg/dl.
CONCLUSIONS: In a community with high prevalence of diabetes, in-hospital HbA1c is useful to identify patients without prior diagnosis of diabetes who are at high risk. Neither BMI nor serum glucose is sufficiently sensitive to use as a limitation to screening. Furthermore, patients with HbA1c 7% were distributed over all diagnostic groups. Therefore, in a high risk population, pre-selection criteria may to leave out significant numbers of patients with high HbA1c. Preliminary follow-up data suggests that a high percentage will have subsequent elevated HbA1c. Serum glucose is consistently lower on follow up, suggesting a major effect of "stress hyperglycemia". HbA1c is an appropriate and efficient screening test for diabetes in an inpatient hospital service within a very high risk community.

FINANCIAL INCENTIVES FOR SMOKING CESSATION K.G. Volpp[1]; M.V. Pauly[2]; A. Troxel[3]; H. Glick[3]; J. Weiner[3]; D.A. Asch[1]; J. Deguzman[3]; F. Wan[3]; J. Audrain[3]. [1]CHERP, Philadelphia VAMC; University of Pennsylvania School of Medicine and the Wharton School, Philadelphia, PA; [2]The Wharton School, University of Pennsylvania, Philadelphia, PA; [3]University of Pennsylvania, Philadelphia, PA. *(Tracking ID # 190486)*

BACKGROUND: Tobacco use is the leading cause of preventable mortality in the United States. Although 70% of smokers report wanting to quit, only about 3% of smokers succeed annually. Previous efforts to test the effectiveness of financial incentives for smoking cessation in the workplace have generally used incentives of small magnitude and have been statistically underpowered. In partnership with General Electric (GE), we designed a scalable financial incentives intervention that could be broadly utilized by employers if effective in increasing smoking cessation rates.
METHODS: 878 subjects were enrolled in a randomized controlled trial, in which subjects were randomized to receive either information about smoking cessation programs within 20 miles of their workplace or the same information plus a package of financial incentives worth $750. The randomization was stratified by worksite, income, and degree of nicotine dependence. Intervention arm participants were eligible to receive $100 for completing a smoking cessation program, $250 for quitting smoking anytime in the first 6 months of study enrollment, and $400 for continuous abstinence between the 6 month and 12 month follow-up visits. Self-reported cessation was regarded as valid only if confirmed by a negative cotinine test. Quit and relapse rates were compared between groups using a two-sided chi-square test. Results were analyzed using intention to treat, with any subjects lost to follow-up assumed to have resumed smoking.
RESULTS: All subjects have now completed 12-month follow-up visits. During the first 6 months following study enrollment, 9.4% of the incentive group completed a smoking cessation program vs. 0.9% of the control group (p-value<0.0001). Quit rates in the first 6 months were significantly higher in the incentive group compared to the control group 20.9% vs 11.8%, p-value=0.0003). At 12 months, long-term quit rates were 14.9% in the incentive group vs. 5.9% in the control group (p-value<0.0001). This means that the relapse rates among smokers who quit smoking in the first 6 months were significantly lower in the incentive than the control group (28.6% vs 50.0%, p-value=0.0104).
CONCLUSIONS: A scalable financial incentives intervention among employees at a large employer significantly increased smoking cessation rates. Financial incentives for smoking cessation could have a significant impact on increasing tobacco cessation rates in the United States population, particularly if used in workplace settings by large employers.

FOOD INSECURITY AND CLINICAL MEASURES OF CHRONIC DISEASE H.K. Seligman[1]; B. Laraia[1]; M. Kushel[1]. [1]University of California, San Francisco, San Francisco, CA. *(Tracking ID # 190027)*

BACKGROUND: Food insecure adults have insufficient money to meet their daily caloric needs without compensatory strategies, such as substituting dietary fruits, vegetables, and proteins with relatively less expensive carbohydrates. Prior studies have shown that food insecure adults have higher rates of multiple chronic diseases. However, these studies relied on self-reported measures of chronic disease, which may be subject to underreporting bias in this population with limited access to healthcare. We used a population-based sample to evaluate the

association between food insecurity and objective measures of hypertension, hyperlipidemia, and diabetes.
METHODS: We evaluated the association between food insecurity and chronic disease using the 1999–2004 waves of the National Health and Nutrition Examination Survey. Our sample included non-elderly adults with incomes <400% of the federal poverty level. We categorized participants as food secure (n=6303), mildly food insecure (n=937), or severely food insecure (n=607) based on their responses to the Food Security Survey Module. We used multivariate analyses to examine the relationship of food security to elevated systolic (>140 mmHg) and diastolic blood pressure (>80 mmHg), total cholestorol (≥240 mg/dL), low density lipoprotein (≥160 mg/dL), and fasting plasma glucose (≥126 mg/dL). Among those with a self-reported diagnosis of diabetes, we also examined the relationship of food insecurity to poorly controlled diabetes (glycosylated hemoglobin >7%). Adjusted results account for differences in age, gender, race, income, insurance status, marital status, and body mass index. All results account for the complex survey methodology.
RESULTS: We observed no consistent relationship between food insecurity and either hypertension or hyperlipidemia. 6.6% of food secure adults, 5.3% of mildly food insecure adults, and 15.3% of severely food insecure adults had laboratory evidence of diabetes, as indicated by a fasting plasma glucose ≥126 mg/dL (p<0.001). After adjusting, the odds of a fasting plasma glucose ≥126 mg/dL was 2.8 times higher for adults in severely food insecure households compared to those in food secure households (p=0.006). Among participants with a self-reported diagnosis of diabetes, 3.7% of food secure adults (referent) had a glycosylated hemoglobin >7%, compared with 5.3% of mildly food insecure adults (adjusted odds ratio 1.6, p=0.2) and 8.8% of severely food insecure adults (AOR 2.4, p=0.01).
CONCLUSIONS: Financial difficulty obtaining food is associated with clinical evidence of diabetes, but not hypertension or hyperlipidemia. Diabetes may be more sensitive than hypertension and hyperlipidemia to dietary changes associated with food insecurity, or higher out-of-pocket health care expenditures associated with diabetes may force families into food insecurity. Poor glycemic control among food insecure adults with diabetes may stem from an inability to manage the dietary requirements of their disease or from rationing medications or health care in order to afford food. Longitudinal studies are necessary to determine causality.

FOR OTHER THAN PURELY CLINICAL REASONS: WHAT INFLUENCES PRIMARY CARE PHYSICIANS TO INTERVENE? B.E. Sirovich[1]; E.S. Fisher[2]. [1]VA Medical Center, White River Junction, VT; [2]The Dartmouth Institute for Health Policy & Clinical Practice, Lebanon, NH. *(Tracking ID # 190742)*

BACKGROUND: Primary care physicians vary widely in their clinical decision-making – specifically in their tendency to intervene for patients (i.e. to refer, order tests or treatments). To what extent non-clinical factors (for example, fear of malpractice) influence physicians' tendency to intervene is not clear. We sought to assess the importance of non-clinical influences on physicians' tendency to intervene.
METHODS: We conducted a mail survey of a nationally representative random sample of primary care physicians (internists, family practitioners, and general practitioners) in 2004 (response rate 63%). We asked physicians how frequently six specific non-clinical factors typically led them to intervene for their patients for other than purely clinical reasons: Patient demand: "The patient requested a referral." Perceived practice norms: "Your colleagues would refer in the same situation." Inadequate time: "You didn't have time to evaluate the patient's problem." Discomfort taking no action: "You were uncomfortable taking no action." Fear of malpractice: "You wanted to protect against a possible malpractice suit." Inadequate reimbursement: "Reimbursement would be inadequate if you cared for the problem yourself." We measured physicians' tendency to intervene separately via their responses to clinical vignettes, in which physicians were asked how often they would order a diagnostic test, specialist referral, procedure, or hospital admission for the patient described. In this analysis we focus on the 6 most aggressive management options presented (defined a priori). These included: cardiology referral or hospitalization for a 75-year-old man with chest pain on strenuous exertion; CCU admission, PA catheter, or biventricular pacemaker placement for an 85-year-old man with an exacerbation of end stage CHF; and GI referral for further management (beyond EGD alone) for a 75-year-old woman with typical GERD symptoms. We used simple correlation to examine associations between a physician's susceptibility to each of the 6 non-clinical influences and their tendency to intervene in each of the 6 decisions described.
RESULTS: The influence of two of the six non-clinical factors – perceived practice norms and fear of malpractice – was consistently correlated with physicians tendency to pursue aggressive interventions. (Inadequate reimbursement showed no consistent pattern, and the other three factors were not correlated with the tendency to intervene.) For example, of physicians frequently influenced by fear of malpractice, 35% would refer a 75-year-old woman with typical GERD to a gastroenterologist for further management, while only 13% of those never influenced by malpractice would do so (p=0.001). Of physicians frequently influenced by perceived practice norms, 31% would admit an 85-year-old man with an exacerbation of end-stage CHF to the CCU, compared with 16% of those never influenced by this factor (p=0.001).
CONCLUSIONS: Two non-clinical influences on physician decision-making – perceived practice norms and fear of malpractice – may help explain variability in physicians' tendency to intervene. Addressing variation in physicians' discretionary decision-making must deal with the underlying factors that motivate physicians to intervene.

FORGING BASIC NEEDS AND MEDICATION NON-ADHERENCE IN CHRONICALLY-ILL PATIENTS: DISPARITIES FOR MINORITY AND VULNERABLE PATIENTS R. Gregory[1]; J. Blanchard[1]; K. Ogle[1]; S. Nayar[1]. [1]George Washington University, Washington, DC. *(Tracking ID # 190796)*

BACKGROUND: Lack of access and non-compliance with medications for chronic conditions are associated with increased visits to Emergency Departments (ED) but there is little data to characterize patients at risk for cost-related medication nonadherence and forgoing basic needs (e.g. heating or food) to afford medications that is based on actual ED visits. By targeting ED visits rather than clinic visits, a more vulnerable patient population can be better characterized and assessed for these risks.
METHODS: Patients with a chronic medical condition seen in the George Washington University Emergency Department between March 2004 and December 2005 were surveyed about their health insurance status, their access to prescription medications, their expenditures on prescription medications, and their adherence to medications as prescribed (N=973). Patients with one or more of the following chronic conditions identified in their medical history collected at the time of triage: high blood pressure, congestive heart failure or other heart disease, COPD (emphysema or chronic bronchitis), asthma, or diabetes. These patients were surveyed to assess their access to health care and prescription medications, the quality of care they receive, and their compliance with medications prescribed for their conditions.
RESULTS: Cost-related Nonadherence (CRN) was reported by approximately 1 in 3 patients (32.3%) and 1 in 6 (16.1%) reported forgoing basic needs (FBN) to afford medications. Factors that appear to predict the incidence of CRN and FBN after multi-variate analysis in our surveyed population include usual source of care, out-of-pocket expenses for medications, insurance status, income, and race/ethnicity. Patients reporting that they had either no usual source of care or ED care only were nearly twice as likely report CRN (OR 1.68) and more than twice as likely to report FBN (OR 2.22). Patients enrolled either in Medicaid or DC Alliance (a city-sponsored basic healthcare insurance plan for low-income residents of Washington, DC) reported higher frequency of FBN (OR 1.80) when compared with those who had private or employer-provided insurance, Medicare, or access to the Veterans Administration system. Patients reporting that they spent more than $50 a month out-of-pocket on medications were nearly twice as likely to report CRN (OR 1.90) and more than five times more likely to report FBN (OR 5.34). Similarly, patients reporting incomes less than $14,000 per annum had an odds ratio of 2.79 and those earning $14,001–30,000 had an odds ratio of 2.47 when compared with those who reported earning over $30,000. Finally, black patients were significantly more likely than white patients to report both CRN (OR 1.92) and FBN (2.48) while patients identifying with other races/ethnicities were more likely to report FBN (3.58) than either white or black patients but differences in CRN did not reach statistical significance.
CONCLUSIONS: Cost-related nonadherence and forgoing basic needs to afford medications are prevalent problems in patients with chronic disease.

Patients with lower incomes, no insurance or insurance with limited prescription coverage, no usual source of care, and high out-of-pocket medication expenses are at the greatest risk for these complications. Additionally, non-white patients face additional risks for CRN and FBN that are not easily explained by these or other sociodemographic factors.

FOURTEEN YEAR CHANGE IN HIGH-DENSITY LIPOPROTEIN CHOLESTEROL AND RISK OF INCIDENT CORONARY HEART DISEASE AMONG US MALE PHYSICIANS C.R. Rahilly-Tierney[1]; T.S. Bowman[2]; L. Djousse[3]; H. Sesso[4]; J. Gaziano[5]. [1]Boston VA Healthcare, Jamaica Plain, MA; [2]VA Boston Healthcare System, Boston, MA; [3]Boston University, Boston, MA; [4]Brigham and Women's Hospital, Boston, MA; [5]Boston VA Healthcare System, Boston, MA. *(Tracking ID # 189680)*

BACKGROUND: While a single measure of high-density lipoprotein cholesterol (HDL-C) has been inversely related to subsequent risk of coronary heart disease (CHD) in several studies, few studies have examined the relationship between the magnitude of HDL-C increase and CHD risk.
METHODS: We calculated the change in HDL-C in a prospective cohort of 3889 male physicians with HDL-C levels measured in 1982–3 and 1997. We divided the cohort into 4 categories of HDL-C change over 14 years: <−2.5 mg/dL (reference), −2.5 mg/dl to +2.5 mg/dL (no change), 2.5 to 12.5 mg/dL, and ≥12.5 mg/dL. Follow-up began on the date of each subjects 1997 blood draw. We used Cox proportional hazards to estimate the hazard ratio of incident CHD (a composite outcome of confirmed myocardial infarction or cardiac death). We adjusted hazard ratios for age, HDL-C level in 1982, diabetes mellitus, hypertension, and non-HDL cholesterol. Because smoking, physical activity, alcohol consumption, body mass index, and HDL-C level in 1997 were collinear with the predictor of interest (change in HDL-C) these were excluded from the final model.
RESULTS: The mean (SD) baseline age of this male population was 62.7 (6.7) years. During an average follow-up of 7.9 years, 103 new cases of CHD occurred. As expected, most subjects experienced either a decrease or no change in HDL-C (36% and 21%, respectively). 30% of subjects experienced an increase between 2.5 and 12.5 mg/dL, and 13% of subjects experienced an increase of ≥12.5 mg/dL. Compared to those with a decrease in HDL-C, the multivariable-adjusted hazard ratio (95% CI) for incident CHD was 0.65 (0.37–1.12) in subjects with no change in HDL-C; 0.58 (0.35–0.96) for those with HDL-C increase between 2.5 mg/dL and 12.5 mg/dL; and 0.40 (0.19–0.84) for those with HDL-C increase of ≥12.5 mg/dL.
CONCLUSIONS: Our data indicate and inverse and graded association between HDL-C increase over 14 years and subsequent CHD among US male physicians.

GENDER AND PREVALENCE OF MAJOR COMORBIDITIES AMONG PATIENTS WITH HEPATITIS C. A.A. Majesko[1]; K. Mcginnis[2]; S. Ibrahim[2]; A.A. Butt[1]. [1]University of Pittsburgh School of Medicine, Pittsburgh, PA; [2]Center for Health Equity Research and Promotion, Veterans Affairs Pittsburgh Healthcare System, Pittsburgh, PA. *(Tracking ID # 189327)*

BACKGROUND: Approximately one third of Hepatitis C Virus (HCV) infected persons in the US are women. Comorbidities affect the decision to treat chronic HCV. Little is known about the differences in serious comorbidities among men and women patients with HCV. Therefore, the goal of this project is to determine the prevalence of medical, psychiatric and substance use conditions that impact HCV management by gender.
METHODS: The Department of Veterans Affairs (VA) National Patient Care Database (NPCD) was used to identify antibody confirmed HCV-infected persons between October 1999 and September 2003. Demographic information, medical and psychiatric comorbidities, and drug and alcohol use diagnoses were retrieved. Pharmacy data were retrieved from the VA Pharmacy Benefits Management (PBM) database. Laboratory data were retrieved from the Decisions Support System (DSS) database. We excluded persons coinfected with HIV. Pearson Chi-Square was used to compare prevalence of major comorbidities between men and women.
RESULTS: We identified 84,163 men and 2651 women with positive HCV antibody from the NPCD data set. Women had a lower prevalence of renal failure (3% vs 10%, P<0.001), anemia (26% vs 28%, P=0.004), coronary artery disease (6% vs 13%, P<0.001), decompensated liver disease (8% vs 16%, P<0.001) and hepatocellular carcinoma (0.3% vs 0.9%, P<0.001) compared to men. However, women had a higher prevalence autoimmune disease (4% vs 1% P<0.001) of active psychiatric illness (38% vs 27%, P<0.001), including major depression (28% vs 17%, P<0.001) and bipolar disorder (16% vs 10%, P<0.001). Women and men did not differ significantly in the prevalence of seizure disorder (4% vs 5% P=0.08). Men had a higher prevalence of diabetes mellitus (8% vs 4% P<0.001), chronic obstructive pulmonary disease (14% vs 13% P=0.04) of ongoing alcohol (45% vs 29%, P<0.001) and drug abuse or dependence (36% vs. 26%, P<0.001). Overall, 55% of women and 44% of men had no contraindications to HCV treatment (p<0.001) while only 10.0% of women 7.9% of men were initiated on HCV treatment.
CONCLUSIONS: Comorbidities affect treatment decisions in HCV infection and vary by gender. Women are more likely to have active psychiatric disease. Treatment rates for female veterans with HCV may be improved by targeted evaluation and management of psychiatric disease.

GENDER AND TREATMENT ELIGIBILITY FOR HEPATITIS C INFECTION IN THE VA HEALTHCARE SYSTEM. A.A. Majesko[1]; K.A. Mcginnis[2]; S. Ibrahim[2]; A.A. Butt[1]. [1]University of Pittsburgh School of Medicine, Pittsburgh, PA; [2]Center for Health Equity Research and Promotion, Veterans Affairs Pittsburgh Healthcare System, Pittsburgh, PA. *(Tracking ID # 189998)*

BACKGROUND: Many factors influence hepatitis C (HCV) treatment decisions. There is little data examining gender variation in treatment eligibility for HCV. The goal for this project was to compare HCV treatment eligibility for male and female patients in the VA.
METHODS: We used the Department of Veterans Affairs (VA) National Patient Care Database to identify antibody confirmed HCV-infected patients between October 1999 and September 2003. We abstracted patients demographic information, medical and psychiatric comorbidities, and drug and alcohol use from the medical record. Pharmacy data were collected from the VA Pharmacy Benefits Management database. Laboratory data were abstracted from the Decisions Support System database. Contraindications to HCV treatment were derived from recent VA guidelines and the NIH Consensus Statement. We excluded persons coinfected with HIV.
RESULTS: We identified 86,814 patients who were HCV antibody positive. Complete clinical and lab data were available for 27,452 patients (890 women and 26,562 men). In our sample, 20,302 patients (531 women; 19,771 men) had indications for treatment (positive HCV RNA and elevated liver function tests) of whom, 314 women and 9927 men were eligible for treatment according to the current VA and NIH guidelines. Among those eligible for HCV treatment, 77% of women and 70% of men were referred to Gasteroenterology (p=0.013), 2.2% of women and 1.4% of men (p= 0.19) underwent a liver biopsy, and 29% of women and 22% of men were initiated treatment (p=0.002).
CONCLUSIONS: In this sample of VA patients with HCV, relatively few are eligible for treatment according to the current guidelines. Women patients were more likely than men to receive referral for treatment.

GENDER DIFFERENCES IN ACADEMIC PRODUCTIVITY, PROMOTION, AND LEADERSHIP APPOINTMENTS OF PHYSICIANS D.A. Reed[1]; F. Enders[1]; R. Lindor[1]; M. Mcclees[1]; K. Lindor[1]. [1]Mayo Foundation for Medical Education and Research, Rochester, MN. *(Tracking ID # 190855)*

BACKGROUND: Academic productivity is frequently linked to the selection of leaders and if lower in women could explain the gender imbalance in leadership ranks. The aim of this study was to compare the publication record, academic promotion, and leadership appointments of women and men physicians who have practiced at Mayo Clinic for 20 years or more.
METHODS: We conducted a retrospective cohort study of all 25 women physicians with 20 or more years of service at Mayo Clinic and 50 male physician controls matched to women 2:1 by date of appointment and career category (scholarly clinician). We recorded peer reviewed publications, timing of academic promotion, and national, departmental, and divisional leadership positions attained over the span of careers. We

examined differences between women and men as matched pairs using linear regression with a random effect for gender for continuous variables and polytomous logistic with random effect for gender for categorical variables.
RESULTS: Women published fewer total articles over the span of their careers than men (mean (SD) 29.5 (28.8) vs. 75.8 (60.3), p=0.001). However, after 28 years of service women produced a mean of 2.15 more publications per year than men (p=0.005). Sixty-six percent of men achieved an academic rank of Professor compared to 28% of women (p=0.01). The mean years to promotion to Associate Professor was 10.1 (5.6) years for women and 9.3 (4.1) years for men (p=0.001). Mean years to promotion to Professor was 19 (5.1) years for women and 16.3 (5.8) years for men (p=0.001). Throughout their careers, women attained fewer national (8% vs. 20%), departmental (20% vs. 28%), and divisional (24% vs. 32%) leadership appointments compared to men (p=0.04).
CONCLUSIONS: While men publish more articles than women early in their careers, publication rates by women exceed that of men in the later stages of academic careers. Yet, despite this equalization of academic productivity between genders over time, women are still less likely to attain leadership roles throughout their careers. Our results suggest that academic productivity may not be an appropriate proxy for leadership skills. Academic medical centers should recognize the disparate trends in productivity among women and men physicians throughout careers and develop new mechanisms to identify qualified female leaders.

GENDER DISPARITIES IN CARDIOVASCULAR RISK MANAGEMENT AMONG PARTICIPANTS WITH DIABETES IN THE MULTI-ETHNIC STUDY OF ATHEROSCLEROSIS (MESA) G.J. Winston[1]; R.G. Barr[1]; O. Carrasquillo[1]; A. Bertoni[2]; S.J. Shea[1]. [1]Columbia University, New York, NY; [2]Wake Forest University, Clemmons, NC. *(Tracking ID # 189856)*

BACKGROUND: Cardiovascular mortality among patients with diabetes has decreased since 1971 for men but not for women. The etiology of this disparity may be related to gender differences in treatment by health care professionals, patient behavior and biologic features. We therefore examined gender differences in diabetes intermediary outcomes and treatment in the Multi-Ethnic Study of Atherosclerosis (MESA).
METHODS: MESA is a multi-center cohort study of 6,814 participants with no clinical evidence of cardiovascular disease at the time of enrollment in 2000–2002. We defined diabetes as a fasting plasma glucose >=126 mg/dl, use of oral hypoglycemic agents or insulin, or self-report of diabetes diagnosis. Mean values of diabetes intermediary outcomes (LDL, blood pressure, hemoglobin A1c) and the percentage of participants taking medication for intermediary outcome control were compared by gender. The percentages of those on medication achieving American Diabetes Association (ADA) and Adult Treatment Panel (ATP) goals were also examined. Categorical outcomes were evaluated using chi-square tests and t-tests were used to compare mean values of continuous outcomes. Regression models were used to adjust mean outcome values for age, body mass index (BMI), the six MESA sites and race/ethnicity.
RESULTS: The sample included 1,030 persons with diabetes (48% women, 51% men, mean age 64 years, mean BMI 30.5 mg/kg^2). Mean LDL level was higher in women than men (114 vs. 110 mg/dl p=0.04). Systolic blood pressure was also higher among women than men (135 vs. 131 mmHg p=0.01), while diastolic blood pressure was lower among women than men (68.8 vs. 75.2 mmHg p<0.0001). After multivariate adjustment, differences in mean LDL and diastolic blood pressure persisted. More women were taking anti-hypertensive medication than men (p=0.003) and there was a trend towards more women than men taking lipid-lowering medications (29% vs. 24% p=.09). Of those participants taking medications, fewer women than men achieved treatment goals of LDL <100 mg/dl (52% vs. 68% p=0.006) and systolic blood pressure <130 mmHg (34% vs. 44% p=0.01). A lower percentage of women were taking aspirin than men (25.8% vs. 35% p=0.001).
CONCLUSIONS: In the MESA cohort, mean LDL and systolic blood pressure levels were higher among women than men with diabetes despite a trend towards more medication use among women. Contributing factors may include differences in patient behavior, medication titration or biologic features. These differences, together with the lower percentage of women taking aspirin, may contribute to the difference in cardiovascular mortality trends between men and women with diabetes.

	Unadjusted Means (S.D.)	Unadjusted Means (S.D.)		Adjusted Means	Adjusted Means	
	Females (n=497)	Males (n=533)	P-value	Females (n=497)	Males (n=533)	P-value
HgA1c (%)	7.50 (1.6)	7.38 (1.6)	0.3	7.35	7.26	0.5
Systolic BP (mmHg)	135.0 (23)	131.6 (20)	0.01	133.7	131.5	0.08
Diastolic BP (mmHg)	68.8 (10)	75.2 (9.5)	<0.0001	68.5	75.2	<0.0001
LDL-C (mg/dl)	114.4 (33)	110.0 (32)	0.04	113.8	109.1	0.03
Aspirin – N (%)	128 (25%)	187 (35%)	0.001			

GENDER DISPARITIES IN THE CONTROL AND TREATMENT OF HYPERTENSION, DIABETES, ISCHEMIC HEART DISEASE, AND CEREBROVASCULAR DISEASE J.V. Scobie[1]; S. Keyhani[2]; P.L. Herbert[1]; M.A. Mclaughlin[1]. [1]Mount Sinai School of Medicine, New York, NY; [2]James J. Peters Bronx VAMC, New York, NY. *(Tracking ID # 190854)*

BACKGROUND: The purpose of this study is to provide an updated analysis of gender-based disparities in the treatment and control of hypertension, diabetes, ischemic heart disease, and cerebrovascular disease in a national sample of ambulatory visits in the United States. We also explore whether there were gender differences in initiating treatment for uncontrolled hypertension.
METHODS: Data from the 2005 National Ambulatory Medical Care Survey (NAMCS) and National Hospital Ambulatory Medical Care Survey (NHAMCS) was used to conduct a cross-sectional analysis of patient visits with their primary care providers and examine the association between gender and 1) blood pressure control (<140/90), 2) initiation of therapy for patients with uncontrolled hypertension, and 3) receipt of recommended therapy for select cardiovascular conditions. We divided the sample into 3 age categories (18 to 64, 65 to 80, and >80) when examining blood pressure control. Recommended therapy was considered receipt of aspirin for ischemic heart disease (IHD) or cerebrovascular disease, a beta blocker for IHD, an ace-inhibitor (ACEI) or angiotensin receptor blocker (ARB) for diabetic patients with hypertension, and a statin for patients with diabetes or IHD. Multivariate models were estimated to examine the association between gender and each outcome controlling for the following independent variables: age, race, ethnicity, insurance, comorbid conditions, severity of illness (>5 chronic conditions), and survey (NAMCS or NHAMCS).
RESULTS: We identified 7786 visits for female and 4278 visits for male patients. The sample size for each chronic condition ranged from 605 visits for IHD to 4433 visits for patients with hypertension. Among patients with hypertension, women were more likely than men to have 3 or more visits with their provider (81% vs. 74%; p<0.05). Women with hypertension were less likely than men to meet blood pressure control targets (54% vs. 58.7%; p<0.02). Receipt of recommended therapy among both men and women ranged from 20.7% (aspirin) to 46% (ACEI/ARBs). In multivariate analyses, women aged 65 to 80 were less likely than men to have controlled hypertension [Odds Ratio 0.62, 95% CI 0.45 to 0.85]. No gender disparities in blood pressure control in other age categories were identified in multivariate analyses. We found no association between gender and initiating a new anti-hypertensive medication among patients with uncontrolled hypertension. In multivariate analyses, women were less likely than men to receive aspirin [Odds Ratio 0.43, 95% CI 0.27 to 0.67] for IHD and cerebrovascular disease and beta blockers [Odds Ratio 0.60, 95% CI 0.36 to 0.99] for IHD.
CONCLUSIONS: Our study highlights the need for increased awareness of the persistent gender disparities in blood pressure control and cardiovascular disease management and also reveals the inadequate delivery of cardiovascular care to all patients. This study illustrates the continued need for quality improvement efforts among physicians and policymakers for all patients.

GENERIC EQUIVALENTS LEAD TO COST SAVINGS IN THE MEDICARE MODERNIZATION ACT J. Hayes[1]; A.V. Prochazka[2]. [1]Medical College of Wisconsin, Milwaukee, WI; [2]University of Colorado Health Sciences Center, Denver, CO. *(Tracking ID # 189727)*

BACKGROUND: The Medicare Modernization Act (MMA) prescription drug benefit has now reached the two year mark and recent HHS data indicate that 22.5 million beneficiaries are now enrolled in Medicare Part D. Our goal was to estimate the annual costs of two typical cardiovascular prescription regimens after three years of the MMA and compare these new costs with the costs previously obtained at the prescription program's outset.
METHODS: We chose two equipotent evidence-based regimens, one brand-name and one generic, typical of a cardiovascular patient. The brand name regimen was Lipitor 10mg qd, Toprol 100mg qd, Altace 10mg qd, and the generic regimen was lovastatin 40mg qd, metoprolol 50mg bid, lisinopril 20mg qd. We then accessed the Medicare website plans for the zip code 80220 for a non-married patient determined to be above 150% of the poverty level income threshold for 2007 and reviewed previously obtain results from November 2005 for the same regimens. During the period since Part D program inception, metoprolol succinate (Toprol XL brand) has gone generic. To account for both brand name options we obtained prices for both an all brand name regimen and an all brand name regimen with the exception of the recently obtainable generic metoprolol succinate.We used pharmacychecker.com to obtain the least expensive Canadian costs. Lastly, we obtained the generic regimen prices from "big box" pharmacies under generic pricing schedules.
RESULTS: For the brand name regimen with brand name Toprol XL in December 2007 there were 52 Medicare plans at an average annual cost of $1323 with a range of $733 to $2455. The least expensive Canadian based pharmacy sold the same regimen for $1048. For the brand name regimen with generic equivalent Toprol XL in December 2007 there were 52 Medicare plans at an average annual cost of $1242 with a range of $553 to $2345. The difference between the 2005 and 2007 data was found to be significant ($p<0.001$). In November 2005, there were 40 Medicare plans at an average annual cost of $1716 with a range of $767 to $2378. The least expensive Canadian based pharmacy sold the same regimen for $933. For the generic regimen in December 2007 there were 52 Medicare plans at an average annual cost of $621 with a range of $292 to $1194. In November 2005, there were 40 Medicare plans at an average annual cost of $824 with a range of $371 to $1986. The difference between the 2005 and 2007 data was found to be significant ($p=0.002$). The "big box" U.S. pharmacy generic regimen annual cost was $312.
CONCLUSIONS: Since MMA Part D commencement, there has been a significant reduction in both average generic price and brand name prices. The largest change in the brand name regimen came from the availability of a generic equivalent of Toprol XL. Generic equivalents are less expensive from "big box" U.S. pharmacies than within the MMA and Canadian pharmacies no longer offer the large advantage for the brand name regimen that existed two years ago. For many patients, costs may be less with generic equivalents obtained outside of the MMA.

GETTING BY: UNDER-USE OF INTERPRETERS BY RESIDENT PHYSICIANS L. Diamond[1]; Y. Schenker[2]; L. Curry[3]; E.H. Bradley[3]; A. Fernandez[2]. [1]Yale University/West Haven VA Medical Center, New Haven, CT; [2]University of California, San Francisco, San Francisco, CA; [3]Yale University, New Haven, CT. *(Tracking ID # 190054)*

BACKGROUND: Effective communication between physicians and patients is essential to the provision of safe, high quality, patient-centered health care. Language barriers in the care of patients with limited English proficiency (LEP), a growing segment of the U.S. population, complicate physician-patient communication and adversely affect healthcare quality in a variety of domains. Despite accumulating evidence of the benefits of professional interpreter use, emerging data suggest that physicians under-use professional interpreters even when professional interpreters are readily available. There has been no in-depth examination of how physicians make decisions about using interpreters for their patients with LEP.
METHODS: This qualitative study used in-depth interviews with Internal Medicine resident physicians to characterize their experiences caring for patients with LEP. A purposeful sample of residents was drawn from programs at the Yale New Haven Hospital and San Francisco General Hospital, two hospitals with excellent professional interpreter services. Enrollment was stopped when thematic saturation was achieved, which occurred after interviews with 20 residents. The interview guide focused on experiences with interpreter use, barriers to using interpreters, and the perceived impact of use and non-use of interpreters on patients and the quality of care. Data analysis was conducted in accordance with established techniques to ensure rigor, including triple coding by members of the research team with diverse backgrounds, systematic discussion of disagreements in coding and resolution via group consensus, maintenance of an audit trail to document analytic decisions throughout the study, and participant validation of findings. Analyses were facilitated by the use of Atlas.ti software.
RESULTS: Four recurrent themes emerged that described how resident physicians decide about calling professional interpreters: 1) Residents acknowledged that they under-used professional interpreters, a decision frequently described as "getting by;" 2) The need for a professional interpreter as perceived by residents varied depending on the physician's work flow and what seemed best for the patient; 3) Residents perceived that there were benefits to communicating without a professional interpreter; 4) Under-use of professional interpreters was normalized within the hospital environment, despite the potential negative impact on quality of care.
CONCLUSIONS: In spite of awareness of the lower quality of care when professional interpreters are not used for patients with LEP and the high availability of professional interpreters at these sites, participants acknowledged under-use of professional interpreters. Although previous research has suggested that time constraints and lack of availability of professional interpreters are the primary reasons for under-use, our data suggest that the reasons for under-use are more complicated. Residents and their hospital culture may undervalue high-quality communication and accept poor communication with patients with LEP as normal. The decision-making process about using professional interpreters for patients with LEP is not patient-centered. Accordingly, simple educational interventions about interpreter service availability and patients' rights may be unlikely to change residents' behaviors toward patients with LEP. Interventions designed to increase physician use of interpreters should target community norms and address second language use by physicians.

GOALS OF CARE AND CODE STATUS DISCUSSIONS AMONG GENERAL MEDICAL INPATIENTS Z.D. Erekson[1]; T.H. Haberle[1]; A.E. Curtis[2]; L.A. Shinkunas[3]; K.T. Cannon[2]; V.F. Hoffman[2]; L.C. Kaldjian[4]. [1]University of Iowa Carver College of Medicine, Iowa City, IA; [2]University of Iowa Carver College of Medicine/Iowa City VA (CRIISP), Iowa City, IA; [3]Program in Bioethics, University of Iowa Carver College of Medicine, Iowa City, IA; [4]Program in Bioethics, University of Iowa Carver College of Medicine/Iowa City VA (CRIISP), Iowa City, IA. *(Tracking ID # 190138)*

BACKGROUND: Appropriate communication between patients and their physicians regarding code status (resuscitation) orders is essential to ensure that patient preferences are understood and respected. A shared understanding of goals of care may provide a meaningful context for these decisions. This study sought to describe patients' goals of care, assess how frequently patients discuss goals with their physicians, and determine whether discussion of goals may influence patients' resuscitation preferences.
METHODS: Over a 3 month period, 2 trained medical students interviewed 135 adult inpatients within 48 hours of admission to a general medical service at a large Midwestern medical center. Using a structured survey instrument, the interviewers asked patients about their (1) resuscitation preferences, (2) goals of care, (3) communication with physicians about goals of care, and (4) demographic variables, including advance directives. Charts were reviewed for additional demographic information and treating physicians were contacted to estimate their patients' survival prognoses.
RESULTS: Patients had a mean age of 48 years (range 18–86), 52% were female, 82% had a survival prognosis of greater than 2 years, 93% performed high on a measure of activities of daily living (scoring at least 10 on a scale of 1–12), and 58% described their health as good, very good, or excellent, and 42% as poor or fair. Twenty-four percent of patients had a living will, 25% had a durable power of attorney for healthcare, and 20% had both; 86% of patients expressed a preference for full resuscitation in the event of cardio-pulmonary arrest. When asked "Please tell me what your goals of care are for this hospitalization", 85% of patients were able to answer the question without further prompting. When queried about specific goals of care, the following goals were affirmed (multiple affirmations were possible): cure (68%), live longer (85%), improve health (96%), maintain health (97%),

accomplish something particular in life (56%), be comfortable (94%), and other (24%). Each patient affirmed an average of 5 goals of care, but when asked to identify the single goal of care that was most important to them, the following goals were selected (in descending order of frequency): cure (27%), improve health (27%), maintain health (18%), live longer (10%), accomplish something particular in life (7%), be comfortable (6%), and other (5%). Only 39% of patients had discussed their goals of care with their hospital physician, and only 30% had discussed their code status. Patients who preferred full resuscitation (compared with those who did not) were more likely to have discussed their goals of care with their hospital physician (43% vs. 16%, p=0.03). At the conclusion of the interview, 71% of participants stated that discussing goals of care during the study interview was helpful, and 2 patients reported that their resuscitation preferences had changed after being asked questions about their goals of care.
CONCLUSIONS: Asking patients about their goals of care is feasible and perceived as helpful by most patients and may lead to changes in resuscitation preferences in some patients.

HAART USE AND VIRAL RESPONSE AMONG HIV-INFECTED PATIENTS WITH CO-OCCURRING MENTAL ILLNESS AND INJECTION DRUG USE G. Chander[1]; S. Himelhoch[2]; J. Fleishman[3]; J. Hellinger[4]; P. Gaist[5]; G. Kelly[1]. [1]Johns Hopkins University, Baltimore, MD; [2]University of Maryland, Baltimore, MD; [3]Agency for Healthcare Research and Quality, Rockville, MD; [4]Community Medical Alliance, Boston, MA; [5]National Institute of Health, Rockville, MD. *(Tracking ID # 190564)*

BACKGROUND: Co-occurring mental illness (MI) and injection drug use (IDU) are associated with negative medical and social consequences. HIV infected individuals with these co-morbid conditions may experience worse treatment outcomes. We sought to determine the individual and combined effects of MI and IDU on highly active antiretroviral therapy (HAART) receipt, HIV-RNA suppression, and HIV-RNA rebound among individuals engaged in HIV care.
METHODS: Using 2004 data from the HIV Research Network (HIVRN), a multi-site cohort of HIV-infected individuals in primary care, we performed a cross-sectional study of HIV-infected patients followed at seven primary care sites. Outcomes of interest were HAART receipt, viral suppression (defined as an HIV-RNA <400 copies/ml) and viral rebound (defined as an HIV-RNA ≥400 within 18 months after achieving viral suppression). Independent variables of interest were 1) MI/IDU 2) IDU only 3) MI only 4) Neither. We used chi-squared analysis for comparison of categorical variables, and logistic regression to adjust for age, race, sex, frequency of outpatient visits, CD4 nadir, and study site.
RESULTS: During 2004, 10,284 individuals in the HIVRN were either on HAART or HAART eligible defined as a CD4 cell count ≤350. Half of the sample had neither MI nor IDU (46%), 34% MI only, 10% IDU only, and 10% had both MI /IDU. In multivariate analysis of HAART eligible individuals, co-occurring MI /IDU was associated with the lowest odds of HAART receipt (Adjusted Odds Ratio:0.57 [95% CI: (0.47- 0.68]), followed by those with IDU only (0.64 [0.54- 0.78]), and those with MI only (0.87[0.77- 0.99]) compared to those with neither. Among those on HAART (n=8378), concurrent MI/ IDU (0.62 [0.53- 0.72]), IDU only (0.68[0.59–0.80]), and MI only (0.85[0.77- 0.93]) were all also associated with a decreased odds of HIV-RNA suppression compared to those with neither. Of those who achieved viral suppression (n=3736), concurrent MI/IDU was associated with the greatest odds of viral rebound (1.79 [1.36–2.36]), followed by IDU only (1.59 {1.20–2.09]) and MI only (1.20 [1.01–1.42]). Post-estimation testing did not demonstrate a difference between those with MI/IDU and IDU only in these outcomes. Both of these groups significantly differed from those with MI alone.
CONCLUSIONS: MI and IDU are independently associated with decreased HAART receipt, viral suppression, and viral rebound. IDU among those with MI is associated with poorer treatment outcomes than MI alone. Integrating HIV, substance abuse, and mental healthcare may improve outcomes in this population.

HAZARDOUS DRINKING IS ASSOCIATED WITH ASPARTATE AMINOTRANSFERASE TO PLATELET RATIO INDEX IN AN URBAN HIV CLINICAL COHORT A.A. Chaudhry[1]; M.S. Sulkowski[1]; G. Chander[1]; R.D. Moore[1]. [1]Johns Hopkins University, Baltimore, MD. (*Tracking ID # 189691*)

BACKGROUND: In the era of highly active antiretroviral therapy (HAART), liver disease is emerging as a major cause of morbidity and mortality among HIV-positive individuals. Limited data exist evaluating the role of alcohol consumption on liver disease in this population. Currently, liver biopsy is considered the gold standard for staging of liver fibrosis; however, there are limitations to biopsy. Aspartate aminotransferase (AST) to platelet ratio index (APRI) is a surrogate marker of liver fibrosis that has been validated for staging of hepatitis C virus (HCV)-related liver disease among persons with and without HIV. We sought to determine the relationship between alcohol consumption and liver fibrosis as assessed by APRI in HIV-infected adults, and to explore the relative contributions of alcohol and HCV to APRI among HIV/HCV co-infected adults.
METHODS: We performed a cross-sectional analysis of data from a clinical cohort of HIV-infected patients in Baltimore, MD. Since 1998, surveys addressing alcohol use have been administered on a semiannual basis. We categorized alcohol consumption according to the National Institute on Alcohol Abuse and Alcoholism (NIAAA) guidelines, and calculated APRI at the time closest to the most recent survey completed, defining significant liver fibrosis as APRI > 1.5. We performed bivariate multinomial logistic regression to test the association of APRI with preselected covariates, including: age; sex; race; time in cohort; use of HAART; antiretroviral class; history of opportunistic infection; past and current drug use; viral hepatitis; HIV RNA; CD4 lymphocyte nadir; and HIV transmission risk. We then performed multivariate multinomial logistic regression, including in our final analysis correlates of APRI from among our predetermined covariates, and adjusting for age and race. Finally, we performed the above described multivariate analysis in two subgroups: HIV/HCV co-infected participants, and non-HCV-infected, HIV-infected participants.
RESULTS: Among 1358 individuals who completed at least one survey, 10.4% reported hazardous drinking as defined by the NIAAA, 22.4% reported nonhazardous drinking, and 67.2% reported consuming no alcohol in the prior six months. 48.8% of participants were seropositive for HCV and 8.2% for chronic HBV. 11.6% had APRI>1.5, indicating significant liver fibrosis. In the multivariate analysis, hazardous drinking was associated with having APRI>1.5 (Adj. RRR 2.30, 95% CI: 1.26–4.17). Other factors associated with increased APRI were: male sex; viral hepatitis; and HIV transmission category of injection drug use. Non-hazardous drinking was not associated with liver fibrosis. Among co-infected individuals, 18.3% had APRI>1.5. In this group, hazardous drinking was not associated with increased APRI. Among non-HCV-infected individuals, 5.3% had APRI>1.5, and hazardous drinking was associated with increased APRI (Adj. RRR 3.72, 95%CI: 1.40–9.87).
CONCLUSIONS: Hazardous alcohol consumption was independently associated with increased APRI, suggesting that it is an important modifiable risk factor for liver fibrosis among HIV-positive individuals, particularly among non-HCV-infected persons. Further work is necessary measuring the impact of alcohol on laboratory, pathological, and clinical outcomes of liver disease in HIV-infected individuals to assess the true burden of alcohol-related liver disease and to determine whether any safe level of alcohol consumption exists.

HEALTH CARE PROVIDER ATTITUDES TOWARDS PATIENTS WITH ACUTE VASO-OCCLUSIVE CRISIS DUE TO SICKLE CELL DISEASE: DEVELOPMENT OF A SCALE N. Ratanawongsa[1]; C. Haywood[1]; S.M. Bediako[2]; L. Lattimer[1]; S. Lanzkron[1]; N.R. Powe[1]; M.C. Beach[1]. [1]Johns Hopkins University, Baltimore, MD; [2]University of Maryland, Baltimore County, Baltimore, MD. *(Tracking ID # 189601)*

BACKGROUND: Patients with sickle cell disease (SCD) often perceive negative healthcare provider attitudes towards them. Such attitudes may affect quality of care during vaso-occlusive crises (VOC). This study investigated the validity and reliability of a scale to measure provider attitudes toward patients with VOC.
METHODS: We conducted a cohort study of adult patients with VOC and their health care providers at an urban academic medical center from September 2006 to June 2007. Eligible providers included nurses, nurse practitioners, physician assistants, or physicians providing direct ED or inpatient care to enrolled patients. Based on a literature review, we constructed a 10-item questionnaire, which providers completed within 72 hours of patient encounters. After factor analysis, we created a 7-item Positive Provider Attitudes toward Sickle Cell Patients Scale (PASS) (possible score 5–35), with higher scores indicating more positive

attitudes. We calculated descriptive statistics for individual items and internal consistency for the scale. We sought evidence for construct validity, exploring bivariate relationships between the PASS and provider or patient characteristics with strong theoretical relationships to provider attitudes. We conducted bivariate analyses used multilevel modeling with crossed random effects to account for clustering by provider and patient.
RESULTS: We collected 121 surveys from 84 health care providers for 47 patients. Patients were 30.3 years old on average, 60% were women, and 43% had at least some college education. 77% had prior acute chest syndrome, and 13% were hospitalized 10 or more times in the last year. Among providers, 79% were nurses, 70% women, and 70% worked in inpatient settings. In most of 121encounters, providers felt the patient was at least a little likely to exaggerate discomfort (66%), fail to comply with medical advice (76%), abuse drugs (67%), or manipulate providers (65%) while 12–13% indicated below average liking, empathy, and respect for patients. PASS scores averaged 24.1 (SD 6.7), ranged 7–35, and had high internal consistency (Cronbach's alpha= 0.91). As hypothesized, inpatient vs. ED providers (4.65, 95% CI 2.14 – 7.16, p<0.001), nurses vs. other providers (0.95, 0.51 – 1.39, p<0.001), and female vs. male providers (3.88, 95% CI 0.64 – 7.12, p=0.02) had higher PASS scores. Higher patient educational attainment (2.74, 95% CI 1.53 – 3.96, p<0.001) and employment (5.62, 95% CI 2.39 – 8.84, p=0.001) were associated with higher PASS scores. Higher frequency of hospitalization (−0.52, −0.79 – −0.24, p<0.001), prior discharges against medical advice (−4.93, 95% CI −9.50 – −0.35, p=0.04), prior disputes with staff (−7.53, 95% CI −12.36 – −2.70, p=0.002), chart-documented narcotic dependence (−5.33, 95% CI −9.33 – −1.33, p=0.01) and positive screening for illicit drug use (−4.30, 95% CI −8.46 – −0.14, p=0.04) were associated with lower PASS scores.
CONCLUSIONS: Our findings provide evidence for the reliability and construct validity of the PASS score in measuring provider attitudes toward SCD patients with VOC. PASS scores indicated variability in provider attitudes with a high percent of some negative attitudes. The impact of provider attitudes on the quality of pain management and outcomes of patients with VOC is worthy of future study.

HEALTH CARE UTILIZATION AND COSTS OF PREVENTION AND TREATMENT OF HUMAN PAPILLOMA VIRUS INFECTION IN TWO PUBLIC HOSPITALS IN ARGENTINA. J.T. Insua[1]; S. Tatti[2]; H.O. Festa[3]. [1]Universidad Austral, Buenos Aires,; [2]Hospital de Clinicas, Universidad de Buenos Aires, Buenos Aires,; [3]Hospital Ramos Mejia, Buenos Aires,. *(Tracking ID # 189624)*

BACKGROUND: Human Papilloma Virus (HPV) infection is the cause of Cervical cancer (CC), 80% of which occurs in Less Developed- (LDC) and Transitioning-Countries (TC). To estimate the cost of illness of HPV (+) in LDCs and TCs is needed. Practice patterns and health care costs vary among countries, and data-poor environments require special data collection efforts. Medical direct costs of prevention and treatment of Human Papilloma Virus (HPV) Infection in Argentina are unknown. Health care use and direct medical costs of clinical prevention and cervical cancer treatment were assesed in 2 public hospitals in Argentina.
METHODS: A retrospective cross-sectional study, with a deterministic, partially stocastic, 1 year health care utilization and cost study was performed in a sample from each year of the period 1995–2005. HPV (+) patients were grouped into Group (G.) II: Abnormal PAP smear, cervical intraepitelial neoplasia (CIN) 1, Low SIL (Bethesda Classification, LSIL); Group III: Abnormal PAP, CIN 2–3, high-(HSIL); Group IV: Invasive CC; and Group V: Group II-IV patients with recurrences/reevaluations after the first year of assessment. HPV(−) (Group I) 1:1 age matched controls among PAP screened patients were selected from same setting and period. Convenience sampling was performed from chart forms from ginecology /colposcopy ambulatory care offices. Unit costs where obtained from secondary sources, inflated into Argentine Pesos, 2005 (1 U$ = 2.91 Peso), cost/charge ratio adjusted, with public financing perspective. Resource consumption rates times unit costs per each of HPV stage, mean costs (max-minimum range), sensitivity analysis of costs per financing insurance (social security, public, and private) for whole period reported. Univariate satistical analisis of resource consumption counts was performed with SPSS as appropiate.
RESULTS: 1548 patients HPV(−) G.I (100%) had mean age of 33.91± 0.27 years; while1010 LSIL CIN 1 patients (G.II, mean age 30.53± 0.61 yrs.); 326 HSIL CIN 2–3 (G.III) patients (mean age 35.43±0.64 yrs); and 217 cancer patients (G.IV, mean age 49.82±0.93 yrs) (p<0.0001), (65%, 21% y 14% respectively of total HPV+ patients) and 69 G.V patients, mean age 36.48±1.31 yrs) (4.4% of HPV+). Office visits, colposcopies, PAP mears, and hospitalizations increase with patient severity (p<0.0001). Direct medical costs per patient of per group: G.I: 51.8 $ (Range Min.48.7$, Max.61.3$); G.II: 238$ (228.5$, 267.6$); G.III: 985$ (558.1$,2264.3$); G. IV: 12.698$ (7624$, 27.890$).; G.V:1.782$(1052$, 3971$). Resource use according to predominant practice per group was calculated. Main costs per group and practice pattern, e.g., G.IV: bed days (55%), radiotherapy (20%) and chemotheraphy (10%) while G.I: office visits (60%), PAP (24%) and colposcopy (10%). (Full practice pattern results per group not provided here). Sensitivity analysis varied according to insurance in all groups, eg. CC G.IV treatment was 3.67 times more expensive in private than in public sector.
CONCLUSIONS: Health care use and costs of HPV infected patients in two Argentinean referal hospitals increase with HPV stage, according practice pattern, and replicate natural history of HPV infection. Wide cost variation between insurance sectors occurs. A complex and cheap assessment and treatment of early HPV(+) lessions was provided. The proportion of invasive cancer at diagnosis is high, but selection bias cannot be excluded. These conclusions may not apply for non-referral hospitals.

HEALTH CARE UTILIZATION AND UNHEALTHY BEHAVIORS AMONG VICTIMS OF SEXUAL ASSAULT IN CONNECTICUT N.A. Kapur[1]; D.M. Windish[2]. [1]Yale University, New Haven, CT; [2]Yale University, Waterbury, CT. *(Tracking ID # 190363)*

BACKGROUND: Nationally, 1 in 6 women report a lifetime prevalence of sexual assault. The effect of this assault on negative health behaviors and health care utilization is poorly understood. The first goal of this study was to determine the prevalence and demographic correlates of sexual assault in a representative sample of adults in Connecticut. The second goal was to to examine the effect of this victimization on unhealthy behaviors and health care utilization.
METHODS: This study cross-sectionally analyzed the survey responses of 4183 individuals who responded to the sexual assault questions in the 2005 Connecticut State Behavioral Risk Factor Surveillance System (CT-BRFSS). This is an annual state-based random digit-dialed telephone survey of non-institutionalized US adults that examines the effects of risky behaviors on a variety of health outcomes. Prevalence of sexual assault and associated demographic characteristics were analyzed using descriptive statistics. Multivariate logistic regression models were used to determine the association of health outcomes for sexual assault adjusting for sociodemographic confounders.
RESULTS: The lifetime prevalence of sexual assault in Connecticut was 9.4% (95% CI: 8.3–10.8). This estimate varied by sociodemographic factors. Among adults aged 65 years and older, only 4.3% (95% CI: 3.0-6.1) reported sexual assault compared to 11.2% (95% CI: 8.3–15.0) of adults aged 18–34. Among men, 3.7% (95% CI: 2.7–5.2) reported sexual assault, whereas 14.6% (95% CI: 12.6–16.7) of all women reported sexual assault victimization. After controlling for a variety of sociodemographic factors, victims of forced sexual assault were more likely to be currently smokers (OR: 2.01, 95% CI: 1.34–3.00) and more likely to drink heavily (OR: 3.30, 95% CI: 2.01–5.42) than those who reported no sexual assault. They were also less likely to have seen a physician in the previous 12 months for a routine checkup (OR: 1.49, 95%: 1.07–2.07) and more likely to report being unable to see a doctor because of cost (OR: 2.72, 95% CI: 1.7–4.34).
CONCLUSIONS: Approximately 1 of 11 Connecticut adults report victimization by sexual assault sometime in their lives. This study demonstrates that victims are less likely to access routine health care in primary care offices. Sexual assault is also linked to certain unhealthy behaviors such as smoking and heavy alcohol consumption. Such high rates of sexual assault in Connecticut necessitate screening among all patients regardless of sociodemographic profile. Screening for a history of sexual assault victimization in clinics should occur concurrently with counseling regarding alcohol abuse and smoking cessation in primary care offices.

HEALTH LITERACY IN A LATIN AMERICAN POPULATION J. Konfino[1]; R. Mejia[2]; E.J. Perez-Stable[3]. [1]Hospital de Clinicas, Buenos Aires,; [2]Society of General Internal Medicine, Buenos Aires,; [3]University of California, San Francisco, San Francisco, CA. *(Tracking ID # 190536)*

BACKGROUND: Low level of health literacy is associated with poor communication between patients and clinicians and with increased hospitalization rates, less frequent screening for cancer, poor control of diabetes, and disproportionately high rates of disease and mortality. Despite the importance of health literacy in medicine, there is no information about its prevalence in Latin America. Objective: To assess the prevalence of inadequate health literacy in a random sample patients seen at a university hospital in Buenos Aires, Argentina.
METHODS: A descriptive study was performed during 2007. Health Literacy was assessed through the Short Assessment of Health Literacy for Spanish-speaking Adults (SAHLSA) measure that has been previously used in US Latino populations. Participants were randomly selected from the ambulatory clinic and from the medical inpatient ward over 2 months. Demented or cognitively impaired patients were excluded using the Mini-Cog test defined as a score of <3. Patients with a SAHLSA score <38 points were considered to have inadequate health literacy. Formal education was categorized as none, primary only (7 or less), secondary (8 to 12) and some university or more (>12).
RESULTS: There were a total of 2345 patients potentially eligible during the time of the study, 234 were approached after random selection and 229 patients were interviewed (98% response). 54.6% of respondents were women and 62% were recruited from the ambulatory clinic. The respondents had a median age of 56 years, 37 (16.2%) had 7 years or less of education, 141 (61.5%) had 8 to 12 years of education and 51 (22.3%) has more than 12 years, 47.6% lived with a partner, 45.4% did not have medical insurance and 49.3% had rated their health status as good or excellent. The prevalence of inadequate health literacy defined by SAHLSA score was 30.1% (69 patients). Stratified by educational level, 26 of the 37 (70.3%) patients with ¡Ü 7 years of formal education had inadequate health literacy compared with 41 of the 141 (29%) patients with 8 to 12 years of education, and with 2 of the 51 (3.9%) patients with >12 years of education (p=<0.0001). Older patients (>65 years) had an insignificantly higher rate of inadequate health literacy compared to patients younger than 65 years (53.6% vs. 46.4%; p=0.074). No differences were found in inadequate health literacy by sex, having medical insurance, self perception of health status as good or excellent vs. fair or poor, marital status and number of visits to the medical center in the past year.
CONCLUSIONS: We found that among Argentinean patients at this academic health center, inadequate health literacy was strongly associated with the level of formal education but was present even among those with some university level education. These findings would imply that the use of SAHLSA for screening may have a role in making physicians aware of their patients health literacy in Buenos Aires.

HEALTH LITERACY IN OUR CLINIC POPULATION AS MEASURED BY THE NEWEST VITAL SIGN N. Bose[1]; M.J. Jelley[2]; M. Barnes[3]; S. Shoichet[3]. [1]University of Oklahoma College of Medicine, Tulsa, OK; [2]University of Oklahoma, Tulsa, OK; [3]William Beaumont Hospital, Royal Oak, MI. *(Tracking ID # 189446)*

BACKGROUND: Health literacy is the degree to which individuals have the capacity to obtain, process and understand basic health information and the services needed to make appropriate health decisions. It involves the ability to use and interpret text, documents, and numbers effectively. Individuals with limited literacy have less knowledge about their health problems, more hospitalizations, higher health costs and poorer health status. The relation between limited literacy and these factors is consistent across studies and persists after adjusting for confounding socioeconomic variables. We employed the Newest Vital Sign [NVS] instrument to assess health literacy in our clinic population.
METHODS: We conducted this study to assess the health literacy of the population, in a resident-run Internal Medicine clinic in a suburb of Detroit, Michigan. Our aim was to identify the approximate population of health illiterate individuals and hence try to improve communication and care directed at this population. We postulated that lower levels of literacy was linked to advancing age, female gender, lower education level, higher body mass index, smoking history and lower health status. We administered the Newest Vital Sign questionnaire along with socio-demographic questions to patients who volunteered. This tool is a nutrition label that is accompanied by six questions and requires a few minutes to administer. It is reliable and correlates with the TOFLA [Test of Functional Health Literacy in Adults]. Patients with more than four correct responses are unlikely to have low literacy, whereas fewer than four correct answers indicate the possibility of limited literacy. It is suitable for use as a quick screening test for limited literacy in primary health care settings. Unemancipated minors and patients with cognitive impairment or communication disorders were excluded. This study was conducted during April,May and June, 2007.
RESULTS: A total of 402 clinic patients were surveyed. Literacy was defined as having a score >4. We compared subjects with a total health literacy score>4 (N=178–44%) versus those with a score </= (N=224–56%). Patients that were considered health illiterate (health score </=4) were more often African Americans (41% versus 20%, p<0.01), were older (44+/-16 versus 38+/-13, p<0.01), with slightly lower height (66+/-4 versus 67+/-4, p=0.04), lower education level (13.2+/−2.3 versus 14.3+/−2.5, p<0.01) and lower self-reported health status (2.0+/-1.1 versus 2.2+/−1.0, p=0.01) than those patients that were health literate (health literacy score>4).
CONCLUSIONS: The results of this small study illustrate the fact that patients with a lower education level, lower self-reported health status, elderly patients and African Americans have lower health literacy - these results are useful to help us better understand which patients may need more directed medical instructions and health care. This study suggests that it may be prudent to institute health literacy screening for patients attending resident-run clinics. This would lead to better understanding of patient needs and thus, better delivery of health care. The limitations of this study include the small sample size, the fact that a single clinic population was studied and that patient recall alone was relied upon to prevent administering the study to the same patient more than once.

HEALTH RELATED BARRIERS TO EMPLOYMENT: AN ANALYSIS OF DATA FROM A WELFARE REFORM PROGRAM A. Maguire[1]; Q. Xiang[1]; D. Eastwood[1]; S. Tarima[1]. [1]Medical College of Wisconsin, Milwaukee, WI. *(Tracking ID # 190406)*

BACKGROUND: The contribution of chronic illness to the underemployment of low income workers is poorly understood. Wisconsin Works (W-2) is a welfare reform program designed to quickly move unemployed low income workers into jobs. The Barriers Screening Tool (BST) is a survey developed by Wisconsin's Department of Workforce Development to identify barriers to employment, including physical and mental health problems.
METHODS: We performed an analysis of BST data from one of the largest W-2 agencies servicing Milwaukee County. Surveys were conducted by staff employed by the agency. Participation was voluntary. Results reflect an analysis of BST surveys completed from 2003–2006.
RESULTS: Among 35,855 men and women seeking services from 2003–2006, 10,060 were eligible for W-2 and voluntarily completed the BST. 92.5% were female. 44.6% lacked a HS diploma. The majority of respondents were African American (72.3%). 15.0% were non-Hispanic white and 8.9% were Hispanic. 45% were <30 yrs of age. 44.2% of respondents reported one or more barrier to employment and 5.1% had 3 or more barriers. Lack of education (8.0%), physical limitations (10.1%) and mental health problems (6.1%) were the most commonly reported barriers to employment. 7.2% reported that an unspecified "other medical limitation" prevented them from working. Other commonly reported barriers to employment included: alcohol and drug abuse/AODA (3.0%) and homelessness (2.7%). Among the 1,044 individuals reporting a physical limitation, the most commonly reported problems were back pain, chronic pain and arthritis. Among the 635 individuals with mental health barriers, the most commonly reported diagnoses were depression, anxiety/ panic disorder, and bipolar disorder. Logistic regression analysis was used to analyze the effect of multiple variables including age, gender, ethnicity, education, AODA, lack of education, limited English proficiency, domestic violence, homelessness, and legal problems on the presence of physical and mental health barriers to employment. Age >40 yrs more than doubled the odds of having either a physical or mental health barrier to employment (p<0.0001, chi-square). AODA (OR=3.63, p<0.0001), domestic violence (OR= 3.12, p=0.0001), lack of education (OR=2.41, p<0.0001) and female gender (OR=2.30, p=0.0081) all were significantly associated with an increased odds of having a mental health barrier to employment. Female gender (OR=2.17, p=0.0004), and lack of education (OR= 1.68, p=0.0006) were associated with an increased odds of having a physical limitation. In logistic regression analyses modeling other employment barriers, women were as likely or more likely than men to report all barriers to employment including AODA

(OR=2.53, p=0.0014) and homelessness (OR=2.13, p=0.0382). African Americans were twice as likely as whites to report homelessness (OR=2.06, p=0.0008). Those with less than a high school education were more likely to report AODA problems (OR=1.80, p=0.0268).
CONCLUSIONS: Physical and mental health problems are among the most common barriers to employment in this population of unemployed urban Wisconsin residents. Older age, AODA, domestic violence, and lack of education were associated with physical and mental health barriers. Further study is warranted to understand the reasons for the increased prevalence of employment barriers among women. Welfare reform programs may improve their success by addressing the physical and mental health needs of the clients they serve.

HEALTH RELATED QUALITY OF LIFE IN HIV-INFECTED PATIENTS: THE ROLE OF SUBSTANCE USE P.T. Korthuis[1]; L.C. Zephyrin[2]; J.A. Fleishman[3]; S. Saha[4]; J.S. Josephs[5]; M.M. Mcgrath[1]; J. Hellinger[6]; K.A. Gebo[5]; -. For The Hiv Research Network[5]. [1]Oregon Health & Science University, Portland, OR; [2]Dept. of Gynecology & Obstetrics, Columbia University, New York, NY; [3]Agency for Healthcare Research and Quality, Rockville, MD; [4]Oregon Health & Science University, and Portland VA Medical Center, Portland, OR; [5]Johns Hopkins University, Baltimore, MD; [6]Community Medical Alliance, Boston, MA. *(Tracking ID # 189723)*

BACKGROUND: HIV and substance dependency are co-morbid conditions that adversely affect health-related quality of life (HRQoL). The objective of this study was to estimate associations between HRQoL and specific substance use among HIV-infected patients.
METHODS: We conducted cross-sectional survey interviews with 951 HIV-infected patients receiving care at 14 HIV Research Network sites in 2003. HRQoL was assessed by multi-item measures of physical and role functioning, general health, pain, energy, positive affect, anxiety, and depression. Mental and physical HRQoL scales were developed by factor analysis and raw scores converted into a 0–100 scale. We used linear regression to estimate adjusted associations between HRQoL and current illicit use of marijuana, analgesics, heroin, amphetamines, cocaine, sedatives, inhalants, hazardous/binge alcohol, and drug use severity, adjusting for socio-demographic factors, HIV disease severity, and site.
RESULTS: The sample was predominantly male (68%) and of minority race/ethnicity (51% Black, 14% Hispanic) with median age 45 years (range 20 to 85). Fifty-five percent reported a nadir CD4 count less than 200 cells/mm3 and 69% were receiving HAART. Of 951 respondents, 37% reported current, 35% reported former, and 28% reported no prior illicit drug use. Among current users, illicit marijuana use was most common (26%), followed by hazardous/binge drinking (10%), cocaine (10%) and non-prescription analgesics (6%). Mental HRQoL was reduced for current users [adjusted beta coefficient (β) −9.66, 95% confidence interval (CI) −13.4, −5.94] but not former users (β −2.40 [95% CI −6.08, 1.28]) compared with never users. Physical HRQoL was reduced for both current (β −4.32 [95% CI −8.30, −0.34]) and former (β −4.18 [95% CI −8.13, −0.23]) drug users. Amphetamines and sedatives were associated with large decreases in both mental (amphetamines: β −22.8 [95% CI −33.5, −12.0], sedatives: β −18.6 [95% CI −26.2, −11.0]), and physical HRQoL (amphetamines: β −11.5 [95% CI −22.6, −0.43], sedatives: β −13.2 [95% CI −21.0, −5.36]). Reductions in physical HRQoL were primarily predominantly due to increased pain and decreased energy. All illicit drugs, but not alcohol, were associated with decreased mental HRQoL: marijuana (β −7.72 [95% CI −12.0, −3.48]), non-prescription analgesics (β −13.4 [95% CI −20.8, −6.07]), cocaine (β −10.5 [95% CI −16.4, −4.67]), and inhalants (β −14.0 [95% CI −24.1, −3.83]). HRQoL decreased as drug use severity scores increased.
CONCLUSIONS: Current illicit drug use adversely impacts HRQoL among HIV-infected patients, but mental HRQoL among former users is comparable to those who have never used drugs. Facilitating sobriety for patients with attention to specific illicit drugs represents an important avenue for elevating HRQoL in patients living with HIV.

HEALTH SERVICE UTILIZATION AND PSYCHOSOCIAL CHARACTERISTICS OF HIGH COST MEDICAID FREQUENT HOSPITAL UTILIZERS H.V. Kunins[1]; J. Weiss[2]; L.T. Watkins[3]; G.M. Sacajiu[4]. [1]Albert Einstein College of Medicine, Bronx, NY; [2]Department of Medicine, Albert Einstein College of Medicine/Montefiore Medical Center, Bronx, NY; [3]NYU School of Social Work, New York, NY; [4]Montefiore Medical Center, Bronx, NY. *(Tracking ID # 190720)*

BACKGROUND: Frequent hospitalizations for medically ill patients significantly affect health care costs and resources. Among some patients, health care utilization patterns may be influenced by comorbid psychiatric illnesses and complex social conditions. To identify the prevalence of these comorbid psychiatric and social factors among patients with frequent hospital admissions, we conducted a descriptive study of Medicaid-insured patients who are frequent utilizers of an inpatient urban hospital in the Bronx, New York.
METHODS: We defined frequent hospital utilizers as patients with 7 or more admissions over a period of four years. We conducted structured interviews with 59 adult patients who were Medicaid-insured and were frequent hospital utilizers. The survey instrument used validated measures to assess housing, hunger, caretaking responsibilities, substance use, psychiatric symptomatology, and social support. Patient interview data were merged with administrative data from the hospital information system to yield utilization and diagnostic history. For continuous variables, we calculated summary statistics such as means and medians. For categorical variables, we calculated frequencies and proportions. For questions employing validated scales we calculated overall scores and then means/medians as appropriate.
RESULTS: Ninety-nine patients met inclusion criteria during the data collection period. Of these, 10 patients declined to participate; 5 patients were unable to consent; and 3 patients were unavailable. The remainder of patients was interviewed consecutively to attain 59 interviews. Participants had a median of 15 hospital admissions and 77 hospital days during the 4-year observation period. Thirty four (58%) participants were female, 26(44%) were Hispanic, 23(39%) were Black, and 26 (48%) spoke English as their primary language. One-quarter of participants had completed more than a high school and the majority (81%) was unemployed. Eight (13%) considered themselves homeless, and nearly one-quarter reporting unstable housing such as street, shelter, hotel, or staying with family and friends. Twelve (20%) reported experiencing hunger in the 30 days prior to the interview. Forty five (76%) of interviewed patients had a substance use disorder, as assessed by the Alcohol, Smoking, and Substance Involvement Screening Test instrument (ASSIST) and 42 (71%) had a psychiatric symptom as identified by the Brief Symptom Inventory 18. Most reported that they had a "usual place" for health care (56, 95%) but 11 (20%) identified the emergency department as that place. The participants reported high levels of social support for all domains, except for the availability of someone to lend them rent money for a month.
CONCLUSIONS: This study shows that frequent hospital utilizers in an urban hospital in the Bronx, NY were largely of ethnic and racial minority groups, unstably housed, and had high prevalence of substance and psychiatric disorders in addition to medical illnesses. To address such complex needs, a high quality and accessible intervention that addresses medical, psychiatric, and social conditions is needed with a careful evaluation of the intervention at the individual and policy levels.

HEALTHY COLON, HEALTHY LIFE: AN INTERVENTION TO INCREASE RATES OF COLORECTAL CANCER SCREENING IN LATINOS AND VIETNAMESE. J. Walsh[1]; R. Salazar[1]; T.T. Nguyen[1]; C.P. Kaplan[1]; J. Hwang[1]; R. Pasick[1]; S.J. Mcphee[1]. [1]University of California, San Francisco, San Francisco, CA. *(Tracking ID # 189785)*

BACKGROUND: Colorectal cancer (CRC) screening is recommended for all individuals age 50 and over. Although CRC screening rates are increasing, they are still low, particularly in ethnic minority groups. In many resource poor settings, fecal occult blood test (FOBT) is the main screening option.
METHODS: We conducted a randomized controlled trial at a large public hospital in San Jose, California. We developed in Spanish and Vietnamese brochures and telephone counseling (TC) tailored both to cultural and individual barriers. The telephone counseling was conducted by community lay health workers. A total of 1793 participants were randomized to 1) brochure plus FOBT kit (n=765), 2) brochure, FOBT plus tailored TC (n=768), and 3) usual care (n=256). Participants completed baseline surveys about CRC screening, received the intervention, and then completed follow-up surveys 12 months later. FOBT receipt was the main outcome. Individuals with FOBT within 1 year, sigmoidoscopy within 5 years, or colonoscopy within 10 years were defined as up-to-date with screening.
RESULTS: 1821 individuals completed the baseline survey. At baseline, among 1013 Latinos, 38% had FOBT within 1 y; 51% were up-to-date

with screening. Among 808 Vietnamese, 53% had FOBT within 1 year; 74% were up-to-date with screening. At one year follow-up, 1358 individuals (718 Latinos and 640 Vietnamese) completed the follow up survey. FOBT screening rates increased by 7.8% in the control group, 15.1% in the brochure group and 25.1% in the brochure/telephone counseling group ($p<0.01$ for differences between each intervention group and usual care and for the difference between brochure plus telephone counseling and brochure alone). Among Latinos, FOBT screening rates increased 4.9% in the control group, 19.8% in the brochure group and 24.8% in the brochure/TC group ($p<0.01$ for differences between each intervention group and usual care and $p=0.137$ for the difference between brochure plus telephone counseling and brochure alone). Among Vietnamese, FOBT screening rates increased 11.9% in the control group, 9.7% in the brochure group and 25.5% in brochure/TC group ($p=0.547$ for the difference between brochure alone and usual care and $p<0.01$ for difference between brochure/TC and usual care).
CONCLUSIONS: An intervention that included culturally tailored brochures and tailored telephone counseling significantly increased CRC screening in Latinos and Vietnamese. Brochure and telephone counseling together had the biggest impact. In Latinos, the brochure alone led to an increase in CRC screening, but in Vietnamese, an increase in screening was only seen when the brochure was combined with telephone counseling. Future research should continue to explore creative ways to increase rates of CRC screening in ethnic minority populations.

"HEART TO HEART": IMPROVED COMMUNICATION NEEDED IN AMBULATORY CARDIOVASCULAR DISEASE CARE U. Sarkar[1]; K. Bibbins-Domingo[1]; D. Schillinger[1]; A. Napoles-Springer[1]; L. Karliner[1]; E.J. Perez-Stable[1]. [1]University of California, San Francisco, San Francisco, CA. *(Tracking ID # 190580)*

BACKGROUND: Existing communication measures do not fully capture the value that patients place on patient-physician communication, and most are subject to a ceiling effect as patients tend to rate their physicians highly. We measured the extent to which patients believe that better communication with clinicians would specifically improve their cardiovascular disease management and whether this 'perceived communication benefit' was associated with other aspects of health communication and patient characteristics.
METHODS: Ethnically diverse patients (N=179) from the ambulatory cardiology clinic of an urban public teaching hospital in California were administered a survey in English, Spanish, or Cantonese. We asked "If you were able to communicate better with your doctors, how much better do you think your heart condition would be?" as a newly derived communication measure focused on the perceived benefit to patient health. Responses were dichotomized into those who perceived their health would be "somewhat" or "much" better versus those who did not. We examined the validity of this measure by exploring its association with a measure of patients' communication skills: the short-form Test of Functional Health Literacy Assessment (sTOFHLA) among English and Spanish speakers only, which categorizes patients into inadequate (score 0–16), marginal (17–22), and adequate health literacy (23–36); and validated patient reports of the quality of clinicians' communication: (a) the Interpersonal Processes of Care (IPC) Elicitation of and Responsiveness to Patient Concerns scale; (b) the IPC Explanation of Processes of Care scale. The 2 IPC scales were scored as an overall mean on a 1–5 scale; we categorized responses of "usually" and "always" as high quality communication. We also examined the association of primary language and educational attainment with perceived communication benefit, using bivariate and a multivariate logistic models.
RESULTS: Of the 179 patients, 42% spoke English, 43% Spanish, and 15% Cantonese. Overall, 58% reported that their heart condition would be better controlled if their communication with their doctor were better. Patients who perceived a benefit of improved communication were more likely to have inadequate or marginal health literacy (OR 2.0, 1.1–4.0), and less likely to report that their physicians usually or always elicited or responded to their concerns (OR 0.3, CI 0.1–0.5) or explained processes of care (OR 0.2, CI 0.1–0.4). In bivariate analyses, perceived communication benefit was more common among those with less than high school education (OR 3.2, CI 1.7- 6.0), Spanish speakers (OR 3.7, CI 1.8–7.6), and Cantonese speakers (OR 7.1, CI 2.1–24). After adjustment for age, health status, and interpreter use, perceived benefit of communication remained associated with non-English primary language ($P=0.006$).
CONCLUSIONS: A majority of diverse patients with cardiovascular disease seen in a safety net ambulatory specialty setting reported an unmet need for better communication with their physicians. Because perceived communication benefit was associated with established barriers to health communication, this single item may be valuable in efforts to measure diverse patients' communication experiences and to target interventions to improve quality and reduce disparities in cardiovascular health care.

HERBAL SUPPLEMENT USE AND BLOOD LEAD LEVELS OF UNITED STATES ADULTS C. Buettner[1]; K.J. Mukamal[1]; P. Gardiner[2]; R.B. Davis[3]; R.S. Phillips[1]; M.A. Mittleman[3]. [1]Harvard Medical School, Boston, MA; [2]Boston University, Boston, MA; [3]Harvard Medical School and Harvard School of Public Health, Boston, MA. *(Tracking ID # 189352)*

BACKGROUND: Herbal medicine products may contain high levels of toxic heavy metals, including lead. We sought to examine whether the use of herbal medicine products is associated with higher blood lead levels in the general population.
METHODS: In a cross-sectional study of 12,807 subjects 20 years or older who participated in the National Health and Nutrition Examination Survey, 1999–2004, we studied the effect on blood lead level of using herbal medicine products including traditional herbs (ayurvedic and traditional Chinese medicine herbs), echinacea, ginkgo, ginseng, St. John's wort, and other products (kava, valarian, black cohosh, bee pollen, nettle) that had been previously reported to contain high heavy metal content. We used multivariable linear regression weighted to account for the NHANES survey sampling to adjust for potential confounding and evaluated the effects separately for men and women. In a secondary analysis we examined the relationship between herbal medicine product use and blood lead level among reproductive-aged women (16–45y).
RESULTS: Overall, 4.3% of the population (representing 7.5 million adults) had used at least one of the herbal medicine products included in this study during the last month. Although prevalence of herbal medicine product use was similar in women and men, the types of herbs used differed markedly by sex. Models adjusted for age, race/ethnicity, educational levels, country of birth, income, year home was built, smoking status, BMI, renal function (estimated GFR), calcium supplement use, and use of a water treatment device revealed that overall, women using herbal medicine products had blood lead levels that were 10% higher than non-users (95%CI 3%-17%, p=0.005). Women using traditional herbal medicine products, St. John's wort, and other herbal medicine products had blood lead levels that were 24% (95%CI 5%-45%, p=.01), 23% (95%CI 4%-46%), p=.02), and 21% (95% CI 2%-44%, p=.03) higher, respectively, compared to nonusers. Similar associations were observed between herbal medicine products use and blood lead levels among men, but none reached statistical significance. Among reproductive-aged women, overall herbal medicine users had blood lead levels that were 20% higher than nonusers (95%CI 5%-37%, p=.007). In contrast, garlic and other dietary supplements were not associated with higher blood lead levels.
CONCLUSIONS: Herbal medicine product use is associated with higher blood lead levels in the general population, particularly among women. Mandatory testing of and regulations limiting lead and other heavy metals in herbal medicine products are needed.

HIGH COST MEDICAID FREQUENT HOSPITAL UTILIZERS EXPERIENCES OF ILLNESS AND HEALTH- A QUALITATIVE ANALYSIS G.M. Sacajiu[1]; L.T. Watkins[2]; J. Weiss[3]; H.V. Kunins[1]. [1]Montefiore Medical Center, Bronx, NY; [2]NYU School of Social Work, New York, NY; [3]Department of Medicine, Albert Einstein College of Medicine/Montefiore Medical Center, Bronx, NY. *(Tracking ID # 190729)*

BACKGROUND: Costly hospital and emergency department utilization among indigent patients is believed to derive in part from high rates of medical illness and insufficient access to ambulatory services. Yet, hospital utilization may be a more complex behavior, arising from multiple perceived and actual health and social needs. To explore hospital utilization behaviors among a sample of indigent patient, we

undertook a qualitative study of patients with frequent hospital admissions to examine their health care needs, health beliefs, social context, and care seeking experiences.
METHODS: We conducted semi-structured qualitative interviews with 28 publicly-insured indigent patients who were defined as frequent hospital utilizers with 7 or more admissions over a period of four years. Consecutive patient participating in a larger study were asked to take part in this investigation. We developed a standard patient interview guide both in English and Spanish and conducted interviews that lasted between 30 and 45 minutes. Digital recordings of qualitative interviews were transcribed and uploaded into NVivo, a qualitative data software program that facilitates the rapid retrieval of thematically-related text. We used the constant comparison method of grounded theory to create a coding scheme and to construct experiential and perceptive categories and domains.
RESULTS: We constructed three overarching categories from themes that emerged during transcript analysis: Social Context, Experience of Illness and Health, and Health Care Service Utilization and Experience. Social Context was further divided into five domains: stress, loneliness, environment and housing, social support, and financial pressure and employment. Patients reported difficulties in each of these areas and articulated that these challenges adversely affected health by compromising their ability to adhere to such health-promoting behaviors as medical appointments, medication-taking, diet, and exercise. The category of Experience of Illness and Health was divided into the following 7 domains: spirituality, culture, living with pain, being depressed, addiction and substance abuse, daily living, and adherence to medication and lifestyle recommendations. Participant narratives reflected significant sadness and hopelessness, with numerous reports of challenges in mobility, pain control, and maintenance of sobriety. Finally, we divided the Health Care Service Utilization and Experience category into the following 3 domains: arranging and traveling to appointments, relationships with healthcare providers, and hospital and emergency department use. Here, participants shared stories that showed an intention to keep up with medical needs within their complex life requirements and constraints.
CONCLUSIONS: This group of indigent frequent hospital utilizers experiences many non-medical challenges that may have directly affected their utilization of hospital resources. Our analysis revealed that the health construct of frequent utilization is shaped by individual, interpersonal, and organizational behaviors, and that solutions must influence behaviors at each of these levels: individual (patient); individual (provider), interpersonal, and organizational levels. Our study results can help inform interventions to address the needs of these patients, and potentially improve care and reduce health care costs.

HIGH FREQUENCY OF BARRIERS TO FECAL OCCULT BLOOD TESTING IN HIV-INFECTED PATIENTES IN A PRIMARY CARE SETTING D. Fein[1]; D. Aizenberg[1]; N.M. Soofi[1]; C.T. Tenner[1]; M.A. Poles[1]; E.J. Bini[1]. [1]VA New York Harbor Healthcare System/New York University School of Medicine, New York, NY. *(Tracking ID # 190446)*

BACKGROUND: Randomized controlled trials have demonstrated that fecal occult blood testing (FOBT) in subjects 50 years of age and older significantly reduces mortality from colorectal cancer (CRC). Although many HIV(+) patients are living well beyond 50 years of age as a result of highly active antiretroviral therapy, little is known about screening for CRC with FOBT in this population. The aims of this study were to determine the proportion of HIV(+) patients that have been screened for CRC by FOBT, and to identify barriers to FOBT.
METHODS: HIV(+) patients and uninfected control subjects 50 years of age or older completed a detailed questionnaire at the time of their scheduled outpatient primary care or infectious disease clinic visit at 2 medical centers. Data collected included HIV status, demographics, knowledge of CRC, prior CRC screening with FOBT, and barriers to FOBT.
RESULTS: Among the 1,486 subjects enrolled (263 HIV(+) patients and 1,223 uninfected controls), HIV(+) patients were less likely to agree that CRC is an important cause of death in the U.S. (64.6% vs. 82.4%, p< 0.001) and that CRC can be cured if detected early (58.2% vs. 86.8%, p <0.001). HIV(+) patients were significantly less likely to report that their healthcare provider ever offered them FOBT (52.5% vs. 72.8%, p< 0.001), that they ever had a FOBT (47.1% vs. 63.9%, p<0.001), or that they had a FOBT within the past year (11.0% vs. 24.2%, p<0.001). After adjusting for age, sex, race/ethnicity, and site of enrollment, HIV(+) patients were still significantly less likely to have ever been offered FOBT (OR= 0.45; 95% CI, 0.33 – 0.60), have ever had a FOBT (OR= 0.62; 95% CI, 0.46 – 0.83), or had a FOBT within the past year (OR= 0.39; 95% CI, 0.26 – 0.60). HIV(+) patients were more likely to report 3 or more barriers to FOBT (23.6% vs. 9.9%, p<0.001). Among the 263 HIV(+) patients, subjects who never had a FOBT were significantly more likely to report 3 or more barriers to FOBT than those who ever had FOBT (53.7% vs. 25.8%, p<0.001) and the 3 most common barriers to FOBT were feeling uncomfortable about handling their stool (38.4%), lack of privacy to do a FOBT (21.7%), and fear of getting the test done because they may find something wrong (18.6%).
CONCLUSIONS: Compared with uninfected controls, HIV(+) patients were significantly less likely to have ever had CRC screening with FOBT and had more barriers to FOBT. Future studies are needed to explore whether educational programs tailored to HIV(+) persons could overcome barriers to CRC screening in this population.

HIGHER PROVIDER STRESS IS ASSOCIATED WITH LOWER QUALITY COMMUNICATION AND MEDICAL CARE AS PERCEIVED BY HIV-POSITIVE PATIENTS N. Ratanawongsa[1]; S. Saha[2]; V. Sharp[3]; J.A. Cohn[4]; T. Korthuis[5]; S.S. Eggly[4]; A.P. Sankar[4]; R.D. Moore[1]; M.C. Beach[1]. [1]Johns Hopkins University, Baltimore, MD; [2]Portland VAMC (P3MED), Portland, OR; [3]Saint Luke's and Roosevelt Hospitals, New York, NY; [4]Wayne State University, Detroit, MI; [5]Oregon Health & Science University, Portland, OR. *(Tracking ID # 189884)*

BACKGROUND: Previous studies suggest an association between provider burnout and suboptimal behaviors with patients. This study investigates the association between provider stress and patient ratings of the quality of communication and medical care in primary HIV care.
METHODS: We conducted a cross-sectional analysis of baseline data from the Enhancing Communication and HIV Outcomes (ECHO) Study, a trial to improve patient-provider communication in primary HIV care at four urban clinics in MD, MI, NY, and OR. Eligible physicians, nurse practitioners, or physician assistants provided primary care to 10 HIV-infected patients. Eligible patients were HIV-infected; age 20+; English-speaking; African-American, Hispanic, or non-Hispanic White; and with 1 prior visit with providers. We used stratified sampling for balanced patient race/ethnicity.We collected baseline data using written provider questionnaires and in-person patient interviews. We measured provider stress using the Cohen Perceived Stress Scale, a 4-item, 5-point Likert scale (Cronbach's=0.640), dichotomized at the median. The Interpersonal Processes of Care Instrument (scored above vs. below the median) captured patients' ratings of provider communication, and a global item measured patients' ratings of overall quality of medical care ('excellent' vs. all other responses). We explored for confounding and interactions by patient, provider, and relationship variables. The multivariate model controlled for patient age, literacy, numeracy, depression, illicit drug use severity; provider site and history of communication skills training; and relationship length and gender/race concordance. We used logistic regression to analyze the association between provider stress and patient ratings, using generalized estimating equations to account for clustering of patients within providers.
RESULTS: Among the 45 providers, 76% were physicians, 58% were women, and 67% were non-Hispanic white. On average, they were 44.6 years old and had 9.6 patients enrolled in the study. Among the 434 patients, 34% were women, 58% were African-American, 23% were non-Hispanic white, and 14% were Hispanic. 19% had below high school level literacy, 33% had low numeracy, and 64% scored high on a depression scale. Of the relationships, 33% were >5 years, 52% were gender concordant, and 25% were race concordant. Most patients (62%) rated the overall quality of their medical care as excellent. In multivariate analyses, compared to patients of low-stress providers, patients of high-stress providers had 0.57 odds of rating their overall quality of care as excellent (95% CI 0.34–0.96, p=0.036). Although not found for all patients, compared with African-American patients of low-stress providers, African-American patients of high stress providers had a 0.46 odds of rating their providers' overall communication quality as high (95% CI 0.34–0.96, p=0.045).
CONCLUSIONS: Higher provider stress was associated with lower ratings of provider communication and quality of care by HIV-positive patients. Given the cross-sectional nature of this study, prospective

studies should investigate associations between provider well-being, patient-provider communication, and quality of care. Interventions to improve health care quality for HIV-infected patients should consider provider stress.

HIGH-FIDELITY SIMULATION FAILS TO IMPROVE CLINICAL PERFORMANCE IN A RANDOMIZED STUDY OF ACTUAL IN-HOSPITAL CARDIAC RESUSCITATION G. Bell[1]; E. Weidman[1]; D. Walsh[1]; S. Small[1]; T.L. Vanden Hoek[1]; L.B. Becker[2]; B.S. Abella[2]; D.P. Edelson[1]. [1]University of Chicago, Chicago, IL; [2]University of Pennsylvania, Philadelphia, PA. *(Tracking ID # 189912)*

BACKGROUND: Simulation is increasingly being incorporated into cardiopulmonary resuscitation (CPR) training. This educational method has been shown to improve trainee performance in simulated settings but the effect on actual patient care remains unknown.
METHODS: Matriculating residents were randomized to participate in a four-hour resuscitation leadership course using a high-fidelity simulator (Human Patient Simulator, Medical Education Technologies), with video debriefing, prior to assuming the role of resuscitation team leaders at an academic medical center. Following a month of actual in-hospital resuscitations, the residents were surveyed regarding their knowledge of the 2005 consensus resuscitation guidelines. Additionally, objective metrics of resuscitation performance were obtained from a CPR-sensing monitor/defibrillator (MRx-QCPR, Philips Medical Systems) and the two groups were compared.
RESULTS: Half of the 32 residents were randomized to receive simulation training (ST) between April and July 2007 and data were collected following actual resuscitations between July and December 2007. During this time, 16 residents served as team leaders (7 ST, 9 control (C)) during 67 resuscitations (32 ST, 35 C). Surveys were completed by 16/16(100%) residents and showed no difference in knowledge of the resuscitation guidelines between the groups. Additionally there were no differences in CPR quality as measured by chest compression rate (107±7 vs 106±7 /min, p=0.36), compression depth (47±7 vs 47±7 mm, p=0.81), ventilation rate (8±5 vs 9±5 /min, p= 0.21), and no-flow fraction (0.16±0.17 vs 0.17±0.21, p=0.81).
CONCLUSIONS: In this small sample, the simulation experience did not offer any incremental benefit over the current training methods. This may be due to the sample size, an inadequate simulation course, or a previously optimized training regimen. However, assessing the effects of a simulation-based resuscitation curriculum on actual resuscitation performance is feasible using CPR-sensing technology. Future work should evaluate the impact of a longer simulation course.

HIV VACCINE ACCEPTABILITY AMONG SOUTH AFRICAN YOUTH J.N. Sayles[1]; C. Macphail[2]; P. Newman[3]; W.E. Cunningham[1]. [1]University of California, Los Angeles, los Angeles, CA; [2]Reproductive Health and HIV Research Unit, Johannesburg,; [3]University of Toronto, Toronto, Ontario. *(Tracking ID # 190236)*

BACKGROUND: Developing and disseminating effective HIV vaccines to prevent HIV infection is a primary scientific and public health objective. However, little is known about HIV vaccine acceptability, and barriers and motivators to uptake of future HIV vaccines in the high prevalence setting of South Africa—particularly among youth, who are likely to be targeted in early dissemination efforts.
METHODS: To identify barriers and motivators regarding future HIV vaccine uptake, we conducted a total of six focus group discussions with South African youth aged 18–24 years old in 2007. Four groups with women (n=25) and two groups with men (n=17) were conducted at an inner-city public health clinic in Johannesburg, South Africa. We used an inductive framework approach to identify key motivators and barriers to hypothetical HIV vaccine uptake, as well as to explore the relationship between HIV vaccine availability and sexual risk behavior.
RESULTS: The mean age of focus group participants was 21.5 years with the majority (28%) being Zulu speaking. Half (51%) of participants were students, 34% were employed part or full time and 15% were unemployed. Fifty eight percent of participants had a high school education or less. The vast majority of participants were not married (95%), half (49%) reported more than one sexual partner in the past 3 months, and 38% had never been tested for HIV. Overall HIV vaccine acceptability was high in both female and male groups. Barriers to HIV vaccine uptake included concern that HIV testing would be required before vaccination; linkage of vaccination to stereotypes about risky sexual behavior and resulting stigma from family and community; mistrust of the health care system in terms of the stated efficacy of the vaccination; lack of perceived susceptibility to HIV infection; partner attitudes towards vaccination; fear that childhood HIV vaccination may lead to early age of first sexual intercourse; and the use of traditional African healing methods as HIV prevention. Motivators for vaccine uptake included the perception that HIV is a serious problem in South African communities; that non-sexual modes of HIV transmission would also be prevented through vaccination; and the potential for government to mandate HIV vaccination programs. Participants expressed concern that sexual risk behaviors would increase among those who receive an HIV vaccine. Female participants expressed that with a vaccine available there would be nothing to keep men in monogamous and "moral" relationships. Male participants were concerned about earlier age of sexual activity and pregnancy in teenage populations. Both male and female participants urged that HIV vaccines should be offered in conjunction with contraception.
CONCLUSIONS: Participants identified several key barriers to future HIV vaccine uptake that may help to plan for dissemination efforts targeting youth in South Africa. HIV testing concerns that arise in the setting of vaccination, HIV stigma, mistrust of the health care system, and concerns about sexual disinhibition should be further explored when developing HIV vaccine dissemination strategies and policy in South Africa.

HIV WOMEN'S HEALTH: A STUDY OF GYNECOLOGIC HEALTHCARE SERVICE UTILIZATION IN AN URBAN HIV CLINIC POPULATION M. Tello[1]; H. Yeh[1]; M.C. Beach[1]; J.M. Keller[1]; J.R. Anderson[1]; R.D. Moore[1]. [1]Johns Hopkins University, Baltimore, MD. *(Tracking ID # 189869)*

BACKGROUND: Women infected with HIV have a high rate of many gynecologic problems including vaginitis, genital herpes, genital condylomata, pelvic inflammatory disease, as well as lower genital tract dysplasia and neoplasia. Compliance with recommended gynecologic care among women enrolled in urban HIV clinics is hypothesized to be low.
METHODS: We conducted an analysis of data from the Johns Hopkins HIV Clinical Cohort Database examining demographic and clinical predictors of clinic visit compliance in the HIV primary care and HIV gynecologic (GYN) clinics.
RESULTS: 1086 total female patients had at least one visit between January 2002 and April 2006. The mean age was 36.4, with 84% of patients self-identified as African American. There was a high prevalence of illicit substance abuse at baseline in this population, with 58% of patients reporting some history of cocaine and/or heroin use, injection or other administration. These women had 26,401 appointments to the two clinics, of which 21,959 were to primary care and 4442 were to GYN. There were 12,097 (55.1%) completed HIV primary care clinic visits, and there were 1609 (32.2%) completed HIV GYN visits. By using Generalized Estimated Equations (GEE) approach accounting for clustering, patients were half as likely to show for their HIV GYN clinic appointments as for their HIV primary care visit appointments (OR 0.48, 95%CI 0.44–0.52). In multivariate analysis using a GEE approach, age less than 40 years (OR 0.81, 95%CI 0.70–0.94) and substance abuse (OR 0.67, 95%CI 0.61–0.73) were associated with a decreased likelihood attending an HIV primary care appointment. African-American race (OR 0.63, 95%CI 0.45–0.90), CD4 count less than 200 cells/ mm3 (OR 0.73, 95%CI 0.56- 0.95) and substance abuse (OR 0.57, 95%CI 0.45–0.71) were associated with a decreased likelihood of attending an HIV GYN appointment.
CONCLUSIONS: This analysis determined that the rate of clinic visit compliance is significantly lower for HIV GYN than for HIV primary care in the same population of women. Factors associated with HIV GYN clinic visit noncompliance included African-American race/ethnicity, substance use, and more advanced immunosuppression. Given the incidence and prevalence of gynecologic pathology in HIV-infected women, and the importance of early screening for the detection of pathology, it will be critical to create culturally appropriate interventions that target racial/ethnic and substance abuse barriers to receiving gynecologic health care among women enrolled in urban HIV clinics.

HOSPITAL AND INTENSIVE CARE UNIT PERFORMANCE USING RISK-ADJUSTED IN-HOSPITAL MORTALITY: VARIATIONS IN DISCHARGE PRACTICES AS A SOURCE OF BIAS E.E. Vasilevskis[1]; M.W. Kuzniewicz[1]; M.L. Dean[1]; T. Clay[2]; R.A. Dudley[1]. [1]University of California, San Francisco, San Francisco, CA; [2]Clay Software and Statistics, Ashland, OR. *(Tracking ID # 189468)*

BACKGROUND: Proposed hospital and ICU quality measures include risk adjusted in-hospital mortality after admission to the ICU. This quality measure does not account for deaths that occur soon after discharge, or following transfer to another hospital. We hypothesized that hospitals with a higher frequency of early post-discharge mortality, or a higher frequency of transfers to other hospitals would have better than expected hospital performance using an in-hospital mortality model.
METHODS: We reviewed records from 12,579 adult ICU patients discharged from 35 California hospitals between 2002 and 2004. We excluded: 1) readmissions, 2) burn, trauma, CABG patients, 3) ICU length of stay <4 hrs, and 4) unavailable National Death Index (NDI) data. In-hospital mortality and 30-day mortality from the time of ICU admission was assessed using chart abstraction and NDI data. The frequency of early post-discharge mortality was calculated by subtracting the frequency of in-hospital mortality from the frequency of mortality at 30 days from ICU admission. To evaluate hospital performance, we calculated hospital specific standardized mortality ratios (SMRs) for 27 hospitals with at least 100 admissions using the Mortality Prediction Model III (MPM III). The SMR is calculated by dividing the mean observed by the mean predicted mortality for each hospital. A SMR >1.0 indicates higher observed mortality than expected (worse performance). We then used Spearman rank correlations, and linear regressions models to assess the relationship between in-hospital SMR ranking and the frequency of early post-discharge mortality and the frequency of transfers to other acute care hospitals.
RESULTS: 11,366 patients were eligible. 1795 patients were excluded due to missing data, leaving a total of 9,571 (84.2%) records. There was a statistically significant negative correlation, R=−0.392 (95% CI −0.677 to −0.006), between early post-discharge mortality and in-hospital SMR. A one percent increase in early post-discharge mortality was associated with a 0.089 decrease (95% CI −0.194 to 0.016) in in-hospital SMR. Rates of transfer to other acute care hospitals were also negatively correlated with in-hospital SMRs, R=−0.491 (95% CI −0.734 to – 0.136). For each one percent increase in patients discharged to another acute care facility, there was a 0.025 (95% CI −0.045 to −0.004) decrease in in-hospital SMR.
CONCLUSIONS: Increasing frequency of early post-discharge mortality, as well as increasing frequency of transfer to other acute care hospitals, was associated with lower in-hospital SMRs ("improved" performance). Variations in discharge practices appear to bias the results of performance rankings when using an in-hospital mortality model. Caution should be used when interpreting hospital and ICU performance using in-hospital SMR, and efforts should be made to account for this bias, or consider mortality at a fixed time from ICU admission.

HOSPITALIZATION RATES FOR PNEUMONIA AND INFLUENZA AMONG NORTH CAROLINA MEDICARE BENEFICIARIES AGED 65 YEARS AND OLDER: A COUNTY-LEVEL ANALYSIS. J.D. Joines[1]. [1]The University of North Carolina at Chapel Hill and the Moses Cone Health System, Greensboro, NC. *(Tracking ID # 190933)*

BACKGROUND: Pneumonia and influenza rank among the leading causes of hospitalization and death among the elderly. Prior studies have shown associations between certain population-level factors and rates of hospitalization for pneumonia and influenza. The goal of this study was to examine county-level predictors of hospitalization rates for pneumonia and influenza among North Carolina Medicare beneficiaries, and to determine their significance.
METHODS: Hospitalization rates by county of residence from 1995 to 2000 for pneumonia and influenza (ICD-9-CM codes 480–487) for North Carolina Medicare Part A beneficiaries aged 65 years and older were obtained from the Medical Review of North Carolina Surveillance Web Site. County-level explanatory variables for the year 2000 were obtained from the Log In to North Carolina (LINC) online database, and included socioeconomic predictors (poverty rate, percent urban population, percent nonwhite population, percent college graduates, median household income, unemployment rate, percent disabled), health resource predictors (hospital bed density, primary care physician density, nursing facility bed density), and demographic predictors (population density, group quarters population, persons per household). Explanatory variables also included county-level influenza vaccination rates based upon claims for North Carolina Medicare Part B fee-for-service beneficiaries aged 65 years and older, obtained from the Medical Review of North Carolina Surveillance Web Site. Multiple linear regression analysis was used to model county-level hospitalization rates as a function of the above county-level predictors.
RESULTS: County-level hospitalization rates for pneumonia and influenza for North Carolina Medicare beneficiaries aged 65 years and older, averaged over the period 1995 to 2000, ranged from 11.4 to 78.6 (mean 25.6) discharges per 1,000 enrollees. A stepwise multiple linear regression model identified the following significant predictors of hospitalization rates: increases in hospital beds, group quarters population, and persons per household were associated with higher hospitalization rates, whereas increases in percent urban population, percent nonwhite population, and percent college graduates were associated with lower hospitalization rates. The model explained a substantial amount of the variation in county-level hospitalization rates for pneumonia and influenza (R-squared=0.42).
CONCLUSIONS: A substantial portion of the variability in county-level hospitalization rates for pneumonia and influenza was explained by socioeconomic, demographic, and health resource factors. Measures of crowding were associated with higher hospitalization rates, as was hospital bed availability. Higher levels of education and urbanization were associated with lower rates of hospitalization. Influenza vaccination rates based upon Medicare claims data were not significantly associated with rates of hospitalization.

HOW ARE INTERNAL MEDICINE PROGRAM DIRECTORS USING ACGME COMPETENCY MEASURES? M. Srinivasan[1]; M.C. Henderson[1]; C. Keenan[1]; M.D. Mcelvany[2]; R. Telerant[2]; M. Greiner[1]; C. Dermartirosian[1]; S. Li[3]. [1]University of California, Davis, Sacramento, CA; [2]University of California, Davis and Oregon Health Sciences University, Portland, OR; [3]University of California, Davis, 95817, CA. *(Tracking ID # 190837)*

BACKGROUND: Almost ten years after the adoption of the ACGME competency standards, major problems remain in incorporation of these standards into practice. We surveyed internal medicine residency program directors at a major national conference, to understand their perceptions about the ACGME competencies, understand currently used evaluation modalities, preferred evaluators, and assess competency utilization/remediation within residency programs.
METHODS: In Spring 2007, we conducted a cross-sectional survey of a convenience sample of residency and fellowship program directors who were attending the APDIM Meeting. Participants were attending a session on ACGME competency evaluations using electronic portfolios. The survey was developed after consultation with national experts and a literature review. Item reduction was conducted after focus group testing and beta-testing with all program directors at a single institutions. The study was approved by the UC Davis Institutional Review Board.
RESULTS: Demographics: Of our 48 respondents, 33 (68%) were program directors (PD), 9 Associate PD, 2 Fellowship Directors, or 4 others. Thirteen had held their position for less than one year, 16 for two to four years, and 19 held their positions for five or more years, Program directors came mainly from community based (23) or academic medical centers (21), with 2 from military hospitals or other. Programs were represented 21 of the 50 states. Residency class sizes were small (1–5 people, n=6), medium (6–10 residents, n= 16; 11–20 residents, n=13) or large (>20 residents, n=13). Utilization of Competencies: PD reported that almost all ACGME competencies should be assessed (95–97%), with fewer (83%) endorsing system-based practice. All but two PD reported that they were evaluating patient care, medical knowledge, interpersonal skills/communication (IPSC), professionalism (96%). Slightly fewer PD reported evaluating practice based learning (PBLI) (92%) and systems based practice (SBP) (90%). In contrast, program directors reported that, while they were reporting the ACGME evaluations, they were not evaluating the competencies very well. Almost all PD were using attending evaluations, less than 50% were using peer, self-evaluation, standardized patients or case logs. While medical knowledge (85%) and patient care (71%) were evaluated well, PD did not feel that IPSC (69%), professionalism (52%), PBLI (58%), and SBP (17%) were well evaluated. 4% reported that none of these were well evaluated by their programs. Similarly, fewer program directors were comfortable evaluating PBLI (65%) and SBP (48%), than the other competencies (83–92%). Fewer programs provided feedback to their residents on PBLI and SBP (58%), and

professionalism (7%), than the other competencies (88 –97%). Importantly, programs were providing much less remediation for struggling residents for PBLI (33%) and SBP (29%), compared with professionalism 63%), IPSC (73%), patient care (83%) or medical knowledge (92%).
CONCLUSIONS: Ten years after the adoption of new physician competency standards, internal medicine PD still struggle to evaluate and remediate learners in the competencies of professionalism, PBLI and SBP. This disconnect between evaluated competencies and the quality of those evaluation calls strongly for improved support for PD, as they struggle to evaluate, provide feedback to, and remediate their medical learners.

HOW CAN WE IMPROVE THE ACCURACY OF ROUTINE PAIN SCREENING? K.A. Lorenz[1]; C.D. Sherbourne[2]; L.R. Shugarman[2]; L.V. Rubenstein[1]; L. Wen[3]; A. Cohen[4]; J. Goebel[5]; A. Lanto[4]; S. Asch[1]. [1]UCLA; RAND Corporation; VA of Greater Los Angeles, Los Angeles, CA; [2]RAND Corporation, Santa Monica, CA; [3]VA of Long Beach, Long Beach, CA; [4]VA of Greater Los Angeles, Los Angeles, CA; [5]School of Nursing, CSULB, Long Beach, CA. *(Tracking ID # 190230)*

BACKGROUND: Although the VA and most other health care organizations require routine pain screening (e.g., '5th vital sign') using a 0–10 numeric rating scale (NRS), some have questioned this practice's accuracy. We therefore compared routine pain rating during vital sign intake to the same pain scale applied under ideal research conditions and a gold standard measure, the Brief Pain Inventory (BPI). We aimed to distinguish variation associated with instrumentation from that associated with the routine measurement process.
METHODS: Following routine outpatient visits, we randomly surveyed veterans and their nursing and treatment providers in primary care, urgent care, women's health, oncology, and cardiology clinics (March 2006-June 2007) at 19 clinics in 2 hospitals and 6 affiliated community sites located in three large urban counties (Los Angeles, Ventura, and Orange) in the Veterans Integrated Service Network 22.
RESULTS: (672/906) 69.2% of eligible veterans participated. Agreement between the nurse pain rating (nurse-NRS) and the researcher pain rating (research-NRS) was moderate (r=0.627), as was that between the Nurse-NRS and BPI-severity scales (r=.613 for 24 hour and r=.588 past week version). The correlation with BPI-interference was lower (r=.409). In contrast, the Research-NRS correlated substantially with the BPI-severity/past 24 hours (r=.870) and BPI-severity/last week (r=.840). Almost 61% of patients reported some pain on the research-NRS, compared to 36% on the nurse-NRS. Almost 20% of patients rated their pain as 3 or more points higher. In 2% of cases, no nurse rating was documented. Of the remaining 98% where a numeric score was recorded, 51% reported that the nurse did not ask them to rate their pain on a 0–10 rating scale at all. Not being asked to rate quantitatively was associated with pain underestimation ($\chi 2$ =64.04, p<.001).
CONCLUSIONS: While the accuracy of the 5th vital sign for pain assessment is moderate, it is much lower in practice than under ideal circumstances. Nurses may not always be using the 0–10 scale to properly quantify pain levels. Research into the reasons that NRS implementation falls short is needed, as is training and motivation.

HOW DO ATTITUDES TOWARDS AGING AND MENOPAUSE AFFECT SEXUAL FUNCTION IN POSTMENOPAUSAL WOMEN? R. Taylor English[1]; R. Hess[1]. [1]University of Pittsburgh, Pittsburgh, PA. *(Tracking ID # 189537)*

BACKGROUND: Menopause is a life transition that affects women in multiple aspects of their lives: physical, psychological, emotional and social. This study examines the correlation between attitudes towards menopause (ATM) and aging (ATA) and the frequency of intercourse, sexual interest, desire and emotional satisfaction, use of lubricants during intercourse and pelvic pain with intercourse.
METHODS: STRIDE is a 4-year longitudinal cohort study of 728 women examining the impact of menopause on health related quality of life. During year 1, women were asked about ATM and ATA. In year 2, women answered questions about frequency of, desire for, interest in and emotional satisfaction with intercourse, pelvic pain and lubricant use. Women also reported demographic information, marital status, and medical comorbidities. Participant characteristics were summarized using frequencies and measures of central tendency. Univariable and multivariable logistic and ordered logistic models were constructed to examine the impact of ATM and ATA on aspects of sexual functioning.
RESULTS: Women were 53±6.5 years. The majority of women (68%) reported being sexually active. In multivariable ordered logistic models, neither ATM nor ATA was significantly related to intercourse frequency (ATM OR=1.11, P=.7; ATA OR=.91, P=.45), pelvic pain (ATM OR=.99; P=1.0; ATA OR=1.11, P=.5) or lubricant use (ATM OR: 1.04; P=.84; ATA OR=.91, P=.45.) However, more positive ATM and ATA were associated with higher reported desire (ATM OR=1.5, P=.008; ATA OR=1.4, P<.001) and emotional satisfaction (ATM OR=2.3; P<.001; ATA OR=1.83, P<.001). As ATA, but not ATM, were reported as more positive, participants reported more interested in intercourse (OR=1.2, P=.04) and were more likely to be sexually active (OR: 1.3, P=.02).
CONCLUSIONS: As women transition through menopause, feelings regarding menopause and aging may impact their experience of menopause, including sexual functioning.

HOW DO PEOPLE MAKE COMMON MEDICAL DECISIONS? REPORTS FROM THE DECISIONS SURVEY B.J. Zikmund-Fisher[1]; M.P. Couper[2]; E. Singer[2]; P.A. Ubel[1]; S. Ziniel[2]; F.J. Fowler[3]; C.A. Levin[3]; A. Fagerlin[1]. [1]Ann Arbor VAMC & University of Michigan, Ann Arbor, MI; [2]University of Michigan, Ann Arbor, MI; [3]Foundation for Informed Medical Decision Making, Boston, MA. *(Tracking ID # 189467)*

BACKGROUND: At present, no data from nationally representative samples exist to distinguish which types of clinical discussions with patients are more or less likely to incorporate different types of patient involvement. Our objective was to report how patients described interactions with health care providers about common medical decisions and to assess to what extent these discussions incorporated elements of informed decision making.
METHODS: The National Survey of Medical Decisions (the DECISIONS survey) is a nationwide, computer assisted, random digit dial telephone interview survey of English-speaking adults age 40 and older who reported having discussed the following medical decisions with a health care provider within the past two years: initiation of prescription medications for hypertension, hypercholesterolemia, or depression; screening tests for colorectal, breast or prostate cancer; or surgeries for knee/hip replacement, cataracts, or lower back pain. Respondents who reported making one or more of these decisions (including those who chose not to act) were then asked about decision-making processes and patient-provider communications. Patients reported whether the patient or the provider initiated each type of discussion, who made the final decisions, how much pros and cons about the decision were discussed, whether providers made specific recommendations, and whether the patient was asked about his or her preferences.
RESULTS: 3,010 respondents completed interviews, which corresponded to an 86.5% cooperation rate and an AAPOR RR4 response rate of 51.6%. Patients described significant variations across decisions in who first initiated discussion of the topic (F=14.68, p<0.001), with the highest rate of patient initiation for knee and hip replacement surgery (41%). Across all decisions, many patients reported that health care providers did not ask them about their preferences (range: 20%-66%) or provide them with information about reasons not to take action (range: 20%-80%). Patients' role in decision making was also variable. For example, among the cancer screening decisions, prostate cancer screening decisions were least likely to be patient-driven while breast cancer screening decisions were most likely to be so (31.7% vs. 45.7%; overall F=5.45, p<0.001). In some cases, decision processes were associated with decision outcomes. For example, failures to discuss cons were associated with a greater likelihood of initiating anti-depressant therapy (60% vs. 38%, p=0.01) and having knee/hip replacement surgery (58% vs. 30%, p=0.04).
CONCLUSIONS: In a nationally representative sample of patients, we observed wide disparities in the proportion of patients who initiated discussions, the proportion who reported being asked their preference about what course of action should be taken, and the proportion of patient-provider discussions that included a conversation about reasons not to act. While some variations may reflect real differences in the nature of medication, screening, and surgical decisions, it remains clear that significant disparities exist in patients' involvement in different aspects of their care. Many patients are making important medical decisions while lacking essential elements of informed decision making, and patient-provider discussions vary significantly across decision types. Furthermore, failures to inform and engage patients can be associated with whether or not patients decide to take medical action.

HOW IS PHYSICIAN'S WORKLIFE SATISFACTION RELATED TO PRACTICE ACTIVITIES FOR DELIVERING QUALITY HEALTH CARE? A.R. Wilcox[1]; L.A. Volk[1]; C. Jenter[2]; E.S. Burdick[2]; D.W. Bates[2]; S.R. Simon[3]. [1]Partners HealthCare System, Inc., Wellesley, MA; [2]Brigham and Women's Hospital, Boston, MA; [3]Harvard University, Boston, MA. *(Tracking ID # 189870)*

BACKGROUND: While prior studies have considered the relationship between physician job satisfaction and patients' perceptions of quality of care, few studies have considered physician job satisfaction and their own perception of their practice's delivery of high quality of care and mechanisms in place for quality improvement. We examined the association between physicians' outlook on their work lives and their perception of quality of care and improvement activities.
METHODS: From a stratified random sample of 1921 practices throughout Massachusetts, we surveyed one randomly selected physician from each practice for a mail survey that measured physicians' attitudes regarding their work lives and several indicators of their practice's quality of care efforts.
RESULTS: Overall, 1345 physicians responded to the survey (71.4%). Table 1 shows the associations between physician satisfaction and related worklife issues and 4 indicators of practice activities for delivering quality health care. On all 4 measures, satisfied physicians were more likely than dissatisfied physicians to report that their practices deliver high quality of care or have processes in place to improve it. Physicians who indicated more worklife issues (isolation from colleagues, stress, long hours, feeling demoralized) were less likely to report having systems in their practices to improve quality of care.
CONCLUSIONS: Physician satisfaction was associated with self-reported high quality of care and practice efforts to improve and achieve high quality of care. Furthermore, worklife factors that contribute to dissatisfaction were related to fewer reported activities for quality improvement. While the causality of these relationships remains to be determined, policies should consider the potential for improving physicians' satisfaction and work lives through supporting their offices' efforts to improve quality of care.

	Physician Worklife Characteristics									
Practice Quality Activities/ Status	Satisfied with current practice situation		Isolated from colleagues		Experience personal or professional stress		Work long hours to meet practice demands		Demoralized about state of medical practice in general	
	Yes	No	Yes	No	Yes	No	Yes	No	Yes	No
Actively doing things to improve quality of care	85%	72%*	71%	84%*	80%	83%	82%	82%	80%	83%
Evaluate effectiveness of changes to improve quality of care	65%	48%*	49%	63%*	54%	64%*	57%	64%♦	57%	63%♦
Have quality problems in practice	27%	43%*	37%	30%	37%	28%♦	35%	28%♦	36%	27%*
Procedures and systems are good at preventing errors	48%	32%*	39%	44%	39%	46%♦	40%	45%♦	40%	47%♦

*p=<.001
♦p=<.05

Table 1:Association of physician worklife characteristics and practice quality activities

HOW MUCH PHYSICIAN IS THERE TO PROFILE? PATIENT COMPLEXITY AND QUALITY OF CARE MEASUREMENT M.M. Safford[1]; A. Salanitro[1]; T.K. Houston[1]; C.A. Estrada[2]; J. Hillman-Williams[1]; F. Ovalle[1]; C.I. Kiefe[1]; J.J. Allison[1]. [1]University of Alabama at Birmingham, Birmingham, AL; [2]East Carolina University, Birmingham, AL. *(Tracking ID # 190473)*

BACKGROUND: Physician performance is a focus of quality improvement efforts, but some performance measures, e.g. diabetes glycemic control, are also influenced by patients. We studied how much variation in glycemic control at the physician level can be attributed to physicians and how much to the complexity of their patients.
METHODS: Among 63 Southeastern US physicians and their patients, we used the Vector Model of Complexity to describe 4 domains of patient complexity: 1) *biological* (age, severity of diabetes [insulin use], medical conditions [creatinine, Charlson Index score, depression diagnosis]), 2) *cultural* (sex, black race/ethnicity), 3) *socioeconomic* (Medicaid health insurance, no health insurance), and 4) *behavioral* (self-testing; nonadherence [scored 0–3; nonadherence with diet/exercise, medications or appointments each add 1 point]; current smoking). We constructed 3 sequential 2-level linear regression models to predict individual A1c using STATA's gllamm procedure, which accommodates relatively few units per cluster: Model 1 included only the physician clustering variable; Model 2 added biological, cultural and socioeconomic variables; Model 3 added behavioral varoables. Intraclass correlation coefficients (ICC) from these models reflected the proportion of variance in A1c levels attributable to physicians.
RESULTS: The 63 physicians had 3–15 patients each. Patient characteristics varied by practice (Table). Model 1's ICC (12.2%) fell to 7.4% for Model 2, and to 1.3% for Model 3. Thus, 89% (ie, [12.2–1.3]/12.2) of physician-level variability (ICC) in A1c in the unadjusted model was attributable to patient characteristics, 50% to behavioral characteristics alone.
CONCLUSIONS: Variation in A1c levels across physicians was largely explained by differences in patient complexity, with nearly trivial residual physician-level variation. Half of apparent physician-level variation was attributable to differences in patient self-care behaviors, which the literature suggests are difficult to change. "Paying for performance" related to glycemic control may create incentives to offload the very patients who require the most medical attention, namely those with poor self-care behaviors.

Variation in mean patient characteristics across practices

Dimension of Complexity	Characteristic	Population Mean or %	Range across practices
Biological	Age, mean	58.5 years	47–71 years
	Insulin Use, %	26.0%	0–82%
	Creatinine, mean	1.05 mg/dl	0.81–1.54 mg/dl
	Charlson Index Score, mean	2.26	1.0–4.8
	Depression Diagnosed, %	16.0%	0–53%
Cultural	Race/Ethnicity Black, %	28.7%	0–100%
	Sex Female, %	50.8%	10–90%
Socioeconomic	Medicaid, %	7.8%	0–47%
	No Health Insurance, %	43.8%	0–100%
Behavioral	Self-Test, %	60.4%	0–100%
	Nonadherence Score, mean	0.80	0.07–2.5
	Current Smoker, %	11.0%	0–62%

DO HYPERTENSIVE ENROLLEES IN FOR-PROFIT MEDICAID MANAGED CARE ORGANIZATIONS EXPERIENCE HIGHER MORTALITY? J.E. Bailey[1]; J. Tang[1]; J.Y. Wan[1]; M.A. Ghani[1]. [1]University of Tennessee, Memphis, TN. *(Tracking ID # 190872)*

BACKGROUND: Several studies suggest that enrollees in for-profit health maintenance organizations get less recommended preventive and chronic disease care and may experience worse clinical outcomes. This study seeks to determine whether hypertensive enrollees in for-profit Medicaid managed care organizations (MCOs) experience higher rates of stroke or death after controlling for patient demographics and comorbidity and whether differences in outcomes are linked to differences in health services exposures.

METHODS: Secondary analysis of retrospective cohort study database of all chronic drug-treated hypertensives enrolled in Tennessee's statewide Medicaid managed care system for 3–7 years from 1994–2000. Demographic characteristics, comorbidity, health services and medication utilization, and incident stroke and death were evaluated for enrollees in for-profit and not-for-profit MCOs using administrative data linked to vital records during a 2-year baseline period and 1 to 5-year follow-up period. Associations with stroke incidence and death were assessed using Cox Proportional Hazards modeling with the stepwise procedure.
RESULTS: 25,435 subjects (51.4%) were enrolled in for-profit MCOs at baseline and 24,044 (48.6%) in not-for-profit MCOs. The 49,479 subjects followed 4.7 years (on average) experienced 619 incident strokes and 2,055 deaths overall. Baseline demographic characteristics were largely similar in both groups, but comorbidity according to Charlson Index was slightly lower among enrollees of for-profit MCOs (1.60 vs. 1.82). Baseline healthcare and medication utilization were also similar except that for-profit MCO enrollees experienced fewer outpatient visits per year (4.7 vs. 5.6) and there was a trend toward lower antihypertensive refill adherence among for-profit MCO enrollees (65.9% vs. 69.0%). Univariate analysis showed no significant differences in hazards of stroke or death between groups. Multivariate analysis demonstrated no significant difference in hazards of stroke between groups. But for-profit MCO enrollment was independently associated with a hazards ratio for death of 1.217 (95% confidence interval 1.077 – 1.376) indicating that after controlling for potentially confounding factors enrollees in for-profit MCOs are 22% more likely to die (within 5 years after the 2 year baseline) than those in not-for-profit MCOs.
CONCLUSIONS: This study suggests that enrollment in for-profit Medicaid MCOs may be a potent independent risk factor for death for chronic hypertensive patients. The reasons for this difference are unclear but might be related in part to differences in outpatient care and refill adherence. These findings are consistent with previous studies that suggest that for-profit MCOs may be less effective for patients with chronic diseases. Further studies are needed to demonstrate the factors that account for the observed difference in mortality.

IDENTIFYING RISK FACTORS FOR RACIAL DISPARITIES IN DIABETES OUTCOMES: THE TRANSLATING RESEARCH INTO ACTION FOR DIABETES (TRIAD) STUDY O.K. Duru[1]; R.B. Gerzoff[2]; A. Brown[1]; J.V. Selby[3]; R.T. Ackermann[4]; A. Karter[5]; S. Ross[6]; N. Steers[1]; W.H. Herman[7]; B. Waitzfelder[8]; C.M. Mangione[1]. [1]University of California, Los Angeles, Los Angeles, CA; [2]Centers for Disease Control and Prevention (CDC), Atlanta, GA; [3]University of California, San Francisco, Oakland, CA; [4]Indiana University Purdue University Indianapolis, Indianapolis, IN; [5]Kaiser Permanente Division of Research, Oakland, CA; [6]University of Medicine and Dentistry at New Jersey, New Brunswick, NJ; [7]University of Michigan, Ann Arbor, MI; [8]Pacific Health Research Institute, Honolulu, HI. *(Tracking ID # 189610)*

BACKGROUND: Compared to whites, African Americans with diabetes have poor control of hemoglobin A1c (HbA1c), systolic blood pressure (SBP), and low-density lipoprotein (LDL) cholesterol, and higher rates of morbidity and microvascular complications. System-level disease management strategies, such as the use of diabetes registries, have not been associated with attenuation of African American-white disparities of intermediate outcomes. Improved understanding of obstacles to self-management at the level of the patient or the patient-provider interaction may hold greater promise in the development of interventions to eliminate these disparities.
METHODS: We used data from the Translating Research into Action for Diabetes (TRIAD) Study, a multicenter study of diabetes care in managed care. TRIAD fielded a case control questionnaire in 2006 that included 559 whites and 208 African Americans. Cases had poor control of at least 2 of 3 intermediate outcomes; HbA1c>8.0%, systolic blood pressure>160 mmHg, and/or LDL cholesterol>130 mg/dl. Controls had good control of all 3 outcomes; HbA1c <8.0%, SBP <140 mmHg, and LDL cholesterol <130 mg/dl. In multivariate logistic regressions adjusted for age, gender, education, income, and study site, we determined whether each of several potentially mutable risk factors (depression, at-risk drinking, low health literacy, low self-efficacy for cardiovascular risk reduction, poor patient-provider communication, missing medication doses, running out of medications) was associated with case or control status. Patients who indicated either running out of medications or missing medication doses were asked a series of follow-up questions examining medication issues such as lack of knowledge, regimen complexity, lack of perceived benefits, adverse effects, and forgetfulness.
RESULTS: Among white participants, 186 (33%) were classified as cases, while 367 (66%) were classified as controls. Among African American participants 122 (59%) were classified as cases while 86 (41%) were classified as controls. Among African Americans but not whites, depression (OR 2.28, 95% CI 1.09–4.75) and having missed medication doses (OR 1.96, 95% CI 1.01–3.81) were associated with greater odds of being a case rather than a control. None of the other examined risk factors were significant for either African American or white respondents. In unadjusted analyses, African Americans cited 2.3 reasons for missing doses on average, compared to 1.7 reasons provided by whites. African Americans were more likely than whites to cite each of 14 potential reasons for missing medication doses.
CONCLUSIONS: Depression and missing medication doses are more strongly associated with poor diabetes control among African Americans as compared to whites. While the importance of these two modifiable risk factors should be confirmed in population-based samples, they may represent important targets for patient-level interventions to address racial disparities in diabetes outcomes. Intervening to address multiple obstacles to medication adherence simultaneously may be particularly important for African American populations with diabetes.

IDENTIFYING THE QUALITY IMPROVEMENT STRATEGIES USED BY HIGH-PERFORMING PRIMARY CARE PRACTICE SITES. M.W. Friedberg[1]; D.G. Safran[2]; K. Coltin[3]; M. Dresser[4]; E.C. Schneider[5]. [1]Brigham and Women's Hospital, Boston, MA; [2]Tufts University, Boston, MA; [3]Massachusetts Health Quality Partners, Waltham, MA; [4]Massachusetts Health Quality Partners, Watertown, MA; [5]Harvard University, Boston, MA. *(Tracking ID # 190242)*

BACKGROUND: Several leading national organizations encourage primary care practices to adopt strategies that may improve quality of care, such as giving physicians feedback on performance, using reminder systems for evidence-based services, and investing in electronic health records (EHRs). However, the relationship between these strategies and performance on publicly reported measures of quality has not been previously studied. We evaluated whether practice sites with higher performance on primary care quality measures were more likely than lower-performing sites to employ recommended quality improvement strategies.
METHODS: Using performance data from the Massachusetts Health Quality Partners, we classified Massachusetts primary care practice sites as higher- or lower-performing (i.e., above or below median) on a composite index of 18 Health Plan Employer Data and Information Set (HEDIS) measures reflecting processes of care delivered to adults during 2005. We designed a physician survey to assess the use of 14 quality improvement strategies in 5 domains (care coordination and integration, quality improvement tools, linguistic capabilities, enhanced access, and EHRs). Between May and October 2007 we administered this survey to 1 randomly-chosen physician from each of the 412 primary care practice sites in Massachusetts with $\geq$2 physicians, obtaining responses from 310 (75%) practice sites. We linked sites' survey and performance data and tested for differences in the prevalence of each quality improvement strategy between higher- and lower-performing sites using Fisher exact tests. We constructed multivariable logistic regression models predicting the presence of each strategy as a function of performance category, adjusting for site size (number of physicians) and affiliation with networks of other sites.
RESULTS: Mean site-level performance scores on the 18 HEDIS measures ranged from 27% for appropriate treatment of bronchitis (interquartile range 19%-32%) to 96% for LDL screening in diabetics (interquartile range 94%-99%). After ranking practices based on the composite index, the mean score on each of the 18 measures was higher among sites designated "higher-performing" than among sites designated "lower-performing." Across all sites, the prevalence of quality improvement strategies ranged from 24% in the enhanced access domain to 66% in the care coordination and integration domain. Compared to lower-performing sites, physicians in higher-performing sites were more likely to frequently use computers in clinical care (81% vs. 70%, P=0.035) and to have highly-functional EHRs (with electronic results, notes, medication and problem lists, and reminders for

indicated services) (43% vs. 23%, P<0.001). There were no statistically significant differences between higher- and lower-performing sites in the prevalence of improvement strategies in any domain other than EHRs. After adjustment for confounders, higher-performing sites remained significantly more likely to have highly-functional EHRs than lower-performing sites (OR 2.15; 95% confidence interval 1.26–3.65).
CONCLUSIONS: Primary care practice sites with higher performance on a range of HEDIS process measures are more likely than sites with lower performance to have frequently-used computer systems and highly-functional EHRs. Higher HEDIS performance was not associated with the presence of other commonly recommended quality improvement strategies.

IMPACT OF A HOSPALIST-RUN OBSERVATION UNIT ON LENGTH OF STAY L. Leykum[1]; S. Piwinski[2]; W. Pao[3]; V. Huerta[3]; N. Ray[3]; T. Arevalo[2]. [1]South Texas Veteran Health Care System/University of Texas Health Science Center at San Antonio, San Antonio, TX; [2]University of Texas Health Science Center at San Antonio, San Antonio, TX; [3]University Health Systems, San antonio, TX. *(Tracking ID # 189973)*

BACKGROUND: While the impact of hospitalist programs on length of stay for inpatient medicine services has been studied, there has been little work on the impact of hospitalist involvement in short stay or observation units. In August of 2005, University Hospital consolidated the care of medical observation patients under a hospitalist-run, non-teaching "Clinical Decision Unit (CDU)," a geographically separate 10-bed, 23-hour observation unit. The rationale was that the care of patients in a dedicated short-stay unit would be more efficient that the care of the same patients on an inpatient medicine service. The chest pain unit, formerly staffed by cardiology, also became part of this unit. The purpose of this study was to examine the impact of this unit on length of stay for the most common diagnoses receiving care in the unit.
METHODS: The five most common diagnoses for patients receiving care in the CDU were identified based on discharge data, and included chest pain, asthma, syncope, cellulitis, and pyelonephritis. Patient acuity was assessed by use of the 3M APR-DRG methodology. We identified patients discharged with these five diagnosis in the 12 months prior to the unit creation, and compared their length of stay with patients admitted with the same diagnoses for 12 months after implementation. About 1/3 of these patients were admitted to the CDU, the rest to the inpatient medicine service. We also compared the length of stay for patients with each diagnosis admitted to the CDU versus those admitted to the inpatient service for the 12 months after implementation.
RESULTS: The overall length of stay for all patients with these diagnoses (regardless of admission location) decreased from 2.4 to 2.2 days (p=0.05) between the 12 month pre- and post-implementation periods. The greatest decreases were seen for patients with cellulitis (2.4 to 1.9, p<0.001) and asthma (2.2 to 1.2, p<0.001). The differences in overall length of stay for patients with chest pain, pyelonephritis, and syncope were not significant. During the 12 months after implementation, there were significant differences between the lengths of stay for patients with each of these diagnoses admitted to the CDU versus those admitted to the inpatient medicine service (Table 1). The acuity of patients admitted to the medicine service was greater for all diagnoses except asthma.
CONCLUSIONS: Implementation of a hospitalist-run observation unit was associated with a significantly decreased length of stay for patients presenting with chest pain, cellulitis, asthma, pyelonephritis, and syncope. The decreased acuity of patients admitted to the CDU demonstrates appropriate utilization of the unit. The overall length of stay reduction post-implementation for all patients regardless of admission location suggests that the unit has led to more efficient care.

Length of stay for CDU versus inpatient medicine service

Diagnosis	CDU	Other Units	p-value
All Diagnoses	1.1	2.8	<0.001
Cellulitis	1.3	3.0	<0.001
Asthma	1.2	3.1	<0.001
Chest Pain	1.0	2.4	<0.001
Pyelonephritis	1.1	2.9	<0.001
Syncope	1.0	2.2	0.007

IMPACT OF ACGME DUTY HOUR RULES ON PROLONGED LENGTH OF STAY AMONG MEDICARE PATIENTS K. Volpp[1]; A. Rosen[2]; P.S. Romano[3]; K.M. Itani[4]; L. Mi[5]; O. Even-Shoshan[5]; M. Halenar[5]; J.H. Silber[6]. [1]CHERP, Philadelphia VAMC; University of Pennsylvania School of Medicine and the Wharton School, Philadelphia, PA; [2]Bedford VA and Boston University, Boston, MA; [3]University of California, Davis, Sacramento, CA; [4]Boston VA, Boston, MA; [5]COR, Children's Hospital of Philadelphia, Philadelphia, PA; [6]Children's Hospital of Philadelphia; The Wharton School; Leonard Davis Institute of Health Economics, Philadelphia, PA. *(Tracking ID # 190442)*

BACKGROUND: In response to concern about deaths from medical errors, the Accreditation Council for Graduate Medical Education (ACGME) restricted duty hours for all accredited residency programs effective July 1, 2003. In previous work, we found no evidence for a change in mortality rates in the Medicare system before and after work hour rule implementation. We now report results of analyses examining the impact of duty hour reform on prolonged length of stay (PLOS), a marker of hospital efficiency. Previously we have shown that prolonged stays are associated with complications or inefficiency.
METHODS: Prolonged stays are defined as stays where the hazard for discharge begins to decline. For most conditions and procedures, discharge rates rise to a maximum (e.g., 3 days for appendectomy) and then decline. We define a prolonged stay as a stay beyond the point when the hazard rate declines, and PLOS as the probability that patients stay beyond that prolongation point. In primary analyses, all deaths were treated as prolonged stays so that quick deaths did not represent better outcomes. We analyzed all unique medical patients admitted to acute-care Medicare hospitals from July 1, 2000 to June 30, 2005 with principal diagnoses of acute myocardial infarction, gastrointestinal bleeding, congestive heart failure, or stroke (N=3,863,468) and the three most common surgical procedures inside of each of three categories: general surgery, orthopedics, and vascular surgery (N=1,978,066). For each condition and procedure we present the interaction of the resident-to-bed (RB) ratio with two post reform year indicator variables. The resulting odds ratio describes whether the probability of a prolonged stay changed at different rates among hospitals of higher vs. lower teaching intensity from pre- to post-reform. All results are reported using fixed effects models, adjusting for individual hospital indicators.
RESULTS: For medical patients, with the exception of GI bleeding patients, the odds of being prolonged were no different before or after the work hour reform. For GI bleeding, there was an increased odds of having a prolonged LOS in the more teaching intensive hospitals in year 2 post-reform (OR=1.10 [95% CI 1.02, 1.18], p-value <0.01). For surgical procedures, we observed increased odds of PLOS for 3 of 9 procedures in post-reform year 1: right hemicolectomy (OR=1.23 [95% CI 1.06, 1.42], p-value = 0.006), total knee replacement (OR=1.13 [95% CI 1.03, 1.24], p-value =0.004, and abdominal aortic surgery vessel replacement (OR= 1.30 [95% CI 1.15, 1.62], p-value <0.02, but all became non-significant by year 2 post reform except aortic surgery (OR=1.41 [95% CI 1.12, 1.77], p-value <0.004. Results were qualitatively similar when using actual LOS as opposed to treating all deaths as having prolonged stays.
CONCLUSIONS: The ACGME duty hour regulations were associated with little increase in PLOS for medical conditions, but some increase, especially in year-1 post reform, for surgical procedures. As changes in the rate of prolonged stays may be a marker for either inefficiency or complications, this suggests that there may have been adjustment difficulties in the first year post reform which improved by the second year post reform.

IMPACT OF AN EVIDENCE-BASED MEDICINE CURRICULUM ON RESIDENT USE OF ELECTRONIC RESOURCES: A RANDOMIZED CONTROLLED STUDY. S. Kim[1]; L.R. Willett[1]; D. Murphy[2]; K. O'Rourke[1]; R. Sharma[1]; J.A. Shea[3]. [1]University of Medicine and Dentistry of New Jersey, New Brunswick, NJ; [2]Johns Hopkins University, Baltimore, MD; [3]University of Pennsylvania, Philadelphia, PA. *(Tracking ID # 189472)*

BACKGROUND: Evidence-based medicine (EBM) is widely taught in residency, but evidence for its effectiveness on changing residents' behavior is limited. We investigated the impact of an EBM curriculum on residents' use of evidence-based resources in a simulated clinical experience.
METHODS: Fifty medicine residents were randomized to EBM teaching group or control group. Residents assigned to the EBM teaching group participated in six 2-hour workshop sessions that focused on critical

appraisal skills and use of primary or pre-appraised evidence-based resources such as DynaMed, InfoPOEMs, Cochrane Database of Systematic Reviews, and FIRSTConsult. Sessions were led by residents and facilitated by faculty. Residents in the control group were exposed to some EBM principles through weekly journal club. A validated test of EBM knowledge (Fresno test of EBM) was administered pre and post intervention for both EBM teaching and control groups. To simulate clinical encounters, we developed a web-based, multiple-choice instrument (15 items) comprised of clinical vignettes, each vignette asking for appropriate diagnosis, treatment or prognosis. The instrument was first answered without use of electronic resources (administration A), then again with access to electronic informational resources via the University library website (administration B). Use of electronic resources was tracked using ProxyPlus software. T-tests and chi-square assessed group differences. We hypothesized that residents in the EBM group would use evidence-based resources more frequently and have higher scores on the clinical vignettes.
RESULTS: All PGY2 (N=20) and PGY3 (N=30) medicine residents participated in the study. Baseline performance on Fresno test of EBM (scored 0–100) was similar between the two groups (mean 45.6 in the EBM group vs 40.3 in the control group, p=0.43). Posttest scores were significantly higher in the EBM group (mean 65.0 vs 50.8, p=0.012). In the simulated clinical experience, mean number of resources used by residents was 13.6 (SD=7.26) in the EBM group vs 14.7 (SD=4.78) in the control group, p=0.53. The most commonly accessed resources were Ovid (71% of residents accessed) and InfoPOEMs (62%) for the EBM group and UptoDate (67%) and MDConsult (58%) for the control group. Residents in the EBM group were more likely to use bibliographic or pre-appraised evidence-based resources than the control group (mean 90% vs 58%, p=.014). Many residents accessed non-medical search engines (62% in EBM vs 50% in control group, p=.43). Mean scores on the simulated clinical experience (scored 0–15) was similar between the groups both at baseline (administration A score 8.96 in EBM group vs 8.2 in control, p=0.2) and with access to information resources (administration B score 10.1 in EBM group vs 10.0 in control, p=0.89).
CONCLUSIONS: In this randomized controlled study of EBM teaching, EBM curriculum led to increased use of primary or pre-appraised evidence-based resources by residents, but did not improve performance on web-based clinical vignettes. Use of non-medical search engines was surprisingly high in both groups. Future studies will need to examine the impact of EBM teaching on clinical outcomes.

IMPACT OF HOSPITALISTS ON THE QUALITY OF CARE OF ACUTE MEDICAL CONDITIONS L. Lopez[1]; A. Cohen[2]; L.S. Hicks[1]; S. Mckean[3]; J. Weissman[4]. [1]Harvard University, Boston, MA; [2]Harvard School of Public Health, Boston, MA; [3]Brigham and Women's Hospital, Boston, MA; [4]Massachusetts General Hospital, Boston, MA. *(Tracking ID # 190843)*

BACKGROUND: Despite existing literature examining the effects of hospitalist care on inpatients' hospital associated costs and experiences with care, little is known of the impact of hospitalists on performance as measured by the Hospital Quality Alliance (HQA) Inpatient Quality of Care Indicators.
METHODS: We used HQA data to measure hospital-level quality of care for acute myocardial infarction (AMI), congestive heart failure (CHF), and pneumonia from October 2005 through September 2006. For each of the three conditions, we examined the quality of care for 3,619 hospitals reporting data to the HQA. Quality measures involving processes of care and only indicators related to hospitalist care were included. For each hospital, we created two additional composites representing the domains of 1) treatment and diagnosis and 2) counseling and prevention across conditions. Composite scores for each disease were created by dividing the number of times a hospital performed the appropriate care across all measures for that condition by the number of opportunities the hospital had to provide appropriate care for that condition. This method is prescribed by the Joint Commission on the Accreditation of Healthcare Organizations. We linked data on hospital characteristics, including the presence of a hospitalist program, from the American Hospital Association. The Chi-square test was used to compare the characteristics of hospitals with and without hospitalists. We estimated a series of event-trial logistic regression models to examine the relationship between hospitalists and overall quality of care for each condition controlling for hospital characteristics. This method is a random-effects logistic regression model that permitted the probability of a met opportunity to vary across hospitals.
RESULTS: Of 3,619 hospitals, 1461 (40%) had hospitalists. Hospitals with hospitalists tended to be urban, large, private, not-for-profit, teaching hospitals located in the Northeast. Hospitals without hospitalists tended to be rural, small, public/municipal, non-teaching hospitals located in the Midwest. The mean overall composite scores were significantly higher for hospitals with hospitalists versus those with no hospitalists for all conditions (0.93 vs. 0.86 for AMI, 0.82 vs. 0.72 for CHF, and 0.75 vs. 0.71 for pneumonia, all p<0.001). Hospitals with hospitalists also performed better than hospitals without hospitals for the dimensions of overall treatment and diagnosis (0.87 vs. 077) and for counseling and prevention (0.75 vs. 0.66) (both p<0.001). After multivariable adjustment, hospitals with hospitalists continued to perform significantly better than those without hospitalists across all composite scores except for CHF where there was no significant difference [(ORs) ranging from 1.11 to 1.20]. Other significant findings included effects from registered nurse staffing (OR range 1.23 – 3.48), and ownership (for-profit and public/municipal hospitals underperformed on various composites).
CONCLUSIONS: Hospitals with hospitalists were associated with better performance on HQA indicators for AMI, pneumonia and in the domains of overall disease treatment and diagnosis and counseling and prevention. The involvement of hospitalists in the acute care of hospitalized patients should be considered as a possible means to improve the quality of care delivered to patients with common inpatient diagnoses.

IMPACT OF LACTATION ON RISK FACTORS FOR CARDIOVASCULAR DISEASE E.B. Schwarz[1]; A.M. Stuebe[2]; M.A. Allison[3]; R.B. Ness[1]; M.S. Freiberg[1]; J.A. Cauley[1]. [1]University of Pittsburgh, Pittsburgh, PA; [2]Brigham and Women's, Boston, MA; [3]University of California, San Diego, La Jolla, CA. *(Tracking ID # 189436)*

BACKGROUND: Breastfeeding is known to improve infant health and is associated with favorable changes in maternal blood pressure, weight loss, glucose and lipid metabolism. Whether these associations persist after weaning and menopause is unclear.
METHODS: We examined the impact of the cumulative number of months a woman breastfed her children on her future risk of obesity (BMI>30), hypertension, diabetes, hyperlipidemia, and cardiovascular disease (CVD) among 139,681 post-menopausal women enrolled in the Women's Health Initiative observational study and randomized controlled trials that reported one or more live births. All variables were self-reported. We used multivariable logistic regression to adjust for sociodemographic variables (age, parity, smoking, race, education, income), then to additionally adjust for health behaviors (physical activity, use of hormone replacement therapy) and family history (of diabetes, myocardial infarction, or stroke), and finally to adjust for body mass index (BMI).
RESULTS: The average age of women was 63 years. A history of lactation was reported by 58% of women. On average, women had given birth to 3 children. Most (94%) had completed high school and were white (83%). A history of smoking was reported by 49%. In models adjusted for sociodemographic variables, compared to those who never breastfed, women who ever breastfed were less likely to be obese (OR= 0.95, p<0.001), have hypertension (OR=0.90, p<0.001), hyperlipidemia (OR=0.88, p <0.001), or diabetes (OR=0.92, p=0.001), but not significantly less likely to have developed CVD (OR=0.97, p=0.20). Notably, cardiovascular risk profiles improved with increased duration of lactation. Compared to those who had never breastfed, women who breastfed for a cumulative 13–23 months were even less likely to be obese (p=0.92, p<0.001), have hypertension (OR=0.87, p<0.001), hyperlipidemia (OR=0.81, p<0.001), or diabetes (OR=0.85, p<0.001), and women who breastfed for a cumulative 13–23 months were also less likely to have developed CVD (OR=0.90, p=0.007). Additional adjustment for health behavior and family history variables resulted in essentially no change in the odds for hypertension (OR=0.92, p< 0.001), hyperlipidemia (OR=0.89, p<0.001), diabetes (OR= 0.93, p= 0.01) and CVD (OR=0.98, p=0.35) when comparing women who had ever to those who had never breastfed. However, the odds for obesity (OR=1.00, p=0.85) became non-significant. As before, cardiovascular risk profiles improved with duration of lactation, and women who breastfed for a cumulative 13–23 months were less likely to have hypertension (OR=0.89, p<0.001), diabetes (OR= 0.85, p=0.002), hyperlipidemia (OR=0.81, p<0.001) or CVD (OR= 0.89, p=0.006) than

women who had never breastfed. In models adjusted for all above variables and BMI, similar relationships were seen. When compared to women who never breastfed, women who had ever breastfed were less likely to have hypertension (OR= 0.92, p<0.001), diabetes (OR= 0.93, p=0.02), or hyperlipidemia (OR=0.89, p<0.001). Women who breastfed for a cumulative 13–23 months had an 11% lower risk of hypertension, a 14% lower risk of diabetes, a 19% lower risk of hyperlipidemia, and an 11% lower risk of CVD.
CONCLUSIONS: Women who breastfeed their children are less likely to have hypertension, diabetes, or hyperlipidemia when post-menopausal. Cardiovascular risk profiles improve with increased duration of lactation.

IMPACT OF PRIOR OUTPATIENT ANTIBIOTIC USE ON MORTALITY FOR PATIENTS HOSPITALIZED WITH COMMUNITY ACQUIRED PNEUMONIA E. Mortensen[1]; M. Restrepo[2]; J. Pugh[2]; A. Anzueto[2]. [1]South Texas Veterans Health Care System/UTHSCSA, San Antonio, TX; [2]Audie L. Murphy VA hospital and The University of Texas Health Science Center at San Antonio, San Antonio, TX. *(Tracking ID # 189576)*

BACKGROUND: Little research has examined whether prior receipt of outpatient antibiotic therapy for those subsequently hospitalized with community-acquired pneumonia is associated with worse outcomes. The purpose of this study was to examine whether prior outpatient antibiotic use is associated with increased 30-day mortality after adjusting for potential confounders and severity of illness at presentation.
METHODS: A retrospective cohort study conducted at two tertiary teaching hospitals. Eligible subjects were admitted with a diagnosis of, had a chest x-ray consistent with, and had a discharge ICD-9 diagnosis of pneumonia. Subjects were excluded if they were "comfort measures only", residents of skilled nursing facilities, or transferred from another acute care hospital. We assessed whether subjects had taken antibiotics within 30-days prior to hospital admission. Our primary analysis was a multivariable logistic regression with the dependent variable of 30-day mortality.
RESULTS: Data was abstracted on 733 subjects at the two hospitals. Mortality was 8.1% at 30-days. At presentation, 55% of subjects were low risk, 33% were moderate risk, and 12% were high risk. In our cohort 17% (n=128) of subjects received antibiotics within 30-days of presentation. Unadjusted mortality for those who had received prior antibiotics was 7.0% vs. 8.3% for those who had not (p=0.6). In addition, there were no significant differences in length of hospital stay (prior antibiotics- 6.9 days with a standard deviation (SD) of 8.7 vs. 7.8 days and a SD of 16.7, p=0.5) or rate of ICU admission (14% vs. 20%, p=0.1). In the multivariable analysis, after adjusting for potential confounders and severity of illness, prior use of antibiotics (odds ratio 0.98, 95% confidence interval 0.5–2.1) was not significantly associated with 30-day mortality.
CONCLUSIONS: Receipt of prior outpatient antibiotic therapy is not significantly associated with 30-day mortality, or other outcomes, for patients hospitalized with community-acquired pneumonia. Our study does supports current efforts to increase the number of patients with pneumonia who are treated as outpatients.

IMPACT OF SMOKING AND QUITTING ON ADIPOSE TISSUE METABOLISM IN SMOKERS S. Gonseth[1]; C. Willi[1]; R. Bize[1]; J. Cornuz[2]. [1]Department of Ambulatory Care and Community Medicine, University of Lausanne, Lausanne,; [2]Department of Ambulatory Care and Community Medicine, University of Lausanne, 1011 Lausanne,. *(Tracking ID # 190481)*

BACKGROUND: Weight gain following cessation is a frequent reason argued by smokers to continue to smoke or to relapse. Some metabolic parameters might mediate or modulate weight gain. Our objective was to explore the evolution of three metabolic parameters such as leptin, insulin and glucose among sedentary adults smokers who participated to a randomized controlled trial assessing moderate-intensity physical activity (PA) as an aid for smoking cessation. Whereas the primary outcome, i.e. continuous smoking abstinence, was similar in both groups at one-year follow-up, we performed secondary analyses to estimate impact of smoking and quitting on adipose tissue metabolism in smokers.
METHODS: 481 participants divided in two groups attended a 9-week program with a weekly 15-minute smoking cessation intervention combining counseling and prescription of nicotine replacement therapy. The subjects enrolled in the intervention group attended a 60-minute exercise intervention based on a nationwide implemented moderate-intensity PA program, whereas the subjects in the control group attended 60-minute health education program to ensure equal contact conditions. A visit was scheduled at 12th week and at 6 and 12 months follow-up. Blood fasting serum insulin, leptin and glucose levels were assessed.
RESULTS: There were no differences in baseline between the two groups regarding age (mean 42 years), socio-demographic data, clinical variables, smoking habits (mean daily cigarette consumption 27, mean duration of smoking 17 years) and metabolic parameters (leptin level: 8.6 and 10.1 mg/l, insulin level: 10.6 and 11.4 mU/l, glucose level: 4.9 and 4.9 mmol/l, in control and intervention groups respectively, all p values NS). The mean body weight gain from baseline to week 52 was 3.6 kg and 2.9 kg for control and intervention groups, respectively (p= 0.11). At week 12, the intervention group performed a higher weekly volume of PA (2285.6 METS (metabolic equivalent) *min/ week) than the control group (1746.7 METS*min/week, p< 0.05). At week 52, the percentage of participants achieving PA recommendations was higher in the intervention group vs. in the control group (77.8% vs. 60.3%, p= 0.005). Leptin level increased among participants of both groups between the first visit and visits at weeks 12, 24 and 52, and this increase was greater among control than intervention: +2.4 vs. +1.8 mg/l at week 12 (p=0.6), +3.2 vs. +1.7 mg/l at week 24, (p= 0.03), + 3.2 vs. +1.2 mg/l at week 52 (p=0.05), respectively. The p values of the trend test were NS. Insulin level also tended to increase among participants during follow-up: +0.4 vs. +0.4 mU/l at week 12, +0.7 vs. +0.8 mU/l at week 24, + 2.4 vs. +1.8 mU/l at week 52, in control and intervention groups, respectively (all p values NS). The trend tests were significant for control group (p= 0.01) and borderline for intervention group (p=0.07). Fasting serum glucose did not show statistically significant changes between participants in both groups.
CONCLUSIONS: Leptin level increased after smoking cessation and this increase was greater among smokers of the control group who practiced lower weekly volume of PA. Leptin might be a potential causal factor explaining weight gain following smoking cessation. Insulin level showed a statistically significant increase only among smokers of the control group. Insulin may also be involved in weight gain following smoking cessation.

IMPACT OF TEACHING PROPER BLOOD PRESSURE TECHNIQUE ON BLOOD PRESSURE GOALS IN A LARGE ACADEMIC GENERAL MEDICINE CLINIC T. Williams[1]; B. Stults[2]; A. Underwood[3]; R. Rose[4]; G. West[5]; J.R. Nebeker[4]; T. Huhtala[4]; R. Rupper[6]; C.K. Milne[2]; M. Battistone[7]. [1]Univ of Utah, Salt Lake City, UT; [2]University of Utah, Salt Lake City, UT; [3]VA staff MD /University of Utah /, Salt Lake City, UT; [4]VAMC, Salt Lake City, UT; [5]Department of VA, Salt Lake City, UT; [6]VAMC Salt Lake, Salt Lake, UT; [7]University of Utah School of Medicine, Salt Lake City, UT. *(Tracking ID # 190743)*

BACKGROUND: Only 50% of treated hypertension patients in the US have their blood pressure (BP) controlled to goal levels. Because errors in BP measurement technique that falsely elevate readings are common, they may be an important contributor to apparent poor BP control in ambulatory settings.
METHODS: Using American Heart Association and Canadian Hypertension Education Program recommendations for BP measurement technique we designed an 11-item checklist of techniques essential to accurate BP measurement and an associated proficiency score to quantify the overall appropriateness of BP measurement technique. A physician observer assessed the usual BP measurement technique of medical assistants and nursing staff in a large Internal Medicine outpatient clinic during 72 unselected patient encounters. A formal teaching session on BP measurement technique was held for all clinic staff and a follow up session was held four weeks later. The physician observer re-assessed the BP measurement technique during 53 patient encounters one week following the first teaching session and then observed 54 patient encounters three weeks following the second teaching session.
RESULTS: The baseline proficiency score on the 11-item checklist was 60.4% with minimal improvement to 62.9% one week following the first teaching session. However, there was a significant improvement of this score to 77.5% following the second teaching session. Several BP measurement techniques improved from baseline to the final assessment: (1) 5 minutes rest prior to the BP measurement; 1.4% to 9.3% (2) No patient conversation during the measurement: 38.9% to 66.7%, (3) correct cuff size: 79.2% to 94.4%, (4) rechecking single elevated BP

measurement: 57.1% to 66.7% and (5) feet flat on floor: 61.1% to 79.6%. This two time educational intervention to improve BP measurement in an Internal Medicine outpatient clinic lowered clinic BP significantly. Following the first teaching session, the proportion of people meeting a BP goal of <140/90 went from 0.70 to 0.75 with CI (0.69–0.72) and (0.73–0.78) respectively, P value<0.0003. After the second session the proportion meeting BP goal increased to 0.80 CI (0.79–0.81), P value<0.0001.
CONCLUSIONS: A simple intervention to ensure proper blood pressure measurement technique resulted in significant increase in the number of patients meeting blood pressure goals.

IMPACT OF THE HUMAN PAPILLOMAVIRUS (HPV) VACCINE ON KNOWLEDGE AND AWARENESS OF HPV AMONG YOUNG WOMEN S.S. Rubin[1]; E. Phillps-Casear[1]. [1]Weill-Cornell New York Hospital, New York, NY. *(Tracking ID # 189702)*

BACKGROUND: Few studies have assessed the change in knowledge and awareness of HPV since the advent of the HPV vaccine in the USA. Previous studies showed that awareness and knowledge about HPV and the link to cervical cancer were low among all women. Women with abnormal pap smears or who were referred for colposcopy demonstrated more knowledge about HPV. The objective of our study was to assess if knowledge and awareness about has increased since the introduction of the first HPV vaccine. The results will be used to guide the development of a community outreach program to improve HPV vaccination rates among qualified women.
METHODS: We conducted a cross-sectional self administered survey of English speaking women >18 years of age at a community college and community base primary care practice. The college students (C) were recruited at a Health Awareness Fair and the clinic patients (P) were randomly recruited in a clinic waiting room. The study assed knowledge 3 domains: 1) screening pap smear practices 2) HPV transmission and 3) HPV prevention. Data was analyzed using of descriptive statistics.
RESULTS: 132 women were surveyed (college N=72 clinic N=59). Less college women had a pap smear (C 52%; P 86%) and were sexually active (C 23%; P 2%). Most women knew what a pap smear was (C 76%; P 76%) and how often women should be screened for cervical cancer (C 92%; P 97%). Less knew when screening should begin (C 48%; P 52%). Both groups demonstrated high awareness of HPV (C 88%; P 78%) and transmission via vaginal intercourse. However clinic patients had lower awareness of other transmission risks such as anal intercourse (C 79%; P 41%), lack of condom use (C 96%; P 75%), multiple sexual partners (C 80%; P 73%), younger age of first intercourse (C 62%; P 53%) and sexual preference (C 60%; P 40%) as risk factors for HPV transmission. Over 50% women recognized the long term affects of HPV such as abnormal pap smear, genital warts, cervical cancer). Lastly more college women were familiar with the HPV vaccine (C 75%; P 53%), criteria of vaccination (C 82%; P 66%) and benefits of the vaccine (C 86%; P 69%).
CONCLUSIONS: Compared to the studies prior to the HPV vaccine availability, our survey sample demonstrated more awareness of screening pap smears, HPV transmission and HPV prevention. Thus the advent of the vaccination has brought increased awareness to the health issue. However these outreach efforts may not be reaching qualified women equally. Thus efforts to partner with community based organizations may better target communities with less awareness.

IMPACT OF THE PRIMARY CARE WORK ENVIRONMENT ON QUALITY OF CARE: RESULTS FROM MEMO (MINIMIZING ERROR, MAXIMIZING OUTCOME) M. Linzer[1]; L.B. Manwell[1]; J.A. Bobula[1]; R.L. Brown[1]; B.A. Horner-Ibler[2]; S.F. Babbott[3]; A. Maguire[4]; B. Man[5]; J. Rabatin[6]; M.D. Schwartz[7]; A.B. Varkey[8]; E.S. Williams[9]. [1]University of Wisconsin-Madison, Madison, WI; [2]Private Practice, Milwaukee, WI; [3]University of Kansas Medical Center, Kansas City, KS; [4]Medical College of Wisconsin, Milwaukee, WI; [5]Rush University Medical Center, Chicago, IL; [6]Brown University, Pawtucket, RI; [7]New York University, New York, NY; [8]Loyola University Medical Center, Maywood, IL; [9]University of Alabama, Tuscaloosa, AL. *(Tracking ID # 190466)*

BACKGROUND: Ambulatory care working conditions affect physician satisfaction, stress and burnout, but their impact on patient care quality and safety is unknown.
METHODS: The MEMO (Minimizing Error, Maximizing Outcome) Study surveyed 422 primary care physicians and 1795 patients from 118 practices in New York City, Chicago, Milwaukee, Madison, and upstate Wisconsin. Physicians reported on their work environments and organizational culture. Clinic managers described office practice structure and policies. Patients with diabetes, hypertension and/or congestive heart failure rated satisfaction, quality of life, and health literacy. We reviewed charts to assess medical errors and quality, and used hierarchical modeling to account for physician and patient clustering. As in Reed and Slaichert's meta-analysis of medical studies, an effect size (ES) of.14 was considered small, 0.39 medium and 0.61 large.
RESULTS: Forty-nine percent of physicians reported job stress, 27% reported burnout, half needed additional time for patient visits, and 48% described their practices as tending toward or frankly chaotic. Support for work-life balance, organizational emphasis on quality, and congruent values between physicians and leadership were associated with significantly less physician stress and burnout (r=−.26 to −.32). High time pressure was associated with lower quality care for hypertension (ES 0.29; 58% of quality objectives achieved by physicians under high time pressure vs. 72% for those less pressured, p<0.001). Highly burned out physicians provided lower quality care for patients with diabetes (ES 0.62; 31% of quality objectives achieved by highly burned out physicians vs. 54% for those less or not burned out, p< 0.01). Chaotic environments were associated with omission of prevention activities and lower diabetes care quality (ES 0.17 and 0.19, respectively, p<0.05). Patients of physicians who described low work control reported worse mental health (ES 0.35, p<.001). Low work control was also associated with lower hypertension care quality (ES 0.19, p<0.05).
CONCLUSIONS: To our knowledge, this is the first study to show that adverse work conditions are associated with poor outcomes for both primary care physicians and their patients. Addressing physician burnout, leadership values, and key aspects of the physician's work environment (e.g. time pressure, chaos, and work control) may improve provider health, care quality, and patient safety.

IMPACT ON CLINICAL OUTCOMES AND ASSOCIATED MEDICAL EXPENDITURES OF SWITCHING STABLE ATORVASTATIN PATIENTS TO SIMVASTATIN R. Mendes[1]; L.Z. Liu[1]. [1]Pfizer Inc., New York, NY. *(Tracking ID # 190134)*

BACKGROUND: The availability of generic simvastatin provides an opportunity to significantly reduce pharmacy costs. However, switching patients from branded statins to generics may have unintended clinical and economic consequences. This analysis modeled the potential impact on clinical outcomes and medical expenditures of switching patients taking stable doses of atorvastatin to simvastatin.
METHODS: A literature-based cost-consequence model was developed to simulate the potential clinical and economic impact of switching stable atorvastatin patients to simvastatin during a one year period. Cardiovascular event rates and hazard ratios were based on published clinical trials. Three patient populations were included: patients with multiple CHD risk factors, with diabetes mellitus, and with coronary heart disease. Drug costs were based on the wholesale acquisition cost for atorvastatin and assumed to be $0.20/day for simvastatin. A copayment of $20 for atorvastatin and $5 for simvastatin were assumed in the model. The main outcome measures were the increase in cardiovascular events (defined as myocardial infarction, stroke, and revascularization) and associated medical expenditures incurred in 1 year from switching 100,000 stable atorvastatin patients to simvastatin, and the net incremental cost per 30-day prescription.
RESULTS: The model predicts that switching patients from atorvastatin to simvastatin will result in an increase in 808 cardiovascular events in 1 year and incur incremental medical costs of $40.6 million ($30.6 M in medical costs and $10 M in monitoring costs). This translates to a medical cost of $39 per 30-day simvastatin prescription, which offsets about 70% of the anticipated savings in drug costs of $57 between atorvastatin and simvastatin.
CONCLUSIONS: While switching stable atorvastatin patients to simvastatin will reduce pharmacy expenditure, this analysis suggests that the improved clinical outcomes associated with atorvastatin therapy will largely offset the anticipated drug cost savings. In addition, more patients are expected to experience a subsequent cardiovascular event following a switch from atorvastatin to simvastatin.

IMPAIRED COGNITIVE PERFORMANCE IS ASSOCIATED WITH LIMITED HEALTH LITERACY IN OLDER ADULTS A. Federman[1]; E.A. Halm[1]; M. Sano[2]; D.G. Safran[3]; A.L. Siu[2]. [1]Mount Sinai School of Medicine, New York, NY; [2]James J. Peters Veterans Administration Medical Center, New York, NY; [3]Tufts University, Boston, MA. *(Tracking ID # 190083)*

BACKGROUND: Measuring health literacy in older adults may be limited by cognitive function, yet the association of cognitive function with health literacy has not previously been described. The purpose of this study was to examine the association between performance on a standard test of health literacy with performance on standard tests of memory and executive function in older adults.
METHODS: 462 independently living seniors (≥60 yrs) were interviewed by trained interviewers in English or Spanish (24%) at 11 senior centers and 19 apartment complexes in New York City, NY. We assessed health literacy using the Short Test of Functional Health Literacy in Adults (sTOFHLA); memory, using the Wechsler Memory Scale (WMS, delayed recall); executive function, using the animal naming test; and general cognition with the Folstein Mini Mental Status Exam (MMSE). For tests of cognition, abnormal was defined as a score >1.5 standard deviations below the published education and age-adjusted norms. Association of cognitive performance with the 3-level outcome for performance on the sTOFHLA (inadequate, ≤16; marginal, 17–22; and adequate, ≥23) was estimated using ordinal logistic regression. Models included potential confounders of performance on the sTOFHLA: demographic (education, age, sex, race, and English language ability); and health status (instrumental activities of daily living, total comorbidities, general health).
RESULTS: Mean age of respondents was 73 yr, 33% were male, 34% black, 34% white, 33% Latino; and 64% had monthly incomes <$2000. Health literacy was inadequate in 24% and marginal in 9%. On assessment of cognitive function, 26% had memory impairment, 6% had abnormal executive function, and 3% had an abnormal MMSE. Worse performance on all 3 measures was independently associated with worse performance on the sTOFHLA in both unadjusted and adjusted models. The adjusted odds of having inadequate health literacy was much greater among those with impaired memory (AOR 2.83, 95% CI 1.40–5.70) and those with abnormal executive function (AOR 7.22, 95% CI 2.35–22.2). In a separate model, the AOR for abnormal MMSE was 5.95 (95% CI 3.04–11.65). C-statistic values were high for fully adjusted models that included the WMS (0.87), animal naming test score (0.87), or the MMSE (0.89).
CONCLUSIONS: Health literacy is strongly influenced by both memory and executive function in older adults, even after controlling for language ability, socioeconomic factors, and health status. Clinicians and policymakers should consider the potential effects of subtle cognitive impairment on older adults' ability to interpret health and healthcare-related information beyond simple literacy.

IMPLEMENTATION OF THE CHRONIC CARE MODEL IN THE HRSA HEALTH DISPARITIES CANCER COLLABORATIVE D. Haggstrom[1]; S. Taplin[2]; S. Clauser[3]. [1]VA HSR&D Indianapolis Center of Excellence, Indianapolis, IN; [2]Applied Screening Research Program, National Cancer Institute, Bethesda, MD; [3]Outcomes Research Branch, National Cancer Institute, Bethesda, MD. *(Tracking ID # 190300)*

BACKGROUND: The Health Disparities Cancer Collaborative (HDCC) was a demonstration program to increase cancer screening and follow-up among underserved populations seen at community health centers from 2003 to 2005. HDCC interventions used components of the Chronic Care Model (CCM), including (1) self-management support, (2) decision support, (3) delivery system design, (4) clinical information systems, and (5) community outreach to reorganize care delivery. Our aim was to evaluate the influence of HDCC participation upon CCM implementation in community health centers.
METHODS: Organizational surveys were administered among 19 community health centers participating in the HDCC and 22 control centers matched by region and size. Several different types of employees completed surveys: health care providers, directors, financial officers, information systems personnel, and general staff. Measures and analyses were aggregated at the health center level. Health centers who did and did not participate in the HDCC collaborative were compared for all analyses. The primary outcome of CCM implementation was measured with a scale assessing the degree of implementation of five CCM components (scale range, 9–45). The secondary outcome of increased cancer screening and follow-up was measured with a scale combining a spectrum of care processes, including breast, cervical, and colorectal cancer screening, patient notification, and test follow-up (scale range, 7–35). Stepwise regression models explored whether CCM implementation mediated the influence of HDCC participation on increased cancer screening and follow-up. Linear regression models evaluated the potential confounding effect of organizational characteristics (perceived team effectiveness and leadership).
RESULTS: HDCC community health centers were significantly more likely to report CCM implementation than centers not participating in the HDCC (35.4 vs. 31.3, p=0.0003). The association between HDCC participation and CCM implementation was still significant when adjusting for organizational characteristics (beta coefficient = 0.52, p<.001). HDCC health center participants were also more likely to report increased cancer screening and follow-up (26.8 vs. 25.2, p=0.047). In stepwise regression models, CCM implementation was significantly associated with increased cancer screening and follow-up (beta coefficient =0.75, p<.001) and mediated HDCC participation.
CONCLUSIONS: Community health centers participating in the HDCC applied components of the CCM more often than non-participants. Furthermore, CCM implementation was the mechanism whereby participation in the HDCC increased cancer screening and follow-up. Although organizational characteristics such as perceived team effectiveness and leadership may be important, the implementation of CCM components had the most robust association with increased cancer care services.

IMPROVING ACCESS TO MAMMOGRAPHY FOR BLACK WOMEN: RESULTS OF THE BOSTON REACH 2010 BREAST AND CERVICAL CANCER COALITION WOMEN'S HEALTH DEMONSTRATION PROJECT C. Clark[1]; N. Baril[2]; M. Kunicki[3]; N. Johnson[3]; A. Hall-Jones[3]; J. Soukup[4]; S. Lipsitz[4]; J. Bigby[5]. [1]Brigham and Women's Hospital, Division of General Medicine and Primary Care, Center for Community Health and Health Equity, Harvard Medical School, Boston, MA; [2]Boston Public Health Commmission, Boston, MA; [3]Brigham and Women's Hospital, Center for Community Health and Health Equity, Boston, MA; [4]Brigham and Women's Hospital, Division of General Medicine and Primary Care, Boston, MA; [5]Executive Office of Health and Human Services, Commonwealth of Massachusetts, Boston, MA. *(Tracking ID # 189907)*

BACKGROUND: In Boston, Massachusetts, Black women have high rates of breast cancer mortality despite high rates of single year mammography screening. Culturally appropriate strategies for enhancing longitudinal screening and following up abnormal results require exploration. The Centers for Disease Control sponsored the Boston Racial and Ethnic Approaches to Community Health Breast and Cervical Cancer Coalition (REACH Coalition) to develop a seven-year intervention providing comprehensive support to reduce barriers to screening mammography and following up abnormal results.
METHODS: Based on community feedback, the REACH Coalition designed a lay case management intervention to reduce social and health systems barriers to accessing care. Six intervention sites included an academic hospital clinic, an academic-affiliated community health center and four community based health centers. Case management intervention: (1) provided referrals and support to address barriers such as health care financing, housing concerns, or language, (2) scheduled mammography, and (3) reported results to providers and patients. Recruitment targeted women at high risk due to missed clinic or mammogram appointments. Black women in Boston, aged 40–75, who received care at participating sites were eligible. Between 2002–2006, 437 women without prior cancer were enrolled. Rather than employ a control group of women who would not receive an intervention, the intervention was evaluated by (1) comparing screening rates among women who previously had inadequate screening histories to determine if rates could be increased to match women who screened regularly, and (2) evaluating any increased trend in repeat mammography screening over time via longitudinal logistic regression. Intervention on abnormal results compared time to follow up for results found prior to case management intervention to those found during the intervention. Timely follow up was defined by obtaining procedures within 3 months, or further studies in time frames suggested by BI-RADS classification, and analyzed via Cox models.

RESULTS: At baseline, 74% of women had screening mammograms in the prior two years, compared to 81% in the Boston area. Significant increases in screening uptake were seen during the study. After four or more years of follow up, 86% of women had at least one screening mammogram, including 64% of women without prior regular screening ($p<0.01$, test for trend). Housing concerns ($p<0.05$), and lacking a regular provider ($p<0.01$) predicted poor screening uptake. Longitudinally, participants obtained 60% of recommended annual mammograms during the study. Years of participation in the intervention increased odds of obtaining recommended screening by 20% (OR 1.20 95% CI 1.02 – 1.40); this effect was attenuated by covariates ($p=0.57$). Timely follow up for abnormal screening results was achieved for most women (85%), but could not be attributed to the intervention (median follow up time before study was 1 week vs. 2 weeks during study, $p=0.41$). Academic practices rather than community-based health center sites predicted high rates of longitudinal screening ($p<0.001$) and follow up ($p<0.01$).
CONCLUSIONS: Case management interventions were successful at promoting mammography screening uptake. Housing concerns and lack of access to regular providers are identified as barriers to mammography uptake among high risk Black women in Boston. However, site level factors predicted longitudinal screening and follow up.

IMPROVING CULTURAL COMPETENCY: IMPACT OF EARLY CULTURAL CLINICAL EXPERIENCES ON SUBSEQUENT MEDICAL STUDENT SELF-EFFICACY AND PERFORMANCE. R. Laponis[1]; C. Dermartirosian[1]; S. Lee[1]; M. Srinivasan[1]. [1]University of California, Davis, Sacramento, CA. *(Tracking ID # 190617)*

BACKGROUND: Most medical trainees do not feel prepared to deliver culturally competent care. The award-winning UC Davis School of Medicine student run clinics (SRC) serve six distinct indigent populations, providing pre-clinical medical students opportunities to care for minimally acculturated patients. Impact, however, of this cultural clinical experience is not known.
METHODS: In this longitudinal observational cohort study, we assessed the relationship between frequency of SRC participation during the first 2 years of medical school for the Class of 2008 and subsequent self-efficacy and performance. Measures included 4th year self-assessed preparedness to provide cross-cultural care, future specialty choice (primary care vs. subspecialty), 3rd year clerkship grades and 3rd year standardized patient (SP) clinical examination (CPX). At the SRC, pre-clinical medical students see 2–3 patients/5-hour shift, perform H&Ps, present to preceptors, develop clinical plans, counsel patients and provide follow-up resources. We surveyed preparedness to provide cross-cultural care among 4th year students. They assessed their self-efficacy ("I feel confident…", 1 = strongly disagree to 6 = strongly agree) in working with interpreters, assessing health belief models, identifying patient distrust, interacting with culturally different patients, managing patients using complementary/alternative medicine (CAM) and identifying relevant cultural/religious customs. Third year internal and family medicine clerkship attending evaluations were collapsed into 5 scores (professionalism, communication, decision-making, practice-based learning, and overall competence). The CPX is an annual 8-station statewide exam. SPs rated student history taking, physical exam, decision-making, and communication skills. Our primary outcome was differences in self-assessed preparedness to provide cross-cultural care, in relationship to SRC participation. We also explored relationships between student performance (overall CPX scores, attending evaluations, USMLE Step 1 scores and future specialty choice) controlling for student-specific variables (gender, race, MCAT, SRC participation) via logistic regression.
RESULTS: Most students (93%; 82/88) participated in the SRCs (median 9 shifts/year, range 0–76 shifts). All students finished the CPX and clerkships; 97% completed the survey. Students with more frequent SRC participation were more confident working with interpreters ($r=.259, p<.05$), assessing health belief models ($r=.28, p<.01$) and identifying patient distrust ($r=.234, p<.05$). Although not statistically significant, students with more frequent SRC participation trended toward being more confident interacting with patients from different cultures, managing patients using CAM, and identifying relevant cultural/religious customs. SRC participation frequency was not associated with 3rd year clerkship evaluations, CPX performance, USMLE Step 1 scores or future specialty choice.
CONCLUSIONS: Pre-clinical student participation in the SRC was high. Medical students who participated more frequently in the SRC had higher self-efficacy as 4th year students to provide cross-cultural care. Participation, however, was not correlated with 3rd year clerkship grades or CPX performance. Cross-cultural competence may not be adequately measured currently and, given the culturally diverse US population, developing more sensitive measures will be important for curricular improvement.

IMPROVING HYPERTENSION QUALITY MEASUREMENT USING ELECTRONIC HEALTH RECORDS S. Persell[1]; A.N. Kho[1]; J. Thompson[1]; D. Baker[1]. [1]Northwestern University, Chicago, IL. *(Tracking ID # 189482)*

BACKGROUND: Simple outcome measures of hypertension quality such as those adopted by the National Committee for Quality Assurance or Medicare's Physician Quality Reporting Initiative may not reliably indicate which patients receive poor care. This could be problematic as incentives based on performance measures increase.
METHODS: We sought to compare measured quality using simple blood pressure outcome measures with more sophisticated measures utilizing clinical data available within an electronic health record (EHR). We used data from 12,573 adult patients with 3 or more clinic visits between 7/1/05 and 12/31/06 at a large urban academic internal medicine practice using the Epic electronic health record. Our baseline measures were the proportion of patients who satisfied a standard indicator of hypertension control: last blood pressure below 140/90 mm Hg at the last visit or below 130/80 mm Hg in patients with hypertension and diabetes. We compared this to progressively more sophisticated measures of quality of care, each of which aimed to address a perceived limitation of the simple measure. The modifications we made sought to 1) make the measures better reflections of the proportion of patients with clearly actionable uncontrolled blood pressure 2) account for the fact that aggressively treated patients with resistant hypertension should not be considered quality failures, 3) remove the incentive to over-treat patients with potentially dangerously low diastolic blood pressure, and 4) detect patients with elevated mean blood pressures even thought they do not have diagnosed hypertension.
RESULTS: Among 3933 non-diabetic patients, baseline measurement of control was 58.1% (95% CI, 56.5–59.6). When patients whose last or mean blood pressure was at or below goal were considered to have met the quality measure, performance rose to 76.0%. Accounting for patients prescribed aggressive treatment (prescribed three or more antihypertensive drug classes including a diuretic or 3 drugs and a relative contraindication to a diuretic) raised it to 83.1%. Accounting for patients with uncontrolled systolic blood pressure but low diastolic pressure raised it to 83.9%. Adding to the eligible population patients with undiagnosed hypertension lowered it to 81.2% (80.0–82.4). Among the 1526 patients with diabetes and hypertension, baseline measurement of control was 29.9% (27.7–32.3) and changed to 47.1%, 72.9%, 76.2% and 73.0% (70.8–75.1), respectively. The absolute differences in measured performance using the most advanced measures and the simple measures was 23.1% for patients with hypertension alone (a 1.4-fold increase) and 43.1% for patients with hypertension and diabetes (a 2.4-fold increase).
CONCLUSIONS: Modifications to measurement criteria can produced large changes in the proportion of patients judged as having adequate care. It is possible to use EHR data to devise hypertension quality measures that 1) better reflect which patients have actionable uncontrolled blood pressure, 2) do not penalize clinicians for treating resistant hypertension patients, 3) reduce the encouragement of potentially unsafe practices, and 4) identify patients who may be receiving poor care but have no hypertension diagnosis.

IMPROVING IRB REVIEW OF MENTAL HEALTH RESEARCH: VIEWS OF IRB CHAIRS N.A. Sirotin[1]; L. Pollack[1]; B. Lo[1]. [1]University of California, San Francisco, San Francisco, CA. *(Tracking ID # 190675)*

BACKGROUND: IRB review of mental health research is important and challenging. This study analyzed what resources Chairs of IRBs that review mental health research would find helpful when confronted with an ethically challenging mental health research protocol and which characteristics of IRBs Chairs and their institutions might be associated with different views.
METHODS: We interviewed 85 Chairs from a national sample of IRBs that review mental health research asking how helpful they would find suggestions made in the literature for reviewing difficult research protocols. We analyzed independent variables associated with finding resources very helpful.

RESULTS: A majority of IRB Chairs found talking to scientific colleagues (65/85, 76%), increased access to participant representatives (53/81, 65%), scientific experts (52/83, 63%), and ethics experts (50/83, 60%) very helpful. However, fewer Chairs found using internet resources, such as the IRB Forum list server for discussions of similar protocols (38/82, 46%), looking up pertinent articles or books (32/83, 39%), talking to IRB members before a formal meeting (28/82, 34%) or talking to colleagues at other IRBs (27/80 34%) very helpful. Less and a third found guidance from the Office for Human Research Protections (OHRP) on defining minimal risk (27/82, 33%) and for assistance with specific protocols (24/80, 30%) very helpful. In open-ended comments, some respondents expressed concerns regarding breaches of confidentiality, lack of practicality, and poor quality of advice received. Increased internet resources on research ethics were more likely to be considered very helpful by IRB chairs whose institutions were not in the top 100 of NIH-funding (56% vs. 31%, p<.04), by chairs whose committees review <50 protocols/year (60% vs. 37%, p<.05), and by chairs who had never conducted human subjects research (83% vs. 40%, p<.009). Increased access to experts in research ethics was more likely to be considered very helpful by chairs of IRBs reviewing <50 protocols/year (59% vs. 30%, p<.01) and by chairs who had never conducted human subjects research (63% vs. 33%, p<.01). Other demographic characteristics of IRB chairs or characteristics of the IRB committee were not associated with finding these suggestions very helpful. We found no independent variables associated with regarding other suggestions for strengthening IRB review of mental health protocols as very helpful.
CONCLUSIONS: Our findings suggest that IRB review of mental health research might be improved by increasing IRB access to scientific experts, participant representatives, and ethics experts. These findings depart from the traditional role of the IRB which focuses on procedural over site to protect human subjects separate from the scientific review and suggest linking scientific evaluation to IRB review may improve the assessment of mental health research. Additional OHRP guidance was regarded as less helpful, even though it has been repeatedly recommended. Chairs with less experience with human subjects research may benefit from a different type of guidance such as targeted internet resources and increased access to ethics experts.

IMPROVING MANAGEMENT OF CHRONIC DISEASES WITH DOCUMENTATION-BASED CLINICAL DECISION SUPPORT: RESULTS OF A PILOT STUDY K. Mccolgan[1]; J.A. Linder[1]; T. Yu[1]; J. Fiskio[1]; R. Tsurikova[1]; L.A. Volk[2]; B. Middleton[1]; J.L. Schnipper[1]. [1]Brigham and Women's Hospital, Boston, MA; [2]Partners Healthcare System, Inc., Wellesley, MA. *(Tracking ID # 189859)*

BACKGROUND: Clinical Decision Support Systems (CDSS) have the potential to improve patient care. The Coronary Artery Disease and Diabetes Mellitus (CAD/DM) Smart Form is a documentation-based CDSS that displays and solicits relevant coded patient data, provides tailored recommendations for care, and supports the creation of a visit note within an existing electronic medical record. We sought to evaluate whether use of the Smart Form could improve physicians' likelihood of addressing deficiencies in CAD/DM management.
METHODS: Pilot testing of the CAD/DM Smart Form was completed with 30 Partners clinicians over a 6-week period. Using data from Partners clinical data repositories, we evaluated whether the Smart Form led to actions to address deficiencies in disease management in the month following a visit in which it was used. These actions were compared to those for patients with CAD or DM who were seen by the same clinicians in the 6-week period prior to the pilot (with a one-month wash-out between periods).
RESULTS: During the pilot period, 84% of clinicians used the Smart Form at least once; 43% of clinicians used it more than 10 times. At the index visit, deficiencies in CAD/DM management, including documentation, test ordering, medication prescribing, and treatment to goal, were found in 2% to 93% of visits, depending on the measure. The average patient in each arm had 5 deficiencies out of 12 possible measures evaluated. When deficiencies were present, they were more often addressed in the month following visits in which the Smart Form was used compared with visits during the pre-intervention period: an average of 13.6% of deficiencies addressed per patient vs. 7.9%, p< 0.001. Specific deficiencies that were more often addressed included documentation of blood pressure and smoking status, and prescribing antiplatelet and beta blocker medications (Table).
CONCLUSIONS: Results from a pilot study suggest that the CAD/DM Smart Form was associated with positive changes in clinician behavior, although deficiencies in care still remained. By incorporating decision support into clinical workflow, the Smart Form has the potential to improve care for patients with chronic conditions.

Deficiencies Addressed Within One Month After Index Visit

Deficiency Addressed When Present at Index Visit	Pre-intervention Visit	Smart Form Visit	P value
Up to date blood pressure result (within 12 months) documented in vital signs	43/133 (32.3%)	14/15 (93.3%)	< 0.001
Smoking status documented in health maintenance or problem list	21/339 (6.2%)	11/46 (23.9%)	< 0.001
Up to date A1c result (within 12 months)	24/226 (10.6%)	5/28 (17.9%)	0.34
Antiplatelet prescribed or contraindication documented	10/309 (3.2%)	13/42 (31.0%)	<0.001
Beta-blocker prescribed or contraindication documented	1/24 (4.2%)	2/3 (66.7%)	0.03
Change in diabetic therapy if A1c >7.0	44/413 (10.7%)	14/83 (16.9%)	0.11

IMPROVING RESIDENTS' DOCTOR-PATIENT COMMUNICATIONS SKILLS IN THE ELECTRONIC MEDICAL RECORD-ENABLED EXAM ROOMS C.T. Tenner[1]; J.S. Cavanaugh[1]; M.M. Triola[1]; T. Ark[2]; M.D. Schwartz[1]. [1]VA New York Harbor Healthcare System/New York University School of Medicine, New York, NY; [2]New York University School of Medicine, New York, NY. *(Tracking ID # 190002)*

BACKGROUND: Use of electronic medical records (EMR) in the examination room will become increasingly widespread. While the EMR may improve technical quality of care, little research addresses the impact of exam-room computing on the doctor-patient interaction. Our previous work suggests that use of the computer may lead to less eye contact, less psychosocial talk, and less sensitivity to patient responses and nonverbal cues. These effects could diminish the quality of the doctor-patient relationship. Compared with patients of more experienced attending physicians, patients of residents expressed greater concern about these issues. Explicit communication skill training in the context of exam room computing may improve residents' skill at integrating clinical and computer tasks during a visit. This, in turn, may improve patient satisfaction and consequent outcomes.
METHODS: We designed and implemented a quasi-experimental trial to test the efficacy of an educational intervention for medical residents during their one month ambulatory care rotation at the New York Veterans Affairs (NY VA) Primary Care Clinic. The primary outcomes were patients' satisfaction and perceived interference of the EMR with the doctor-patient relationship. The intervention, compared with usual curriculum, was allocated by block rotation over six months. The educational intervention combined mini-lecture, videotaped exemplars, "brain storming" sessions and role-play practice in actual clinic rooms. Outcomes were measured via a post-visit survey of residents' patients (visit satisfaction – 5 items, EMR interference with doctor-patient relationship – 6 items), and a pre and post rotation resident survey (EMR skill – 3 items, communication skill – 5 items, clinical skills – 4 items, and EMR interference with doctor-patient relationship – 6 items).
RESULTS: A total of 65 residents and 112 patients were enrolled in the study and completed the questionnaires. Patient and physician characteristics were similar at baseline between the control and intervention groups. There were no significant differences noted between the control and intervention groups in either resident or patient outcomes. Compared to our 2003 observational study, more patients in the current study reported high satisfaction with the visit (78% vs. 68%) and fewer reported that the EMR interfered with their relationship with the doctor (8% vs. 20%), p<0.01 for both.
CONCLUSIONS: The educational intervention did not lead to measurable changes in resident or patient outcomes. The brief intervention may not have been adequate. Alternative explanations for lack of effect

include the small sample size or a possible ceiling effect as our patients' experiences seem to have improved since 2003. The high patient visit satisfaction and the lack of perceived interference of the EMR may have made it difficult to measure any benefit afforded by the intervention. VA's EMR has been in place for many years and hence it is familiar for many veterans. Educational interventions for residents in settings with a less established EMR may be more valuable.

IMPROVING RESIDENT-WRITTEN DISCHARGE SUMMARIES: RESULTS FROM A RAPID PLAN-DO-STUDY-ACT CYCLE R. Mourad[1]; S. Singh[2]; D. Litaker[1]. [1]Louis Stokes Cleveland Veterans Affairs Medical Center; Case Western Reserve University SOM, Cleveland, OH; [2]Louis Stokes Cleveland VAMC; Case Western Reserve University SOM, Cleveland, OH. *(Tracking ID # 189905)*

BACKGROUND: Plan-Do-Study-Act (PDSA) cycles are often used to inform development of future interventions to improve care. One area of particular importance, prone to significant error in care delivery, involves the transmission of information from the inpatient to outpatient setting. Although several studies have demonstrated essential features of discharge summaries, limited data document the extent to which resident physicians' summaries convey this information to those providing outpatient follow up. The Veterans Health Administration offers an electronic medical record (EMR) and discharge note template containing discharge diagnosis, pertinent lab and imaging results, consultations, procedures, discharge medications, discharge condition, and mention of any pending test results, facilitating transmission of essential informational elements upon hospital discharge. We assessed the utility of this template, developed at our site specifically to improve accuracy and completeness of hospital summaries generated by resident physicians.
METHODS: Discharge summaries were reviewed over a four-month period in 2007 from a convenience sample of patients presenting to a post-hospitalization primary care clinic within 14 days of discharge at a large VA hospital facility. A checklist tool completed by resident physicians providing outpatient follow-up care evaluated whether essential information cited in the accessible discharge summary templated note was accurate or complete. The resident physician reviewer also was asked to rate the adequacy of the discharge information in enabling delivery of high quality follow up care.
RESULTS: Two of 46 (4%) discharge summaries were incomplete at the time of review. Of the 44 summaries accessible, 3 (7%) included inaccurate discharge medications and medication changes at discharge were not acknowledged in up to 25% of cases. While 11/37 (30%) summaries failed to indicate that new medications had been started, 16/30 (53%) summaries did not specify when dose adjustments had been made, and 13/19 (68%) summaries did not mention that medications had been intentionally discontinued. The need for clinically indicated follow up labs was omitted in 13/28 of cases (46%) and more than half of the 19 patients with pending lab or imaging results at the time of discharge were not identified explicitly in the discharge summary. Despite these substantive shortcomings, outpatient resident physician reviewers identified only 3/44 (7%) summaries as inadequate for the delivery of high quality follow up care.
CONCLUSIONS: Despite the availability of EMR and discharge note template, several informational domains conveyed in hospital discharge summaries written by resident physicians were either inaccurate or incomplete. Our data also demonstrate a substantial gap between the quality of discharge information outpatient resident physicians receive and their overall perception of its adequacy in providing ongoing care after hospitalization. Rather than further efforts to develop system-based tools, educational interventions aimed at fostering better resident communication with peers in the outpatient setting and at setting expectations for including specific domains of information may be valuable in enhancing the accessibility, accuracy, and completeness of information provided at hospital discharge.

IMPROVING THE "PAYOFF TIME" FRAMEWORK FOR TAILORING CLINICAL GUIDELINES TO COMORBIDITY IN GENERAL MEDICINE OUTPATIENTS R.S. Braithwaite[1]; A.C. Justice[1]. [1]Yale University, West Haven, CT. *(Tracking ID # 190438)*

BACKGROUND: We previously published a framework for tailoring clinical guidelines for comorbid patients based on the principle that the "payoff time" (the minimum time until a guideline's cumulative benefits exceed its cumulative harms) should not exceed comorbidity-adjusted life expectancy. However, important limitations may lessen this framework's applicability at the point of care, in particular it requires disease-specific prognostic models, does not consider frailty, does not consider interactions between comorbidities and targeted diseases, and does not incorporate patient preferences. The objective is to improve the "payoff time" framework to address these limitations, in preparation for a feasibility study in a general medicine clinic.
METHODS: We broadened the payoff time framework to make it more generic and to consider frailty by linking it to a validated prognostic model of survival that is not disease-specific and that incorporates frailty indices, using the declining exponential approximation of life expectancy (DEALE). We considered comorbidity-disease interactions by creating decision rules for when it is valid to apply the framework, based on the idea that underestimating the payoff time should not invalidate clinical inferences (since if a patient's life expectancy is lower than an underestimated payoff time, it would also be lower than the true payoff time) whereas overestimating the payoff time may invalidate clinical inferences (since if a patient's life expectancy is lower than an overestimated payoff time, it may be higher than the true payoff time). We incorporated patient preferences by expanding the approach to facilitate shared decision making. We demonstrate proof-of-concept by applying this modified framework to 3 hypothetical patients in general medicine clinic for which a colorectal (CR) cancer screening guideline is being considered. *(1) 65 year-old male diabetic with heart failure, lung disease, and substantial frailty; (2) 55 year-old female obese diabetic without other comorbidity or frailty, and (3) 50 year-old female with inflammatory bowel disease.*
RESULTS: The payoff time for colorectal cancer screening is 5.0 years for patient #1 (substantial comorbidity and frailty) and 3.7 years for patient #2 (limited comorbidity and no frailty). The payoff time was lower for patient #2 than patient #1 because obesity is a risk factor for CR cancer, and increases the benefit from screening more than the harm. Evidence is insufficient to estimate the payoff time for patient #3 (comorbidity that causes CR cancer) because she is at particularly high risk for CR cancer. By applying the DEALE to patient #1's 4-year expected mortality (68%), we estimate that his life expectancy is 3.5 years. Because this is less than the payoff time, this person is unlikely to benefit from CR screening. By applying the DEALE to patient #2's 4-year expected mortality (2%), we estimate that her life expectancy will greatly exceed 5 years. Because it is greater than the payoff time, this person may benefit from colorectal cancer screening. Because evidence is insufficient to estimate the payoff time for patient #3, she is excluded from inferences using the payoff time framework.
CONCLUSIONS: We have modified our "payoff time" framework to address some of its most substantial limitations, and have demonstrated proof-of-concept. We will now test the feasibility of applying this approach in our general medicine clinic.

INCARCERATION AS A PREDICTOR OF FUTURE HYPERTENSION DURING YOUNG ADULTHOOD: THE CORONARY ARTERY RISK DEVELOPMENT IN YOUNG ADULTS (CARDIA) STUDY E.A. Wang[1]; M.J. Pletcher[1]; E. Vittinghoff[1]; S.G. Kertesz[2]; C.I. Kiefe[2]; K. Bibbins-Domingo[1]. [1]University of California, San Francisco, San Francisco, CA; [2]University of Alabama at Birmingham, Birmingham, AL. *(Tracking ID # 189683)*

BACKGROUND: Individuals with a history of incarceration are at increased risk of death from cardiovascular disease (CVD). Prospective studies exploring the mechanisms by which CVD develops in former inmates are lacking.
METHODS: The Coronary Artery Risk Development in Young Adults (CARDIA) study is a longitudinal cohort study of cardiovascular risk factors in 5115 black and white men and women recruited at age 18–30 and followed for 20 years. At Year 0 and 2, participants were asked whether they had been in jail during the prior year. Presence of CVD risk factors at Year 5 was measured, including systolic and diastolic blood pressure, cholesterol levels, smoking, drug and alcohol use and incident hypertension and diabetes, as defined by the development of disease in Year 2 and 5 after exclusion of those participants with disease at Year 0. We examined the independent association between a history of incarceration and CVD risk factors at Year 5.
RESULTS: Of the 4350 participants with complete data at baseline and Year 5, 288 (7%) reported previous incarceration. Cocaine use, amphetamine use, smoking, and alcohol consumption were more common in

those previously incarcerated. Incident hypertension was more common among those with prior incarceration (unadjusted OR 1.74, 95% CI 1.16, 2.62). This association remained significant after adjustment for age, sex, race, and the higher rates of illicit drug use, alcohol use, and smoking observed in former inmates (adjusted OR 1.65, 95% CI 1.03, 2.64). Additional adjustment for baseline education and work status partially attenuated this association (adjusted OR 1.49, 95% CI 0.93, 2.39). Among those with hypertension, participants with a history of incarceration were more likely to report a barrier to healthcare.
CONCLUSIONS: A history of incarceration is associated with future hypertension among young adults. Identification and treatment of modifiable CVD risk factors may be important in reducing the risk of cardiovascular death among incarcerated individuals.

Table 1. CVD risk factors by history of incarceration

Cardiovascular risk factors at Year 5	Ever in jail (N=288)	Never in jail (N= 4062)	p-value
	No (%) or mean ± SD		
Age, y	28.9± 3.6	30.9± 3.6	<0.001
Black Women	49 (17)	1165 (29)	<0.001
White Women	23 (8)	1154 (28)	<0.001
Black Men	154 (53)	751 (18)	<0.001
White Men	62 (22)	991 (24)	<0.001
Systolic blood pressure (mmHg)	111 ± 13	107 ± 11	<0.001
Diastolic blood pressure (mmHg)	70± 11	69 ± 10	0.42
Incident Hypertension[1]	29 (11)	254 (7)	0.007
Low Density Lipoprotein cholesterol (mg/dL)	108± 37	108± 31	0.93
High Density Lipoprotein cholesterol (mg/dL)	53 ± 15	53 ± 14	0.45
Body mass index (kg/m2)	26 ± 5	26 ± 6	0.59
Incident Diabetes[2]	13 (6)	188 (5)	0.79
Current smoking	167 (58)	1076 (26)	<0.001
Current cocaine use	34 (12)	154 (4)	<0.001
Current amphetamine use	6 (2)	30 (1)	0.05
Excessive alcohol use	129 (45)	1169 (29)	<0.001

[1] 458 participants with baseline hypertension were excluded in this analysis (N=3892).
[2] 267 participants with baseline diabetes were excluded in this analysis (N=4233)

INCREASING RATES OF OBESITY AMONG DRUG USERS IN THE FIRST YEAR OF ENROLLMENT IN A METHADONE PROGRAM M.R. Stein[1]; A. Binder[1]; K.M. Berg[2]. [1]Albert Einstein College of Medicine, Bronx, NY; [2]Albert Einstein College of Medicine/Montefiore Medical Center, New York, NY. *(Tracking ID # 190423)*

BACKGROUND: The prevalence of overweight and obesity is increased among poor and minority populations, compared to the general adult population. In the South Bronx, a poor urban neighborhood in New York City, the prevalence of obesity among adults is 25%. The South Bronx also has high rates of opioid abuse. As drug users engage in substance abuse treatment and interact with health care providers, they are increasingly diagnosed with chronic medical conditions. However, little is known about the rates of obesity in this population, and how ongoing drug use affects change in weight. The objective of this study was to examine change in weight among current and former drug users over the first year of enrollment in a methadone program, and to identify drug use factors associated with change in weight.
METHODS: We reviewed medical records of 107 randomly selected patients enrolled in a methadone maintenance program in the South Bronx. Patients with HIV or who were pregnant were excluded. We recorded weight at admission to the program and one year after admission and calculated change in weight and BMI. Patients were considered as having significant ongoing drug use if more than half their urine toxicology tests were positive for cocaine, opiates or benzodiazepines. Using the Mann-Whitney U test, we examined if ongoing use of each drug was associated with weight change in the first year after admission. We constructed a multivariate linear regression model, adjusting for age and methadone dose, to assess the independent association between drug use and weight change.
RESULTS: The sample was 66% male, 76% Hispanic and 15% Black with a mean age of 40 years. Overall, admission weight was lower than follow-up weight (174 vs. 184 pounds; p<0.0001) and the proportion of patients with obesity increased from 30% at admission to 42% at follow-up. Rates of significant ongoing drug use were 19% for cocaine, 17% for opiates, and 4% for benzodiazepines (median number of urine toxicology tests=39). Compared to patients without ongoing cocaine use, patients with ongoing cocaine use gained less weight over the first year (1.5 vs. 12.4 pounds; p=0.02). This association persisted after adjusting for age and methadone dose. Weight change was not associated with significant ongoing opiate or benzodiazepine use.
CONCLUSIONS: In a sample of methadone maintained current and former drug users, the prevalence of obesity was significantly higher than that of the surrounding community. Further, the prevalence of obesity increased during the first year of enrollment in substance abuse treatment. Weight gain following enrollment may be attributable to decreased time spent acquiring and using drugs, increased financial resources, or rebound hyperphagia following a decrease in drug use. Given the morbidity and mortality associated with obesity, providers should aggressively counsel drug users entering treatment about overweight and obesity.

INFLUENCE OF DECISION AIDS ON PREFERENCE-SENSITIVE PATIENT CHOICES E.J. Hubbard[1]; C.A. Levin[1]; W.B. Brooks[2]; S.A. Kearing[3]; C.F. Clay[2]. [1]Foundation for Informed Medical Decision Making, Boston, MA; [2]Dartmouth-Hitchcock Medical Center, Lebanon, NH; [3]Dartmouth Medical School, Hanover, NH. *(Tracking ID # 190535)*

BACKGROUND: Decision aids (DAs) are useful tools for informing patients about evidence and personal considerations involved in medical decisions. DAs are routinely distributed by the Center for Shared Decision Making at Dartmouth Hitchcock Medical Center (DHMC). The purpose of this study was to describe characteristics of patients who view video DAs at DHMC, as well as changes in their stated treatment preferences pre- and post-DA viewing.
METHODS: Patients referred for decision support complete a brief structured questionnaire immediately before and after watching a video DA. DAs were categorized into three preference-sensitive decision types: Treatment (both surgical and non-surgical); Chronic Condition Management (e.g., chronic low back pain, depression); and Screening (colorectal cancer, PSA testing). Chi-square analyses, independent- and paired-samples t-tests, and one-way ANOVAs were used to compare patient characteristics and differences in treatment preference by decision type.
RESULTS: 2619 patients rated one or more of 25 DAs (n=2825 DAs rated) from 2005–2007. Patients had a mean age of 58.7 years and 55.6% of the sample was male. The highest level of education completed ranged from less than high school (6.3%) to having at least a college degree (34.6%). Patients in each DA group differed significantly by age (Screening patients were older than Treatment patients, and both groups were older than Chronic patients, p<0.001); by sex (there were proportionately more men in the Screening group than in the others because the majority watched the male-specific PSA testing DA, p<0.001), and by education (Treatment patients were more highly educated than Chronic patients, p<0.001). Patients were asked to state what, if any, decision they were leaning toward both before and after viewing a DA. 20% of patients changed their stated preference after viewing. This proportion did not differ significantly across decision type. Almost two-thirds of patients who changed preferences had stated their preference as "unsure" before viewing the DA. Of the 693 patients (25.9% of the overall sample) who were initially unsure of their preference, 328 (47.3%) remained unsure, whereas 365 (52.7%) stated a preference after watching the DA. Of the patients who had stated a pre-DA preference, 5.5% said they were unsure after watching the DA, and another 4.5% changed to a different preference after watching. Overall, fewer patients reported being unsure of their treatment preference after DA viewing (Treatment: 24.4% were unsure before v. 16.8% after; Chronic: 31.8% before v. 17.5% after; Screening: 25.7% before v. 14.5% after, p< 0.001 for all). Although there was a difference in the percent of unsure patients in the different DA groups before viewing (p=0.009), this percent did not differ across decision types after viewing (p=0.347).

CONCLUSIONS: DAs help unsure patients become more certain about their preferences. In addition, a substantial proportion of patients changed their minds about their treatment/screening preference after watching a DA. The information provided in DAs may also validate a prior choice, which can be reassuring for patients facing difficult or ambiguous medical decisions.

INFLUENCE OF INCOME ON HEALTH STATUS AND HEALTHCARE UTILIZATION IN JAPANESE WORKING ADULTS: AN ILLUSTRATION OF HEALTH AMONG THE WORKING POOR IN JAPAN Y. Tokuda[1]; S. Ohde[1]; O. Takahashi[1]; F. Omata[1]; T. Fukui[1]. [1]St Luke's Life Science Institute, Chuo city,. *(Tracking ID # 189552)*

BACKGROUND: There is increasing public attention to and awareness of working adults living in poverty, or the working poor, in Japan. However, little is known about health of the growing subpopulation of the working poor in Japan. We aimed to evaluate health status and healthcare utilization in relation to income among Japanese working adults. Understanding the association between socioeconomic status and health is important for planning rational and integrated economic and public health policies.
METHODS: We conducted a 1-month prospective cohort study using a health diary in a random sample of working adults (age range, 20–65 years). Based on the government criterion, the working poor group was defined as earning an equivalent annual income of less than 1.48 million Japanese-yen (the Government-defined poverty threshold: 119 Japanese-yen = 1 USD at the time of the study). For health status, we measured symptomatic episodes during 1-month period and health-related quality of life (HRQOL) using SF-8 (the short form 8 instrument with standardized mean of 50: a higher score of each physical or mental component indicates better HRQOL). We constructed multiple linear regression model for these measures adjusted for age, gender, and co-morbidity, using annual equivalent income (annual household income divided by the square root of the number of family members for accounting for the marginal decrease in living cost for additional persons living in a household) as a 4-level categorical variable (annual equivalent income of less than 1.48 million, 1.48 to 4.00 million, 4.01 to 6.00, >6.00 million Japanese-yen, respectively). For healthcare utilization, we measured frequencies of visits to a physician or pharmacy, and use of complementary and alternative medicine (CAM).
RESULTS: We enrolled 1406 Japanese working adults (mean age, 40.8 yr: 58.4% men). Age-stratified population distributions of the study participants were similar to those of labour statistics data. In all participants, there were 106 (7.5%) working poor: 56 men (6.8% of working men) and 50 women (8.5% of working women). Among working poor men, 51 (91.1%) were full-time workers and 5 (8.9%) were part-time workers. Among working poor women, 14 (28.0%) were full-time workers and 36 (72.0%) were part-time workers. The working poor adults reported the greater number of symptomatic episodes (mean ± SD, 9.79±8.77) compared to the highest income group (7.01±7.34), with the significant difference (adjusted $p<0.01$). The working poor adults showed a slightly lower score of physical component of HRQOL (mean ± SD, 48.71±7.05) compared to the highest income group (50.34± 6.55), with the significant difference (adjusted $p<0.01$). There was no difference of visits to a physician or pharmacy and no difference of uses of CAM by the different levels of income.
CONCLUSIONS: In Japan, the working poor (7.5% of all working adults) more frequently report symptomatic episodes and show slightly poorer physical health status, compared to the highest income group. Healthcare utilization is not affected by income. Since social and economic policies affecting income disparity may potentially influence health status of the Japanese working poor, there is a need to integrate strategies to rectify health disparities among the working adults.

INFLUENCE OF RESIDENT AND FACILITY FACTORS ON THE HOSPITALIZATION OF NURSING HOME RESIDENTS: FINDINGS FROM AN EXPERT PANEL R.L. Murkofsky[1]; E.R. Marcantonio[2]; A.J. O'Malley[3]; D.J. Caudry[3]; J.L. Buchanan[3]. [1]John A. Burns School of Medicine, University of Hawaii, Honolulu, HI; [2]BIDMC, Harvard Medical School, Boston, MA; [3]Department of Health Care Policy, Harvard Medical School, Boston, MA. *(Tracking ID # 190688)*

BACKGROUND: Nursing home residents are frequently hospitalized, but many of these hospitalizations are discretionary. There is substantial variation in hospitalization rates across nursing homes. Resident and facility factors may contribute to this variation. We evaluated the influence of resident and facility factors on the hospitalization of nursing home residents.
METHODS: Using a modified-Delphi method, we asked 12 experts to rate the necessity of hospitalizing nursing home residents with common conditions. We evaluated the influence of resident age, gender, cognitive function, physical function, advance directives, and nursing home capability on experts' ratings. We then developed a multivariable regression model to identify which factors are most influential in decisions to hospitalize nursing home residents. In separate analyses, we evaluated 14 specific nursing home resources that might be important in hospitalization decisions.
RESULTS: In a multivariable model, factors independently associated with decisions to hospitalize nursing home residents are younger age, male gender, less cognitive impairment, less physical impairment, fewer advance directives, and lower nursing home capability. Those with the largest magnitude of influence on hospitalization decisions are advance directives and nursing home capability. Compared to no advance directive, do not resuscitate (DNR) decreases the risk of hospitalization by 43% (RR 0.57 [95% CI 0.51–0.63]), DNR with treatment restrictions decreases the risk of hospitalization by 80% (RR 0.20 [0.17-.024]), and DNR/do not hospitalize (DNH) virtually eliminates the risk of hospitalization (RR 0.0029 [0.0022–0.0037]). Compared to nursing homes of average capability, being in an above average nursing home reduces the risk of hospitalization by 37% (RR 0.63 [0.57–0.69]), and being in a below average home substantially increases the risk of hospitalization by over 400% (RR 4.59 [4.13–5.11]). Specific nursing home resources that are important to these hospitalization decisions are intravenous access/intravenous fluids, intravenous antibiotics, oxygen saturation monitoring, oxygen therapy, respiratory therapy, and adequate nursing staff.
CONCLUSIONS: Advance directives and nursing home capability are very influential factors in decisions to hospitalize nursing home residents, and are more important than resident age, gender, cognitive function, and physical function. Improving the capability of nursing homes, particularly in terms of specific resources, may help prevent some discretionary hospitalizations and reduce variation in hospitalization rates across nursing homes.

INITIALLY MISSED OR DELAYED DIAGNOSIS OF ACUTE MYOCARDIAL INFARCTION IN VETERANS. T.E. Abrams[1]; M.V. Sarrazin[2]; D.A. Katz[3]. [1]University of Iowa/Iowa City VAMC, Iowa City, IA; [2]VAMC Iowa City, Iowa City, IA; [3]University of Iowa, Iowa City, IA. *(Tracking ID # 190803)*

BACKGROUND: The occurrence of missed or delayed AMI diagnosis within the Veterans Administration (VA) healthcare system is unknown. Failure to promptly diagnose acute myocardial infarction (AMI) delays initiation of appropriate therapy and may lead to worse outcomes. Thus, the aims of this study were to: 1) to estimate the proportion of hospitalized Veteran patients for whom the diagnosis of AMI is initially missed or delayed; 2) to identify patient characteristics associated with missed or delayed AMI diagnosis; and 3) to determine whether missed or delayed diagnosis of AMI is associated with an increase in mortality.
METHODS: We used the VA Patient Treatment file to identify 25,005 subjects admitted to all 141 VA hospitals with a diagnosis of AMI (ICD-9-CM 410.XX) in 2004–06. Subjects with a missed/delayed AMI were defined as follows: 1) outpatient clinic encounter with a primary care, medical subspecialty, or surgical subspecialty clinic at a VA facility within one week prior to admission (excluding those encounters within 24 hours of admission); and 2) the presence of an ICD-9-CM code of chest pain, dyspnea, or other symptoms suggestive of acute coronary syndrome (ACS) based on the Imminent Myocardial Infarction Rotterdam criteria. We assessed 30- day mortality using the VA Beneficiary Identification Records Locator Subsystem and Vital Statistics Files databases. We used logistic regression (with Generalized Estimating Equations) to compare mortality in those with and without missed or delayed AMI and adjusted mortality for demographics, medical comorbidity (based on inpatient secondary diagnosis codes), and admission laboratory values (e.g. modified APACHE score, troponin levels).
RESULTS: The proportion of patients with missed/delayed AMI was 2.7%, while 1.0% presented with typical ACS symptoms (e.g. chest pain, arm pain) and 1.7% with atypical ACS symptoms (e.g. dyspnea, nausea, palpitations). Additionally, 19.3% (n=4,814) had a clinic

encounter within one week prior to the AMI admission. Those with a missed or delayed diagnosis of AMI were younger (66.6 vs. 67.8 [p=.01]) and had lower acuity of illness (modified APACHE scores 11.1 vs. 12.0 [p=.01]). There was no overall difference in 30-day unadjusted mortality in those with and without missed or delayed AMI (9.5% vs. 10.9 [p=.26]). GEE analysis revealed no differences in 30-day mortality for those with and without missed/delayed diagnosis OR (95% C.I.) 1.09 (0.85 – 1.40).
CONCLUSIONS: The proportion of VA patients with an initially missed or delayed diagnosis of AMI is comparable to that reported in non-VA healthcare settings (prior prospective cohort trials report rates of 1–8%). The majority of these patients presented with atypical ACS symptoms. Although our study did not demonstrate higher mortality related to a missed or delayed diagnosis further research is necessary to validate our case definition of missed or delayed AMI diagnosis and to identify systemic and contextual factors that delay the prompt recognition of AMI in the VA outpatient setting.

INPATIENT CARE OF THE GERIATRIC PATIENT. STILL A LONG ROAD TO TRAVEL. B. Korc-Grodzicki[1]; C. Thompson[1]; J. Blath[1]; R.M. Leipzig[1]. [1]Mount Sinai School of Medicine, New York, NY. *(Tracking ID # 190830)*

BACKGROUND: The skills that physicians-in-training need to care for older hospitalized patients at academic medical centers have changed dramatically over the last several years. DRG-related earlier patient discharges and the new ACGME mandates restricting resident hours, have resulted in an increased reliance on 'hand-offs' in care. Geriatric patients are often considered 'medically ready' for discharge prior to attaining their pre-illness level of function. Residents get only a 'snapshot' of patients and their illness and, frequently, these very complex patients, are admitted, treated and discharged without any participation of their outpatient physician and minimal communication with the patient's family. It is not clear whether residents have the skills or the time to appropriately transition patients upon discharge from hospital, and whether these circumstances of practice affect the feelings with which they approach the care of these patients. The aim of this survey was to evaluate internal medicine (IM) house-staffs' self perception of the care they provide to hospitalized older adults.
METHODS: Cross-sectional survey of IM residents in a tertiary care medical center. An eight question survey using a Likert scale was completed at the beginning of a new four-week inpatient rotation. Data were analyzed via SPSS 15.0 for Windows.
RESULTS: Care: 66% found the care of hospitalized older patients frustrating. 43% agreed or strongly agreed that most hospitalizations for older, frail patients result in more good than harm. 16% agreed or strongly agreed that most geriatric patients are back to their baseline by discharge from the hospital. Transitions: 73% agreed or strongly agreed that they make sure that the patient's outpatient doctor is contacted to discuss the patient's past medical history. 52% of residents agreed or strongly agreed with the concept that family meetings are needed mainly when advance directives need to be implemented. 43% agreed or strongly agreed that when discharged, most patients and/or their families are clear on what medications they should be taking. 45% agreed or strongly agreed that they have a clear understanding about what medical and nursing care can be given in a sub-acute rehabilitation facility. 68% agreed or strongly agreed that they feel confident determining a patient's capacity for making a medical decision.
CONCLUSIONS: The majority of residents surveyed were frustrated with the inpatient care of older adults and were unsure that hospitalization produced more benefit than harm. They recognized that patients were unlikely to be well at discharge, yet the majority felt that it was unlikely that the patients and families understood their discharge medication regimens. They did not know what care patients could receive in sub-acute rehabilitation, and did not realize that discussing issues other than advance directives, i.e., severity of disease, treatment options or discharge planning with the families early in the admission might be beneficial. If older adults are to receive good care, and new doctors are going to want to care for these patients, new models of providing care on teaching services are needed to facilitate the residents' job of navigating the challenges of taking care of an increasing number of older adults with multiple co-morbidities, poly-pharmacy and cognitive problems, with less frustration, yielding a more rewarding experience.

INPATIENT DIABETES MANAGEMENT: AN ASSESSMENT OF THE KNOWLEDGE, PERCEPTIONS AND ATTITUDES OF INTERNAL MEDICINE HOUSESTAFF J. Silverston[1]; C.R. Horowitz[1]. [1]Mount Sinai School of Medicine, New York, NY. *(Tracking ID # 190136)*

BACKGROUND: Hyperglycemia in hospitalized patients leads to adverse outcomes. Its management is inconsistent between institutions, and there are no uniform guidelines for glucose targets outside of intensive care units. Internal medicine housestaff are at the front lines in treating inpatient hyperglycemia, yet little is known about their preparedness to take on this task. We set out to assess the knowledge, attitudes and perceptions of the housestaff in the proper management of inpatient hyperglycemia, in order to assess and ultimately improve the quality of care they deliver.
METHODS: As part of an inpatient diabetes quality improvement initiative at an academic medical center, we developed a 22 item survey for internal medicine housestaff. The tool assessed their knowledge of hypoglycemic agents' actions and contraindications, their self-reported practice patterns and their attitudes toward the coordination and effectiveness of care for inpatient diabetes.
RESULTS: Overall, 60% (86 of 144) internal medicine residents completed this anonymous survey. Nearly all (89%) order fingerstick glucose checks 4 times per day, most (88%) check these results at least daily, and most (75%) aim to keep fingersticks in the range of 80–150mg/dl. However, only 23% believe that they are achieving this goal a majority of the time. Many lacked confidence in knowledge of timing of insulin administration (37%), when to stop oral hypoglycemics (69%) and how to educate patients on insulin use (65%). In terms of therapy, many housestaff did not correctly identify time of peak action for short-acting (28%), intermediate (46%) and long-acting (72%) insulins. Over 80% knew to hold oral sulfonylureas when a patient is NPO and Metformin for a creatinine >1.5mg/dl, but under 50% would not hold Metformin or a Thiazolidinedione with hepatic dysfunction or a Thiazolidinedione with decompensated heart failure. While only 28% of responders believe that sliding scale insulin is beneficial and 36% believe that there is a clear protocol for using a sliding scale, 87% of responders order a sliding scale for all diabetic patients and 39% use it as the sole therapy. Few (19%) agree that inpatient medications are designed with discharge medications in mind or that patients understand their medication regimen at discharge (19%). In an open-ended question, the main barriers cited for managing inpatient hyperglycemia are a lack of physician knowledge and the logistics of checking/finding/responding to fingersticks.
CONCLUSIONS: Most housestaff at an academic medical center are mindful of the importance of managing inpatient diabetes and hyperglycemia. However, most think that they are not achieving the target glucose levels, nor was the discharge regimen and patient understanding of it, a focus of the inpatient course. Barriers to appropriate management include a lack of knowledge regarding the different insulins and appropriate occasions to hold oral hypoglycemics, and that no standard protocol for managing inpatient diabetes exists. Many housestaff use sliding scale insulin, even though most respond that it is not beneficial. If further studies validate these results at other institutions, efforts should be made to develop and implement protocols to better manage inpatients with diabetes.

INPATIENTS WITH UNHEALTHY ALCOHOL USE: DRINKING AND ALCOHOL CONSEQUENCES AT 12 MONTHS N. Bertholet[1]; D. Cheng[1]; T. Palfai[1]; R. Saitz[1]. [1]Boston University, Boston, MA. *(Tracking ID # 189923)*

BACKGROUND: In medical hospital settings, most patients drinking at-risk amounts meet criteria for alcohol dependence. But the natural history of unhealthy alcohol use (the spectrum from at-risk amounts to dependence) and predictors of favorable outcome have not been well-characterized.
METHODS: We studied a prospective cohort of medical inpatients in an urban academic hospital who were drinking at-risk amounts. Subjects were participants in a randomized trial of brief intervention (that was not efficacious). At baseline and 12 months later, consumption was assessed using a validated 30-day calendar method, and alcohol related consequences were assessed using the Short Inventory of Problems (SIP). Physical health-related quality-of-life (QOL) was assessed with the Short-Form Health Survey (PCS score), depressive symptoms with the

Center for Epidemiologic Studies Depression scale (CESD) and commitment to change drinking with the Taking Action scale derived from the SOCRATES questionnaire (range 6–30). For each subject, drinking was categorized as either favorable (defined as abstinence or drinking "moderate" amounts [i.e. less than at-risk amounts] without consequences) or unfavorable (defined as drinking moderate amounts with consequences or drinking at-risk amounts [>14 drinks/wk or >=5 drinks/occasion for men, >7 drinks/wk or >=4 drinks/occasion for women and persons aged 66 and over]). A logistic regression model adjusting for age, gender, race/ethnicity, randomization group, physical health related QOL and drinks per day at study entry was used to evaluate predictors of a favorable outcome.
RESULTS: Of the 341 subjects in the cohort, 287 (84%) had complete data at 12 months, with mean age 44. Most of the participants were male (70%) and had alcohol dependence (78%), 46% were African-American, 38% White and 8% Hispanic, 26% reported heroin or cocaine use. They drank a mean (SD) 6.8 (8.9) drinks per day over the last 30 days. At 12 months, 33% had a favorable outcome (i.e. they were abstinent or drinking moderate amounts without consequences). In the adjusted logistic regression model, not spending time with heavy drinking friends (a measure of social pressure to drink)(Adjusted Odds Ratio [AOR] 2.28, 95% Confidence Interval [CI] 1.23–4.25), receipt of alcohol assistance (i.e. inpatient or outpatient specialty treatment, counseling, AA or other self-help groups, pharmacotherapy to prevent from drinking) during the past year (AOR 2.11, 95% CI 1.18–3.76), and commitment to change at study entry (AOR 1.11 per one point increase in Taking Action score, 95% CI 1.05–1.17) were associated with a favorable outcome. Education, homelessness, past physical or sexual abuse, heroin or cocaine use, marijuana use, depression, and presence of alcohol dependence at baseline were not significantly associated with outcome (all p>0.1).
CONCLUSIONS: Although most medical inpatients with unhealthy alcohol use continue to drink at-risk amounts and/or have consequences, one third are either abstinent or drink "moderate" amounts without consequences 1 year later. Less social pressure to drink, receipt of alcohol assistance, and commitment to change drinking are positively associated with this favorable outcome. These findings can inform efforts to address drinking, particularly among patients not seeking specialty treatment.

INSULIN 70/30 (BIPHASIC) VERSUS BASAL-BOLUS THERAPY AT THE FARGO VETERAN'S MEDICAL CENTER S.K. Subbarayn[1]; W.P. Newman[1]. [1]Fargo VA Medical Center, Fargo, ND. *(Tracking ID # 189540)*

BACKGROUND: Reaching currently suggested hemoglobin A1c (A1c) targets for diabetes mellitus (DM), requires mimicry of physiologic insulin release. One approach is to use fixed mixtures of rapid acting and intermediate acting insulin – biphasic regimen (BI). The BI approach is simple, convenient, and much cheaper than the alternative – basal-bolus (BB). BB therapy consists of injection of long acting insulin supplemented by flexible dose pre-meal rapid acting insulin, generally based on a meal carbohydrate content algorithm. The BB approach is complex and expensive but offers the greatest flexibility. We chose to examine the advantages, if any, of BB versus BI insulin regimens in patients at the Fargo Veteran's Medical Center (FVMC) over the last 10 years.
METHODS: Search of the FVMC pharmacy records revealed 603 unique patients on BI and 181 patients on BB regimens over the last 10 years. We then searched these lists for patients who had at least: 1 A1c the year prior, 1 A1c the year following, and 1 A1c the 2nd year following initiation of the regimen. This resulted in 343 BI subjects and 161 BB subjects. These groups formed the A1c repeated measures cohort. The lists were then randomized and 55 subjects selected from each for the detailed demographic characterization and analysis.
RESULTS: A. Repeated Measures: Although both regimens effectively reduced A1c (8.8% to 8.0% collectively; P < 0.01), there was no significant difference between regimens (P = 0.56) B. Selected subjects: All data reports are in the order of BI versus BB. BI versus BB groups showed differences in age (68.6 vs 62.4 yrs; P=0.02) and most importantly, DM duration (16.7 vs 24.6 yrs; P<0.01). The frequency of complications and BMIs were similar. Insulin dosing was initially more aggressive for BB (1.9 vs 2.5 units/BMI; P<0.01) but converged over the initial year (2.1 vs 2.4 units/BMI; P=0.24). A1c was equal for both groups over the first year (roughly 8.0%; P=0.77), but the change from baseline was greater in the BI group (−1.6% vs −0.2%; P<0.01). Hypoglycemia was substantially higher in the BB group initially (1.3 vs 5.6 events/month; P<0.01) but converged over the initial year (3.1 vs 5.6 events/month; P<0.01). Weight gain tended to be higher in the BI group over the initial year (2.6 vs 0.2 Kg/year; P = 0.08)
CONCLUSIONS: Based upon the observation that the ultimate A1c doesn't vary whichever regimen is used, the more complex, expensive BB regimen should not be selected solely to achieve A1C targets. The results of our study do not permit conclusions regarding hypoglycemia between the 2 regimens, as the markedly more prolonged duration of DM in the BB subjects confounds the issue. Although weight gain is initially higher for the BI subjects, previous studies have suggested that weight gain is proportional to the magnitude of A1c lowering, also observed in this study. These data support the VA guidelines, that use of BB should be reserved for complex DM management circumstances, rather than the expectation of greater glucose lowering.

INSULIN-SENSITIVE OBESITY IN THE UNITED STATES: FINDINGS FROM THE NATIONAL HEALTH AND NUTRITION EXAMINATION SURVEY, 1999–2004 P. Manu[1]; B. Napolitano[1]; J. Tsang[2]; M.L. Lesser[3]; C. Correll[1]. [1]Zucker Hillside Hospital, Glen Oaks, NY; [2]Feinstein Institute for Medical Research, Manhasset, NY; [3]New York University, New York, NY. *(Tracking ID # 189219)*

BACKGROUND: A vast body of evidence indicates that obesity promotes insulin resistance and atherogenic dyslipidemia and is associated with increased incidence of atherosclerotic cardiovascular diseases and type 2 diabetes. In contrast, the insulin-sensitive obese (ISO) phenotype has never been studied in a nationally represenatative sample.
METHODS: We used the upper tertile of the homeostasis model assessment (>3.60 for men and >3.13 for women) to identify insulin resistance among 6485 adults without diabetes who had fasting laboratory measurements as part of the National Health and Nutrition Examination Survey (NHANES) between 1999 and 2004. Metabolic, inflammatory, lifestyle and family history features of ISO and insulin-resistant obesity (IRO) were compared separately for men and women in univariate analyses and logistic regression in the 1513 subjects with a body mass index (BMI) equal or greater than 30.
RESULTS: Three hundred of the 693 men (weighted prevalence 44.6%) and 370 of the 820 (weighted prevalence 48.8%) women had ISO. Compared with the IRO subjects, both men and women with ISO had lower BMI (p<0.0001), shorter waist circumference (p<0.001), lower triglyceride levels <0.0001), greater high-density lipoprotein (HDL) cholesterol (p<0.0001), fewer cases of metabolic syndrome (p<0.0001), lower C-reactive protein titers (p<0.02) and lower intake of saturated fats (p<0.02). Total cholesterol and low-density lipoprotein cholesterol levels were similar in ISO and IRO. Gender specific differences were intensity of physical activity (greater in ISO men, p<0.02) and non-HDL-cholesterol (lower in ISO women, p<0.009). Logistic regression identified waist circumference (or BMI) and HDL (and triglycerides in women) as factors independently associated with the obesity phenotypes.
CONCLUSIONS: Among the obese, the ISO phenotype is common and has a healthier lipid and inflammatory profile than the IRO phenotype. The association of greater HDL (in men) and greater HDL and lower triglycerides (in women) with the ISO phenotype is independent of the severity of global or abdominal adiposity and may have important therapeutic implications.

INTEGRATING BUPRENORPHINE TREATMENT OF OPIOID DEPENDENCE INTO OFFICE-BASED PRACTICE: A QUALITATIVE STUDY OF FACILITATORS AND BARRIERS D.T. Barry[1]; E.S. Jones[1]; J.M. Tetrault[2]; W.C. Becker[1]; K. Irwin[1]; L.E. Sullivan[1]; P. O'Connor[1]; R. S. Schottenfeld[1]; D.A. Fiellin[1]. [1]Yale University, New Haven, CT; [2]Yale University, West Haven, CT. *(Tracking ID # 190173)*

BACKGROUND: The FDA approval of buprenorphine in 2002 afforded medical providers a unique opportunity to offer treatment for opioid dependence in primary care and office-based settings. Despite this availability and the demonstrated effectiveness of office-based buprenorphine maintenance treatment (BMT), the systematic examination of physicians' attitudes towards BMT has been largely neglected. The goal of this study was to identify facilitators and barriers to the implementation of BMT by office-based medical providers.

METHODS: Twenty-three practicing physicians in New England completed semi-structured qualitative individual or group interviews with a trained interviewer covering the potential and/or actual practice of providing BMT. Interviews were recorded and transcribed. The transcripts were thematically coded using the constant comparative method by a multidisciplinary team consisting of physicians, a sociologist, an anthropologist, and a psychologist.
RESULTS: Eighty percent of the physicians were white; 55% were women. The mean number of years since graduating medical school was 14 (SD=10). The primary areas of clinical specialization were internal medicine (50%), infectious disease (20%), and addiction medicine (15%). Physicians identified physician, patient, and logistical factors that would either facilitate or serve as a barrier to their integration of BMT into clinical practice. Physician facilitators included self-confidence and a receptive attitude to receiving training in the treatment of opioid dependence. Physician barriers included a perceived lack of similarity between BMT and their other clinical activities. Physicians' perceptions of patient-related barriers included patients' potential negative attitudes toward treatment, patients' low levels of motivation to cease illicit drug use, patients' manipulative behavior, and non-medical use, misuse or diversion of buprenorphine by patients. Perceived logistical barriers included lack of remuneration for BMT, limited ancillary support for physicians, not enough time, and a low prevalence of opioid dependence in physicians' practices.
CONCLUSIONS: Addressing physicians' perceptions of facilitators and barriers to BMT is crucial to supporting the further expansion of BMT into primary care and office-based practices.

INTEGRATING CHRONIC CONDITION DECISION AIDS IN PRIMARY CARE: IMPLEMENTATION AND IMPACT. W. Brooks[1]; C.D. Brackett[1]; N. Cochran[2]; M. Coutermarsh[1]; S. Kearing[3]; C. Clay[1]. [1]Dartmouth Hitchcock Medical Center, Lebanon, NH; [2]Dartmouth College, Hanover, NH; [3]Dartmouth Medical School, Hanover, NH. *(Tracking ID # 190763)*

BACKGROUND: Engaging patients in high quality decision making focused on testing and treatment choices for chronic conditions during office visits is challenging, especially in primary care. Although decision aids have been shown to be effective tools in improving patient decision making, there has not been widespread and routine use in clinical settings and their impact on decision quality has not been established. The goals of this study were two-fold: 1) assess feasibility of integrating chronic condition decision aids (DAs) into the routine process of primary care practice, and 2) assess impact of DAs on patient decision making.
METHODS: Seventeen chronic condition video DAs were made available for 68 clinicians to prescribe to eligible patients at two academic general internal medicine practices. Patients viewing the DAs were asked to: 1) complete a questionnaire before viewing the DA; 2) watch the decision aid; and 3) complete a follow-up questionnaire. We assessed the following: treatment intention, values influencing the decision, knowledge and DA acceptability.
RESULTS: During the first 11 months of our 18 month study, clinicians prescribed 272 DAs for patients. Ninety seven patients completed and returned questionnaires. Over 60% of clinicians prescribed at least one DA. The DAs prescribed covered the following conditions (N loans): Chronic Low Back Pain (38), Knee Osteoarthritis(29), Advanced Directives (29), BPH (23), Depression (22), Heart Failure (15), Coronary Artery Disease (9), Spinal Stenosis (11), Herniated Disc (8), Weight Loss Surgery (5), Hip Osteoarthritis (11), Acute Low Back Pain (2), Menopause(2), Chronic Pain Management (1). After watching a DA: • A substantial number of patients changed their treatment intention (30%); • Fewer patients were unsure about choosing a treatment option (43% unsure before viewing the DA vs. only 24% unsure after viewing the DA); • Patients knew the benefits and risks associated with the decision (89%), and were clear about their personal values (95%); • Most patients (57%) planned to talk with their health care provider about their decision; • Patients felt the amount of information presented was appropriate (90%), unbiased (82%), and useful in their decision making (Average ratings: Very good – Excellent).
CONCLUSIONS: Use of chronic condition DAs by clinicians and patients in primary care practice is feasible. After watching chronic condition DAs, patients felt informed, clear about their values, prepared to make their treatment decision and rated the DAs highly. Early indications suggest chronic condition DAs are effective and acceptable tools to facilitate decision making in primary care however not all clinicians have begun to use the DAs. Additional methods to promote systematic use in primary care need to be further explored.

INTEGRATING SHARED DECISION MAKING INTO PRIMARY CARE: ASSESSING THE IMPACT OF A COLON CANCER SCREENING DECISION AID C.D. Brackett[1]; N. Cochran[2]; M. Coutermarsh[1]; C. Clay[1]; S. Kearing[3]; B. Brooks[1]. [1]Dartmouth Hitchcock Medical Center, Lebanon, NH; [2]WRJ VAH, White River Junction, VT; [3]Dartmouth Medical School, Hanover, NH. *(Tracking ID # 190511)*

BACKGROUND: Colon cancer screening for patients over 50 is strongly recommended by professional organizations, but adherence is low. Engaging patients in the decision to get screened during office visits is challenging. The goals of this study were: 1) assess feasibility of integrating a colon cancer screening decision aid (DA) into the routine process of primary care practice, and 2) assess impact of the DA on patient decision making.
METHODS: Over an 18 month period, we systematically offered a colon cancer screening video DA to age eligible patients through a letter sent before physical exam visits in a general internal medicine clinic. Physicians could also prescribe the DA at the time of the visit. Patients were asked to: 1) complete pre-video questions, 2) watch the DA "Colon Cancer Screening: Deciding What's Right for You" and 3) complete a post-video questionnaire. Measurements included pre/post screening intention, values influencing the decision (Likert: 1–10 importance), multiple choice knowledge questions, preference for decision making role, and DA acceptability. Analysis focused on within sample distributions of treatment choice, knowledge and values scores.
RESULTS: 119 patients received the DA (a minority of those eligible, 70 pt requested, 49 MD requested) and 52 completed the questionnaire. After watching the decision aid, 29% of patients changed their intention for screening. Patients were less likely to be unsure about their decision and more likely to opt for screening after viewing the DA ($p<.05$). Knowledge scores after the DA were high (80%), indicating patients understood key facts associated with their decision. Patients' value of "desire to find cancer early" was strongly associated with patients leaning toward screening (OR=1.6, 95% CI 1.1–2.2). Patients had a clear preference for taking the lead role in decision making (52%) or sharing the decision with their clinician (45%). Patients found the DA helpful in making their decision (91%) and would recommend it to others (97%).
CONCLUSIONS: Using a system where patients requested or physicians prescribed the video, we were able to distribute the colon cancer screening decision aid to a subset of eligible patients. Patients prefer an active role in decision making regarding screening, and the DA helped them make this decision. After watching the DA, patients demonstrated an understanding of the key facts and concordance between their values and their choice, indicative of quality decision making. Patients found the DA acceptable and would recommend it to others facing the same decision. Future studies will explore ways to automate the distribution to eligible patients so more people can benefit from this intervention.

Patient screening intention, before vs. after DA

Intention	Before DA	After DA
Unsure	16 (34%)	5 (11%)
Screening in next 6 mo	22 (47%)	29 (62%)
No screening in next 6 mo	9 (19%)	13 (28%)
Change Intention		15 (29%)

INTERNAL MEDICINE RESIDENT SATISFACTION WITH CONTINUITY CLINIC AND PREPARATION FOR MANAGEMENT OF AMBULATORY CONDITIONS H. Baumert[1]; J.L. Oyler[1]; K. Alvarez[1]; J. Woodruff[1]; V. Arora[1]. [1]University of Chicago, Chicago, IL. *(Tracking ID # 190587)*

BACKGROUND: Studies suggest that internal medicine residents' satisfaction with their continuity clinic and preparation to treat common ambulatory conditions is suboptimal. However, it is not known how satisfaction with clinic and preparation to treat common ambulatory conditions changes during internal medicine residency training. Our aims were to assess the relationship between year in training and

Internal Medicine residents' preparation for treating common ambulatory conditions and satisfaction with their continuity clinic.
METHODS: We performed a cross-sectional survey of all internal medicine residents at a single academic medical center. The survey was a 45-item questionnaire that asked residents to rate their satisfaction with elements of continuity clinic (preceptor, clinic flow, help with social support, etc.) using a 5 point Likert scale ranging from 1 (Very Dissatisfied) to 5 (Very Satisfied). In addition, residents were asked to rate their preparation for treating common ambulatory conditions (hyperlipidemia, low back pain, vaginitis, etc.) on a 5 point Likert scale ranging from 1 (Very Unprepared) to 5 (Very Prepared) using items from a previously published survey. The survey was administered electronically using Perseus (Vovici Corp, Dulles, VA) with 3 reminders. Descriptive statistics were used to summarize the data. To assess the effect of training year (PGY 1, 2, 3) on satisfaction and preparation, ANOVA tests were used with statistical significance defined as $p<0.05$.
RESULTS: A total of 74% (79/107) internal medicine categorical residents completed the survey in June 2007. Preparation for treating common ambulatory conditions was generally high for most items with a mean preparation of 4.2 across all items (3.57 for musculoskeletal complaints to 4.8 for hypertension). Mean overall satisfaction was 3.58 (95% CI 3.39–3.76) with satisfaction for items ranging from a low of 1.81 (95% CI 1.59–2.03) for social support to 4.47 (95% CI 4.33–4.62) for preceptor supervision. ANOVA statistics confirmed an association between year in training and preparation for treating common conditions and satisfaction with clinic. Preparation for treating common ambulatory conditions was higher with advanced levels of training. For example, senior residents were more prepared for treatment of COPD [4.33 (PGY-1) vs. 4.72 (PGY-3), $p<.03$)] and with all clinic related tasks, including managing phone triage [3.6 (PGY-1) vs. 4.21 (PGY-3), $p<.02$], and managing anticoagulation [2.81 (PGY-1) vs. 4.09 (PGY-3), $p<.01$]. Despite increased levels of preparedness, senior residents were less satisfied with their clinic overall than their junior resident colleagues [3.91(PGY-1) vs. 3.35 (PGY-3), ($p<.05$)] and specifically with clinic support, clinic flow, social support, and documentation ($p<;0.05$ for all). While only 17% (13/79) of residents reported planning on a career in primary care, 63% (50/79) had considered a career in primary care at some point.
CONCLUSIONS: Internal medicine residents' preparation for treating common ambulatory conditions appears to improve with years in training. However, resident satisfaction with clinic appears to worsen, such that senior residents are less satisfied than their junior colleagues. Although this is a single institution study, it is important to explore whether decreased satisfaction with continuity clinic is responsible for the declining interest in primary care fields.

INTERNAL MEDICINE RESIDENTS' KNOWLEDGE OF HEALTH POLICY AND SYSTEMS J. Kleczek[1]; L.B. Palmer[1]; E. Ramsdale[2]; V. Arora[1]. [1]University of Chicago, Chicago, IL; [2]University of Chicago Hospitals, Chicago, IL. *(Tracking ID # 190278)*

BACKGROUND: The ACGME has defined Systems Based Practice (SBP) as a core competency for residency trainees. In addition, understanding health policy is becoming increasingly important to care for patients. The aim of this study is to characterize internal medicine (IM) resident knowledge and attitudes toward health policy and SBP. Differences in knowledge and attitudes between International Medical Graduates (IMGs) and U.S. medical graduates (USMG) will also be characterized.
METHODS: An anonymous 18-item survey to assess resident knowledge, exposure to, and perceived importance of health policy was administered to a convenience sample of residents attending the 2007 Illinois Regional ACP Associates meeting on November 2, 2007. To incentivize residents to complete the survey, survey completion was a prerequisite for entering a raffle for an iPod nano. Survey items were adapted from a previously administered survey of U.S. medical students (Agarwal, 2005). Knowledge questions regarding uninsured persons in the U.S., how U.S. health care compares to other nations, and insurance were included.Residents were asked to report if they had additional degrees and the name of their residency program. Exposure, importance of, and level of being informed about health policy and SBP were measured with 4 point Likert scale ranging from none to too much for exposure questions, and not important/informed to very important/informed for those questions respectively. Sources of information for exposure (formal education, medical journals, internet, other media, colleagues) were ascertained. Residents were also asked to rate how relevant this knowledge was to the care of their patients. Likert responses were dichotomized with a 4 being exposed, important, or informed. Chi square tests were used to assess the whether exposed or informed residents were more likely to answer health policy questions correctly. Similar tests were used to assess the effect of IMG status. Statistical significance was defined as $p<.05$.
RESULTS: Of the surveys distributed, 91% (182/199) were returned. Respondents represented 19 IM residency programs in Illinois. The majority (61%) were IMGs and intended to pursue a subspecialty fellowship (68%). Few (8%) had MPH degrees. While 70% of respondents thought that formal education in health policy is necessary and 68% reported receiving formal education, only 20% of residents felt informed about health policy. 72% of respondents thought that their knowledge of SBP affected their ability to care for patients. Residents who stated that they were "informed" were less likely to answer health policy questions regarding employment status of uninsured individuals (46% informed vs 69% uninformed, $p<0.01$). Although IMGs considered themselves more informed about current events than USMGs, they were less likely to answer health policy questions regarding costs of Medicare (40% IMG vs. 59% USMG, $p=0.016$), employment status of uninsured individuals (50% IMG vs. 89% USMG, $p<0.001$), and U.S. ranking in health systems performance (14% IMG vs. 52% USMG, $p<0.001$) correctly.
CONCLUSIONS: Most residents agree that formal education in health policy is necessary and that SBP directly affects the care of their patients. Interestingly, residents who consider themelves informed were less likely to correctly answer health policy questions. Formal education in these areas is needed for IM residents, especially given the increasing number of IMGs who may not have this education in medical school.

INTERNAL MEDICINE RESIDENTS' PERCEPTIONS OF BARRIERS TO COLORECTAL CANCER SCREENING FOR AFRICAN AMERICAN PATIENTS S.H. Ward[1]; B. Meyer[1]; S.B. Ruzek[1]. [1]Temple University, Philadelphia, PA. *(Tracking ID # 189595)*

BACKGROUND: African Americans have earlier onset and higher incidence and mortality from colorectal cancer (CRC) compared to Whites yet are screened at lower rates. This study explored internal medicine residents' perceptions of barriers and facilitators to CRC screening in their African American patients. Because residency is a critical time for the acquisition of knowledge and practice patterns which often persist for years, the results of this study are useful for developing curricula to increase African Americans' CRC screening rates.
METHODS: Semi-structured interviews were conducted with second and third year residents at an academic institution using an interview guide that included open ended and fixed choice responses. Questions were designed to elicit beliefs about facilitators and barriers to screening among African American patients receiving primary care in a resident clinic. All interviews were conducted by the principal investigator or one of two attending physicians. The interviews, which lasted from 30–40 minutes, were audio-taped and transcribed. Fixed-choice responses were entered into SPSS to generate descriptive statistics. Analysis of the open-ended questions was an iterative process. The principal investigator and a research assistant inductively coded interview transcripts, revising the codes as the data became more patterned. All codes and coding decisions were independently reviewed by the two physician interviewers and a third physician. Coding conferences were held to reach agreement on coding all data and identifying themes and sub-themes.
RESULTS: Of the forty-three residents invited to participate, thirty (69.8%) completed interviews. The majority of residents, 76.6%, felt that their African American patients were unaware of the prevalence of CRC. One fifth felt that their patients were somewhat aware of CRC. Only one resident believed that African Americans were very aware, but only if they had a relative with CRC. Residents identified several patient-related barriers to completing recommended CRC screening. The most cited barrier was lack of patient information about screening options (97%). They also noted lack of patient knowledge of the risks and benefits of screening (93%), lack of patient readiness to make a decision (83%), and fear of pain or discomfort (87%). Factors less often cited as barriers to CRC screening were lack of motivation (60%), lack of support from others (43%), and logistical difficulties such as scheduling and transportation (60%). Concern about embarrassment was not widely

perceived as a significant barrier to screening (60%). Most residents (93%) appreciated the importance of counseling and recommendation from a healthcare provider as a key factor in African Americans completing colorectal cancer screening. In addition, most residents (93%) identified the use of booklets, pamphlets and videos as important for increasing screening rates.
CONCLUSIONS: Overall, resident perceptions about CRC screening correlate well with the perceptions of African American patients as identified through prior research. Residents recognized physician counseling as a critical facilitator, as was well documented in prior studies. However, residents failed to identify important barriers to screening, such as embarrassment, inconvenience and costs associated with CRC screening. These factors should be addressed in resident education.

INTERPRETING ADHERENCE DATA FROM ELECTRONIC PILL BOTTLE MONITORS. IS ALL INACTIVITY DUE TO NON-ADHERENCE? K.M. Berg[1]; E. Duggan[1]; X. Li[1]; J.H. Arnsten[1]. [1]Albert Einstein College of Medicine and Montefiore Medical Center, Bronx, NY. *(Tracking ID # 190251)*

BACKGROUND: Trials of adherence interventions rely on accurate adherence assessments yet adherence behaviors may be difficult to measure. The Medication Event Monitoring System (MEMS) consists of electronic pill bottle caps that record the time and date of each bottle opening as a presumptive dose. MEMS caps are widely considered the most accurate adherence measure. When analyzing MEMS data, absence of openings is often interpreted as non-adherence. However, inactivity may also be due to MEMS non-use. Misattributing MEMS non-use as non-adherence can falsely lower measured adherence rates. Accurate calculation of adherence rates requires understanding behaviors that cause cap inactivity but do not reflect non-adherence. The objective of this analysis was to determine the prevalence of MEMS non-use, which can result either from taking medication dispensed from another source (e.g., during hospitalization or incarceration) or from decanting multiple doses at once (i.e., pocket dosing).
METHODS: We analyzed data from a randomized trial of directly observed antiretroviral therapy among HIV-infected patients on methadone for opioid dependence. Participants received MEMS caps for a single antiretroviral for 12 months (intervention) or 18 months (control) and had scheduled monthly research visits. Replacement caps were given to participants who lost caps or had caps malfunction. At each visit, MEMS data were downloaded and participants completed an interviewer-administered questionnaire to assess how they were using their caps. Specifically, participants reported periods of time during which they did not open their MEMS bottles but still took antiretrovirals (MEMS non-use). We determined the proportion of participants who reported MEMS non-use at least once and the proportion of visits at which participants reported MEMS non-use. We further examined if MEMS non-use was more likely among participants who received replacement caps or among participants with more missed visits.
RESULTS: Of 62 participants, 48% were female, 47% Hispanic and 39% Black, with a mean age of 47. Of the 868 scheduled visits, 200 (23%) were missed, leaving 668 for analysis. Forty-two participants (68%) reported MEMS non-use at least once during the monitored period. Among the entire sample, MEMS non-use was reported at 149 visits (22%). MEMS non-use was not associated with missing visits. Participants with replacement caps (n=17) were more likely to report MEMS non-use compared to those without replacement caps (82% vs. 62%, p=0.09).
CONCLUSIONS: Among this sample of HIV-infected patients on methadone for opioid dependence, we found high rates of MEMS non-use. Investigators utilizing MEMS caps should collect detailed information on their usage. Empirical studies are needed to determine how censoring MEMS data to reflect MEMS non-use will affect adherence estimates.

IS HIGH-DENSITY-LIPOPROTEIN CHOLESTEROL ASSOCIATED WITH THE RISK OF DEVELOPING PROSTATE CANCER? W.R. Farwell[1]; H.D. Sesso[2]; J.M. Gaziano[1]. [1]Harvard University; Brigham and Women's Hospital; VA Boston Healthcare System, Boston, MA; [2]Harvard University; Brigham and Women's Hospital, Boston, MA. *(Tracking ID # 190032)*

BACKGROUND: Results from a recent analysis of torcetrapib, a medication that increases high-density-lipoprotein cholesterol (HDL-C), found higher rates of cancer-related mortality among patients taking torcetrapib and atorvastatin than among patients taking atorvastatin alone. Laboratory studies have found that HDL-C can transport caveolin, an intracellular signaling protein and potential risk factor for prostate cancer. Few epidemiological studies have examined whether baseline HDL-C levels predict subsequent prostate cancer incidence.
METHODS: We performed a prospective cohort study using data from the Physicians' Health Study II, a randomized trial and long-term observational study. Baseline questionnaires were administered to gather information on lifestyle factors and medical history. In addition, 11,066 men provided blood samples in 1996, at which time 9,963 men had no history of cancer and had HDL-C measured. We categorized HDL-C into quartiles defined as <32.43, 32.43 to 40.92, 40.93 to 51.35, >51.35 mg/dL. Cox proportional hazard ratios (HRs) and 95% confidence intervals (CIs) were calculated for the risk of confirmed prostate cancer examining continuous levels and quartiles of HDL-C, total cholesterol, and non-HDL-C after controlling for age and multiple potential confounders.
RESULTS: Among men with a mean ± standard deviation age of 67.6± 8.4 years, there were 757 cases of incident prostate that occurred during a mean of 8.2 years of follow-up. As expected, participants with higher HDL-C were older, leaner, and less likely to have diabetes mellitus or to be taking medication to treat dyslipidemia. After controlling for age, diabetes mellitus, body mass index, parental history of prostate cancer, and current treatment for dyslipidemia, increasing HDL-C was associated with an increased risk of prostate cancer (p, continuous=0.01). Compared to participants in the lowest quartile of HDL-C, participants in the second through fourth quartiles of HDL-C had HRs (95% CIs) of prostate cancer of 1.18 (1.00, 1.40); 1.09 (0.91, 1.30); and 1.37 (1.15, 1.58), respectively (p, linear trend=0.01). However, we found no statistically significant association for total cholesterol (p, continuous=0.63) or non-HDL-cholesterol (p, continuous=0.68) with the risk of developing prostate cancer. In models stratified by age, increasing HDL-C remained a significant risk factor for prostate cancer among men aged 65 years (p, continuous=0.02) but not among men aged <65 years (p, continuous=0.85).
CONCLUSIONS: Higher levels of HDL-C increased the risk of prostate cancer, particularly among older men. Further research is necessary to clarify whether and how HDL-C may be relevant in the pathophysiology of prostate cancer.

IS METHADONE MAINTENANCE TREATMENT AND INDICATION MISSING FROM THE MEDICAL RECORD? A PATIENT SAFETY ISSUE A.Y. Walley[1]; D. Farrar[1]; D.M. Cheng[2]; D.P. Alford[1]; J.H. Samet[1]. [1]Boston University School of Medicine, Boston, MA; [2]Boston University School of Public Health, Boston, MA. *(Tracking ID # 189758)*

BACKGROUND: The Joint Commission requires that medications be completely documented across the continuum of care so as to minimize adverse medication interactions. Many medications interact with methadone, altering metabolism or potentiating side effects. Furthermore, methadone maintenance is often provided in clinical sites separate from routine medical care. Thus, the risk for patient safety problems exists. To assess these concerns among patients receiving methadone maintenance, we assessed the documentation in a medical center electronic medical record (EMR) of methadone and opioid dependence diagnosis and we described potential drug-drug interactions.
METHODS: Patients from one methadone maintenance clinic had their electronic medical record (EMR) at an affiliated, but separate, medical center reviewed for documentation of methadone treatment, medical diagnoses and medication lists. EMR review specifically examined the most recent inpatient discharge summary and the most recent outpatient primary care note. Outcomes included documentation of methadone on the medication list and opioid dependence on the diagnosis list in the EMR. We also assessed the proportion of subjects on medications interacting with methadone.
RESULTS: Among 84 subjects, 70% (95%CI: 59%-80%) had opioid dependence documented in the medical center EMR. Methadone was not listed in the last discharge summary in 5% (95%CI: 1%-12%) and not listed in the last outpatient primary care note in 5% (95%CI: 1%-12%). At least one medication potentially interacted with methadone for 63% of subjects; 18% had 3 or more interacting medications. The proportion of subjects with specific interaction categories were as follows: 25% increase methadone, 11% decrease methadone, 24% unpredictable interaction, 21% benzodiazepine use with potential

additive sedative impact, 25% other opioid use and 23% QT-interval prolonging medication.
CONCLUSIONS: Among patients receiving care at both a methadone maintenance clinic and a medical center, EMR documentation of opioid dependence and methadone occurred for the majority but not all patients. Medications that interact with methadone were common. For patients receiving methadone maintenance, documentation of opioid dependence diagnosis and its treatment should be considered as a potential quality standard for both substance use treatment and medical care.

IS MORE BETTER? AN EXPERIMENTAL ANALYSIS OF CONSUMER CHOICE B. Elbel[1]; M. Schlesinger[2]. [1]New York University, New York, NY; [2]Yale University, New Haven, CT. *(Tracking ID # 190532)*

BACKGROUND: While standard economic theory posits that more options should generally make consumers better off, studies examining choice of everyday consumer goods have called this into question. This has not been examined for more consequential choices. The purpose of this study is to examine how Medicare beneficiaries respond to health plan choice sets of various sizes. Specifically, its goals are to a) examine whether more plan options increase the probability of switching plans, b) understand why beneficiaries respond to choice as they do, and c) explain the quality of Medicare beneficiary decisions.
METHODS: We utilize a sample of 1,106 Medicare beneficiaries who reside in high plan penetration areas and are currently or recently enrolled in a Medicare health plan. Data collection is via the internet and participants are drawn from Knowledge Network's nationally representative panel. Participants were given a hypothetical choice experiment that offered the opportunity to switch to a new health plan, whereby the size (2, 4, 8 or 16 options) and makeup of the choice set were randomized. Subjects were shown information about the available options that closely mimicked the presentation of the Medicare program.
RESULTS: While some choice is clearly beneficial to beneficiaries, consumers do not show a monotonically increasing probability of switching plans as the choice set rises; after 4 plans, there is no statistically significant increase in switching. This appears to be driven by beneficiaries' uncertainty with regard to their preferences at the lower end of the choice set and being cognitively overloaded at the higher end. Additionally, even though participants engaged in the choice, some still violated basic decision rules, calling into question the quality of their decisions. The order in which the plans appears influences choice (placing the current plan at the end of the list of available options increases switching by an average of 64% or 10 percentage points). The introduction of dominated options to the choice set also influences consumer behavior, in some scenarios doubling the probability of switching to a new plan. Finally, we also find some evidence of consumers making intransitive decisions. These violations are not limited to consumers that face larger choice sets.
CONCLUSIONS: Medicare beneficiaries are generally given a large amount of plan choice (70% face greater than 10 options). This study concludes that after a choice set of 4 plans, consumers are not more likely to switch plans. Consumers also appear to be making non-trivial violations of basic decision rules, calling into question whether their utility as currently conceived is being maximized. More research is needed to advance the above results, as well as to begin the development of tools or other methods to assist consumers with such choices.

IS OVERWEIGHT PROTECTIVE FOR FUNCTIONAL ABILITY AMONG OLDER AA ADULTS? C.S. Lynch[1]; S.M. Albert[1]. [1]University of Pittsburgh, Pittsburgh, PA. *(Tracking ID # 189925)*

BACKGROUND: Weight gain with increasing age is a natural phenomenon. However, in conjunction with poor dietary habits and reduced levels of physical activity, weight gain in excess becomes a major health problem. Though obesity is strongly linked with disability, whether weight loss should be encouraged in older adults is not settled. Furthermore, less is known about overweight and disability, particularly in racial/ethnic minorities. Therefore, the impact of overweight on physical functioning was explored.
METHODS: Data were analyzed from a sample comprised of 87 older AA community-dwelling adults participating in a study examining correlates of participation in research and mobility status. Participants were recruited from low-income senior housing and community centers. The predictor variable was body mass index (BMI; calculated as weight divided by height squared), categorized into standard BMI classes: 18.5–24.9 kg/m^2, normal; 25–29.9, overweight; 30–34.9, obese; and 35+, extremely obese. The outcome of functional status was measured with both subjective and objective measures. Mobility and balance were self-rated on a scale of 1–5 with higher scores indicating worse functioning. In addition, the Short Physical Performance Battery (SPPB) was used to objectively assess physical functioning. The SPPB is a performance test comprised of 3 timed tasks: repeated chair stands, tandem stand, and an 8-foot walk, each score from 0–4. Total scores range 0–12 with lower scores representing worse functioning. Univariate analyses were performed to characterize the sample. Then we used analysis of variance to observe differences in outcomes by BMI category.
RESULTS: The sample was almost entirely female (>90%) with a median age of 70.8 years (range 58–95). These senior participants were predominately low-income with no cognitive impairment. Most were widowed and had good health insurance coverage. The vast majority of participants were at least overweight (83%); 41% were obese. The table below reveals results that self-reported mobility was significantly different by weight status (p= 0.03) with the best score among overweight AA individuals. Similarly, self-reported balance was best among overweight AA participants with a trend toward significance. The absolute SPPB score was highest (better functioning) in the overweight group though not statistically significant.
CONCLUSIONS: Self-reported functioning was better in overweight AA seniors compared to both normal weight and obese participants. Therefore, as it naturally occurs, being overweight for older AA adults may have some protective role in functional ability. Further analyses need to be undertaken to clarify this relationship.

Subjective and Objective Performance Scores by BMI Category

	BMI category	Mean(SD)	p-value
Self-reported mobility	Normal weight	2.67(1.11)	0.03
	Overweight	2.27(1.00)	
	Obese	2.83(1.08)	
	Extremely obese	3.40(0.97)	
Self-reported balance	Normal weight	2.73(1.10)	0.09
	Overweight	2.46(0.95)	
	Obese	2.97(0.97)	
	Extremely obese	3.30(1.06)	
SPPB score	Normal weight	9.07(1.87)	0.98
	Overweight	9.35(2.41)	
	Obese	9.14(2.98)	
	Extremely obese	9.00(1.76)	

IS PATIENT COMPLEXITY ASSOCIATED WITH PHYSICIAN PERFORMANCE ON DIABETES MEASURES? A.H. Salanitro[1]; M.M. Safford[2]; T.K. Houston[2]; J. Williams[2]; C.I. Kiefe[2]; F. Ovalle[2]; J.J. Allison[2]; C. A. Estrada[1]. [1]Birmingham VA Medical Center, Birmingham, AL; [2]University of Alabama at Birmingham, Birmingham, AL. *(Tracking ID # 189798)*

BACKGROUND: Patient complexity has been defined in the Vector Model by biological, cultural, socioeconomic, environmental, and behavioral determinants of health. Little is known about how patient complexity influences physician performance rankings, especially in rural areas, where glycemic control is reportedly poor. We hypothesized that rural primary care practices caring for less complex patients would have better glycemic control (hemoglobin A1c<7%) than rural practices with more complex patients.
METHODS: We used baseline data from practices in the Rural Diabetes Online Care (RDOC) study. For each practice, we assessed glycemic control (A1c<7%) on 10–15 randomly selected diabetic patients. Also at baseline, for each patient we measured the dimensions of the Vector Model of Complexity: a) biological (age >65 years, severity of diabetes [insulin use], obesity [diagnosed or BMI >=30], diabetes complications [retinopathy, neuropathy, nephropathy]), b) cultural (sex, African American race/ethnicity), c) socioeconomic (Medicaid insurance), and d) behavioral dimensions (no self-testing, nonadherence to medications or appointments). Practices were divided into quartiles with Q4 representing those practices with the highest proportion of patients achieving glycemic control. At the practice level, we assessed the independent association of each measure of complexity with the practice's performance (dependent variable: proportion of patients achieving A1c<7%) using linear regression.
RESULTS: The 73 physicians had 827 patients. At the practice level 38% of patients were over 65 years old (range across quartiles: 27–45%), 51% were

female (45–54%), 25% used insulin (19–34%), and 29% were African American (10–46%). Measured performance also varied widely: only 19.8% of patients achieved A1c<7% in quartile 1 (Q1), 43.1% in Q2, 54.4% in Q3, and 73.3% in Q4. From the multivariable analysis, diabetes severity (insulin use), no self-testing, and appointment nonadherence were associated with fewer patients controlled (Table). For example, practices with 10% more patients using insulin could expect to have 3.2% fewer controlled (A1c<7%), accounting for the other dimensions of complexity.
CONCLUSIONS: Biological and behavioral complexity were associated with worse practice performance. Basing reimbursement on this performance measure may create perverse disincentives for physicians to care for the patients who need the most help, namely those with advanced disease, those who are less than perfectly compliant, or those who are unwilling to engage in self-care practices.

Multivariable regression coefficients for proportion of patients with A1c <7%: practice as unit of analysis

Dimension of Complexity	Proportion in practice with:	Coefficient	95% CI
Biological	Age >65 years	0.14	−0.16, 0.45
	Insulin use	−0.32	−0.61, −0.03
	Obesity	0.12	−0.07, 0.32
	Diabetic complications	−0.08	−0.42, 0.27
Behavioral	No self-testing	−0.19	−0.02, −0.36
	Nonadherence to medications	−0.23	−0.55, 0.10
	Nonadherence to appointments	−0.39	−0.73, −0.05
Cultural	Female sex	0.26	−0.03, 0.56
	African American race	−0.11	−0.28, 0.06
Socioeconomic	Medicaid	−0.07	−0.60, 0.45

IS POOR HOSPITAL ADHERENCE TO AMI PROCESS MEASURES ASSOCIATED WITH INCREASED PATIENT MORTALITY? AN ANALYSIS OF CMS CLINICAL AND ADMINISTRATIVE DATA I. Popescu[1]; R. Werner[2]; M.V. Sarrazin[1]; P. Cram[1]. [1]University of Iowa, Iowa City, IA; [2]University of Pennsylvania, Philadelphia, PA. *(Tracking ID # 190670)*

BACKGROUND: Studies have documented that process measures at US hospitals have improved over recent years. At the same time, the gap between America's best and worst hospitals appears to be widening and some hospitals have shown modest improvement. Little is known about the characteristics and outcomes of low-performing hospitals.
METHODS: We used the Hospital Quality Alliance (HQA) database to identify all hospitals that reported AMI process measures to the Centers for Medicare & Medicaid Services (CMS) during 2004–2006. After excluding hospitals reporting less than 25 AMI cases during the three year study period, the remaining facilities were ranked and divided into deciles based on their compliance with AMI process measures. Compliance was measured as the ratio of the number of patients who received guideline-concordant AMI treatments divided by the number of patients eligible for these treatments. We defined low performing hospitals (N=100) as all hospitals performing in the bottom AMI compliance decile for all three years. These hospitals were then compared to all other hospitals in the sample (N= 2,660). We then used 2005 MedPAR data to identify all patients aged 65 years or older admitted to the hospitals identified in the HQA database with AMI (N=226,868). Risk-adjusted 30-day mortality was estimated for the low performing hospitals relative to all other hospitals using hierarchical models that adjusted for demographic and clinical patient risk factors, and included hospital random effects. The hospital random intercept was used as a measure of hospital risk-adjusted mortality. Individual hospitals were considered mortality outliers if the hospital random intercept was significantly different from the mean intercept (p<.05).
RESULTS: Low-performing hospitals had significantly lower compliance with AMI process measures (average adherence 68% vs. 92%, p<.001), significantly fewer beds (102 vs. 236, p<.001), lower AMI volumes (29 vs. 111, p<.001), and were less likely to perform revascularization (7% vs 52%, p<.001). Medicare patients admitted to low performing hospitals tended to be older (mean age 81 vs 79 years, p<.001), were more likely to be female (56% vs. 50%, p<.001) and black (10% vs 7%, p <.001), and had more comorbid illnesses including CHF (51% vs. 43%, p<.001) and COPD (29% vs. 24%, p<.001). Low-performing hospitals had higher risk-adjusted mortality as compared to other hospitals (OR= 1.28, p<.001). When examining mortality among all hospitals, 41 hospitals had 30-day mortality rates that were significantly lower, and 10 hospitals had 30-day mortality rates that were significantly higher than the mean (p<.05). However, none of the low-performing hospitals as measured by process compliance was a high-mortality outlier.
CONCLUSIONS: Hospitals with consistently low adherence to AMI process measures are significantly smaller and less likely to perform revascularization procedures compared to other hospitals; they are more likely to serve older minority patients, with more comorbidities. Risk-adjusted mortality appears to be higher for low-performing hospitals as a group. Viewed individually however, none of the low performing hospitals had significantly increased 30-day mortality rates. Poor performance in adherence to AMI standard of care is not necessarily correlated with significantly increased mortality rates for individual hospitals.

KNOWLEDGE, RISK PERCEPTIONS, AND BARRIERS TO COLORECTAL CANCER SCREENING AMONG LATINOS IN RHODE ISLAND J. Diaz[1]; R. Goldman[1]; N. Arellano[2]; J. Borkan[1]; C.B. Eaton[2]. [1]Memorial Hospital of RI, Pawtucket, RI; [2]Brown University, Providence, RI. *(Tracking ID # 190612)*

BACKGROUND: Although colorectal cancer (CRC) screening is the second most commonly diagnosed cancer among Latinos, the percentage of Latinos screened is lower compared to non-Latino Whites and Blacks. Differences in knowledge, attitudes, and beliefs may be barriers to cancer screening among Latinos and may impact their preventive health behavior. The goal of this study was to explore CRC knowledge, identify perceived risks, and investigate potential barriers and facilitators to CRC screening among Latinos in New England.
METHODS: A series of 6 focus groups was conducted among 36 adults who self-identified as Latinos. Focus groups were led by trained bilingual facilitators using a script designed to elicit participants' knowledge, attitudes, and beliefs about CRC and risk factors for CRC. Qualitative content analysis was conducted on the original Spanish transcripts with the aid of Weft QDA software.
RESULTS: The study sample consisted of 18 men and 19 women with a mean age of 57.5 years. Participants primarily represented 3 countries/territories of origin: Puerto Rico (24%), Dominican Republic (32%), and Colombia (41%) and had resided in the U.S. a mean of 16 years. While most participants had heard of CRC, many had limited knowledge of the prevalence of CRC compared to other malignancies, noting that other malignancies such as liver and vaginal cancers were more common. Most participants were familiar with colonoscopy as a screening test, but few had heard of other screening options such as sigmoidoscopy, barium enema, and FOBT. Diet and nutrition were commonly mentioned as potential CRC risk factors as well as means of prevention. Participants frequently referred to the role of diet in keeping the colon "clean," suggesting that retained feces increase CRC risk. Among both men and women, rectal sex was commonly associated with increased CRC risk: "the colon and the women's vagina are not the same. The colon has to be more forced, it's not prepared for this and this provokes disease." Machismo and its effect on communication attitudes among Latino men were identified as potential barriers to screening, while the importance participants placed on regular doctor visits as a means of prevention emerged as a potential facilitator to screening.
CONCLUSIONS: This sample of Latinos had limited knowledge of CRC and CRC testing. They also described a variety of beliefs and attitudes about CRC risks that are potential barriers and facilitators to increased screening among this population. The possibility of patients from these Latino sub-groups to hold these beliefs and attitudes should be considered when counseling patients about colorectal cancer screening.

LATINO PATIENTS REPORT MORE DEPRESSIVE SYMPTOMS BUT ARE LEAST LIKELY TO BE TAKING ANTIDEPRESSANTS WHEN COMPARED WITH WHITES AND BLACKS B. Ruo[1]; D. Baker[1]; D. Liss[1]; J. Thompson[1]; P.K. Murray[2]; G. Huber[1]; J.J. Sudano[2]. [1]Northwestern University, Chicago, IL; [2]Case Western Reserve University, Cleveland, OH. *(Tracking ID # 190292)*

BACKGROUND: Racial/ethnic disparities exist in the diagnosis and treatment of depression. We examined racial/ethnic differences in self-reported mental health and the relationship between self-report of a

history of depression, documentation of depression in medical records, and use of antidepressants.
METHODS: We recruited subjects age 45–64 years from two academic general internal medicine practices and two community clinics in Chicago and Cleveland. Mental health was measured using the 5-item SF-36 v.2 mental health subscale, which asks how often one feels nervous, down in the dumps, calm/peaceful, downhearted/depressed, and happy; scores range from 0 (worst) to 100 (best). Participants were also asked if a physician ever told them they had depression, and which category best described their race/ethnicity (White; Black; Latino; Asian; American Indian/Alaska Native; Native Hawaiian/Pacific Islander; Other). Medical records were reviewed to determine whether primary care physicians documented depression in the problem list or medical history, and whether antidepressants (selective serotonin reuptake inhibitors or other non-heterocyclic antidepressants) were prescribed. The statistical significance of racial/ethnic differences was determined with t-tests for the SF-36 mental health subscale, and chi-square tests for self-reported depression and chart documentation.
RESULTS: Analyses were restricted to 863 subjects who reported complete information on depression; described their race as White (29%), Black/African-American (23%), or Latino (48%); and received a medical record review. The mean age (± SD) was 53±6 years; 61% were female. Amongst Latinos, Whites, and Blacks, 43%, 42%, and 32%, respectively, reported a history of depression (p=.05 overall; p=.04 for pairwise comparison of Latinos vs. Blacks; p=.20 for Latinos vs. Whites; and p=.04 for Blacks vs. Whites). Mean SF-36 mental health scores were lower for Latinos (68±25) compared to Whites (74±19) and Blacks (75±20; p<.001 for comparisons of Latinos to both Whites and Blacks). The worse mental health for Latinos was due to both lower mental health among patients who reported a history of depression and patients who did not report a history of depression. Among those reporting no history of depression, mean scores were 79 (± 20) for Latinos compared to 83 (± 12) for Whites (p=.04) and 82 ± (13) for Blacks (p=.08). Among those reporting a history of depression, mean scores were 53 (± 24) for Latinos compared to 62 (± 21) for Whites (p=.002) and 59 ± (22) for Blacks (p=.08). Among those reporting a history of depression, rates of documentation in the medical record were similar for Latinos, Whites and Blacks (43%, 53%, and 46%, respectively; p=0.25). For patients with depression documented in the chart, Latinos were less likely than whites to be taking antidepressants (55% vs. 69%; p=0.07). Among patients reporting a history of depression, Latinos (36%) were less likely to be taking antidepressants than Whites (56%; p=.001) and Blacks (54%; p=.012).
CONCLUSIONS: Latinos had worse mental health and those reporting history of depression were less likely to be taking antidepressants than Blacks and Whites. Documentation of depression in medical records was similar across races, but among patients with depression documented in their chart, Latinos were less likely than Whites to be taking antidepressants. This suggests that the worse mental health of Latinos may be due to undertreatment of depression.

LEGISLATING PRICE TRANSPARENCY: HOW FEASIBLE IS IT FOR THE UNINSURED TO SHOP FOR CARE? K. Stockwell[1]; L. Finocchio[2]; A.N. Trivedi[3]; A. Mehrotra[1]. [1]University of Pittsburgh, Pittsburgh, PA; [2]California Health Care Foundation, Oakland, CA; [3]Brown University, Providence, RI. *(Tracking ID # 190648)*

BACKGROUND: Many states have enacted legislation to promote transparency of health care prices. In 2005 the California Assembly passed a law (AB1045) requiring all hospitals to provide an uninsured patient with a written estimate of the charge for a health care procedure and information on the hospital's charity care policy. We assessed the ability of an uninsured consumer to effectively shop for care among California hospitals under this legislation.
METHODS: We sent a letter from a fictional uninsured patient to all acute care non-Kaiser California hospitals requesting a written estimate for the cost of a procedure. The hospitals were randomized to receive one of three price requests: an open hysterectomy for a large fibroid, a laparoscopic cholecystectomy for recurrent gallstones, or a routine screening colonoscopy. The requests referenced the new law and also stated that the patient was not eligible for Medicaid insurance, was otherwise healthy, and took no medications. We used chi-square tests to compare response rates for each of the three scenarios
RESULTS: Of the 394 hospitals sent requests, 86 (22%) responded within 2 months (median response time 8 days), with no significant difference in response rate across the three scenarios. Excluded from further analysis were 12 hospitals that reported they did not perform the requested procedure. Among the remaining 74 hospitals, 64 (88%) provided a price estimate. The other 10 (12%) hospital responses asked the patient for more information such as the procedure's CPT code or the name of the surgeon. The written estimates for colonoscopy, laparoscopic cholecystectomy, and open hysterectomy ranged from $900–4,500, $4,000–36,000, and $4,000–79,525, respectively. There was inconsistency in what these estimates covered: some included physician and other professional fees, some excluded these fees, and others gave no breakdown of charges. A cash discount was offered by 18 (25%) of the hospitals. This discount was on average 35% and usually contingent on payment in fewer than 30 days of the procedure. Information about charity care policies was provided (as required by law) by 36 (49%) of the responding hospitals.
CONCLUSIONS: Despite a law mandating price transparency, few California hospitals provided a cost estimate to a fictional uninsured patient. Hospitals that did respond either requested information not readily available to an uninsured patient (e.g. CPT code), or the estimates were not directly comparable across hospitals. While there appears to be significant price variation across hospitals, our study's findings raise serious questions about the ability of an individual patient to "shop" effectively for hospital care.

LIFETIME EXPOSURE TO FAMILY VIOLENCE: IMPLICATIONS FOR THE HEALTH OF OLDER AFRICAN AMERICAN WOMEN. A. Paranjape[1]; N.E. Sprauve-Holmes[2]; J. Gaughan[3]; N.J. Kaslow[4]. [1]Temple University School of Medicine, Philadelphia, PA; [2]Research Consultant, Savannah, GA; [3]Temple University, Philadelphia, PA; [4]Emory University, Atlanta, GA. *(Tracking ID # 189306)*

BACKGROUND: Family violence (FV) among older women is a problem that is less well recognized than either intimate partner violence (IPV) or elder maltreatment (EM) yet it represents a problem broader in scope than IPV or EM alone. Both IPV and EM each have been linked to poor health status; age, gender and race are three other non-modifiable determinants of health. Currently, it is not known if older African American women exposed to high levels of FV over a lifetime are more likely to report poorer health status than those with lower levels of FV exposure over a lifetime.
METHODS: Design: Cross-sectional study. Participants: One hundred and fifty-eight African American women, age 50 or older, seeking care in the ambulatory primary care clinics of a large public hospital. Measures: (1) Family violence (FV), assessed by Family Violence against Older Women (FVOW) scale; a 29 item valid and reliable FV scale (α= 0.973) with each item is scored on a 5 point Likert scale. Participants with total FVOW scores in the upper quartile were classified as having high lifetime FV exposure; those with scores in the lower three quartiles were considered to have low lifetime FV exposure. (2) Physical and mental health status determined by the physical (PCS-8) and mental composite scores (MCS-8) of the Short-Form 8® scale. (3) Demographic variables included income; grade level attained; insurance status and type; housing, marital, and relationship status. Strength of association between high lifetime FV exposure and health status was estimated with multivariate linear regression modeling techniques.
RESULTS: Mean participant age was 61.5 years (SD 7.1). Participants with high FV exposure; and those younger, unemployed or disabled reported lower PCS-8 and MCS-8 scores. Lower income and not having Medicare was associated with lower PCS-8 and MCS-8 scores respectively. Mean PCS-8 and MCS-8 scores were 38.51 (SD 9.98) and 46.50 (SD 11.3). The first set of models, containing all significant predictors of poor physical or mental health status, demonstrated a trend towards lower PCS-8 (t=−1.86, p=0.0646) and MCS-8 (t=−1.91; p=0.0581) scores among those reporting high lifetime FV exposure. Using stepwise linear regression techniques, only employment status and FV were associated with lower PCS-8 (F=7.16, p= 0.0011) and MCS-8 scores (F= 7.09, p=0.0012).
CONCLUSIONS: Among older, inner-city, African American women, lack of employment and high lifetime FV exposure are associated with worse physical and mental health status. Our findings are a reminder that the effects of FV over a lifetime may persist among older women even after the violence has ceased. While the debate continues over the utility of FV screening, identifying past FV may put women's current health into perspective for their providers.

LIGHT AND INTERMITTENT SMOKING AMONG ASIAN AMERICANS
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BACKGROUND: Light and intermittent (not daily) smokers are a growing proportion of U.S. smokers: almost half of smokers consumed less than 15 cigarettes per day in 2000 compared with less than a third in 1980. Ethnic minorities have been described to be more likely than non-Latino Whites to be light and intermittent smokers, but little is known about the characteristics of these smokers. Previous studies have demonstrated Asian American smoking prevalence differs by gender, Asian national origin, and acculturation (measured by birthplace and English proficiency). Our objective was to determine if Asian American smoking intensity differs by similar social and demographic variables.
METHODS: We analyzed current Asian American smokers using the 2003 California Health Interview Survey, a population-based household telephone survey that oversampled Koreans and Vietnamese and was conducted in-language for Chinese, Koreans, and Vietnamese. We examined proportions of moderate-heavy smokers (10 or more cigarettes per day; reported to reflect ethnic minority smoking patterns) and light (1–9 cigarettes per day) and intermittent (not daily) smokers among 7 different Asian national origin groups by gender. Multivariate logistic regression models were used to assess variables associated with light and intermittent smoking compared with moderate-heavy smoking. Demographic variables included age, gender, education, marital status, poverty level, and Asian national origin groups. We used birthplace (foreign-born vs. U.S.-born) and English language proficiency (3 levels: English only, "very well/well", "not well/not at all") as proxy measures of acculturation since these measures have been significantly associated with Asian American smoking prevalence. We tested for interactions between gender and English language proficiency, as well as gender and birthplace. All analyses were performed with Stata 8.0 to account for the complex survey design.
RESULTS: The survey included 212 moderate-heavy and 267 light and intermittent Asian American smokers. Over half of all Asian American smokers smoked in a light and intermittent pattern, except for Japanese and Korean men (40% and 36.6%) and Japanese and other Asian women (44.0% and 29.9%). In the multivariate regression analysis, Asian American light and intermittent smokers were more likely than moderate-heavy smokers to be women than men (OR=2.12, 95% CI 1.14–3.94, p=0.02), smokers with a college education compared with less than a high school education (OR=3.16, 95% CI 1.21–8.28, p=0.02), not Korean American compared to Chinese American (OR=0.32, 95% CI 0.13–0.79, p=0.01), and bilingual speakers with high English language proficiency compared to English only speakers (OR=2.83, 95% CI 1.21–6.64, p=0.02). We did not find any interactions between gender and birthplace, but there was a trend for statistical significance for interaction between gender and English proficiency (p=0.11).
CONCLUSIONS: This is the first study to demonstrate that social and demographic factors associated with Asian American smoking prevalence are also associated with smoking intensity. With the majority of Asian American smokers being light and intermittent smokers, identifying these smokers and addressing their motivations for smoking, rather than addiction, may be important in developing cessation strategies for Asian American smokers.

LIMITED HEALTH LITERACY IS ASSOCIATED WITH INCREASED RISK OF HYPOGLYCEMIA AMONG INSURED, TYPE 2 DIABETES PATIENTS: THE DIABETES STUDY OF NORTHERN CALIFORNIA (DISTANCE)
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BACKGROUND: Hypoglycemia is a threat to patient safety and impairs quality of life. Among patients with type 2 diabetes, risk factors for hypoglycemia include older age, impaired kidney function and difficulties with self-management. While limited health literacy has been hypothesized to jeopardize patient safety, its specific impact on hypoglycemia has not been well-studied.
METHODS: We studied a diverse cohort (DISTANCE Study) of ambulatory, pharmacologically-treated type 2 diabetes patients receiving care from a group model health care organization to examine the association between health literacy and hypoglycemic events. A survey was completed by 16,286 patients, providing socio-demographics, time of diabetes diagnosis and other characteristics. Hypoglycemic events were based on a validated item: patients reported whether they experienced severe hypoglycemia - "passing out or needing help"- in the prior 12 months. Health literacy (HL) was self-reported, based on 3 items which have been validated against direct health literacy measurement: whether patients (1) have problems learning about their health due to reading difficulties; (2) need help reading healthcare materials; and (3) are not confident to fill out health care forms. Type of pharmacotherapy, hemoglobin A1c (HbA1c) and creatinine clearance were obtained from electronic medical records. We used the MDRD formula to derive the glomerular filtration rate (GFR) from creatinine clearance and demographics. Patients' pharmacotherapy was classified into: "any insulin use", "oral secretagogues (e.g., sulfonylureas) only", "metformin only", or "combined or other" (e.g., thiazolidinedione) oral agents. We estimated bivariate associations between HL questions and hypoglycemic events. We specified multivariate logistic models to examine independent associations between each HL question and hypoglycemia, adjusting for potential confounders (age, sex, income, type of therapy, duration of diabetes, GFR and HbA1c).
RESULTS: The study population was diverse, with 3553 (21%) Non-Hispanic White, 2748 (17%) Black, 2994 (18%) Hispanic, 3937 (24%) Asian, and 3054 (19%) Other/Mixed ethnicity. Fifty-one percent reported problems learning about health, 38% needed help reading health materials, and 28% were not confident with healthcare forms. Overall, 1352 (11%) reported at least 1 hypoglycemic episode in the prior 12 months, with hypoglycemia rates varying by medication regimen (18% for insulin, 9% for secretogogues, 5% for metformin alone, and 10% on combined oral agents). In bivariate analyses, each HL item was associated with hypoglycemia rates. The relationship between HL and hypoglycemia did not vary significantly across type of medication or HbA1c (p>0.2). After adjustment, limited HL independently predicted hypoglycemia (Table).
CONCLUSIONS: This is the first study to demonstrate a relationship between health literacy and severe hypoglycemia, an important patient safety problem. In a diverse ambulatory cohort of patients with type 2 diabetes, hypoglycemia was common, especially for those reporting limited health literacy. Interventions aimed at improving patient safety by reducing hypoglycemia should reflect the needs of limited-literacy patients.

Hypoglycemia Among Participants Reporting Limited Health Literacy

	Unadjusted OR, (95% CI)	Adjusted OR, (95% CI)
Problems learning	1.3 (1.2–1.5)	1.5 (1.3–1.7)
Need help reading	1.5 (1.3–1.8)	1.5 (1.3–1.8)
Not confident with forms	1.6 (1.4–1.8)	1.5 (1.3–1.7)

LINGUISTIC DISPARITIES IN HEALTHCARE UTILIZATION AND RESIDENTIAL PROXIMITY TO A SAFETY-NET CLINIC
K.M. Cordasco[1]; J.J. Escarce[2]; M.S. Gatchell[2]; B. Traudt[2]; N.A. Ponce[2]. [1]Veterans' Health Administration, West Los Angeles, Los Angeles, CA; [2]University of California, Los Angeles, Los Angeles, CA. *(Tracking ID # 190056)*

BACKGROUND: Persons with limited English proficiency (LEP) are more likely to be uninsured and use less routine and preventative medical services than those with English proficiency. However, studies suggest that among the uninsured, living closer to a safety net clinic (SNC) is associated with increased use of routine medical care. Therefore, we hypothesized that, among uninsured Californians, residential proximity to a safety net clinic would be associated with reduced linguistic disparities in routine and preventative healthcare utilization.
METHODS: Using publicly-available sources, we compiled a list of California SNCs. We administered a 3-minute telephone survey verifying exact address, clinical services provided and insurance status of patients. This list was merged with uninsured adult respondents in the 2005 California Health Interview Survey (CHIS). Utilizing geographic mapping techniques, we calculated distance between respondent residence and nearest SNC. We defined LEP as understanding English "not well" or "not at all". We selected 5 healthcare utilization variables: having a usual source of care, other than the emergency department; receiving an influenza vaccine in the prior year, receiving a fecal occult blood test (FOBT) in the prior 2 years among adults over age 50, receiving a Papanicolaou test (PAP) in the prior 3 years among

females, and receiving a mammogram in the prior 2 years among females over age 50. We used weighted multivariate regression to first measure associations between LEP and selected healthcare utilization variables, adjusting for age, gender, race/ethnicity, education, urban residence, health status, chronic diseases, cancer history, spouse insurance status, immigration status, use of public transportation, and perceptions of past discrimination. Then, in a second series of regressions, we added our distance variable to determine its effect on observed disparities.
RESULTS: Among the 3210 CHIS uninsured respondents, a considerable proportion (33%) had LEP. The mean age was 41 years, 52% were female, 42% Latino, 13% Asian and 4% African–American. Regarding self-reported health care utilization, 56% had a usual source of care, 13% had received an influenza vaccine in the prior year, 38% of females had received a PAP in the prior 3 years, 45% of females over 50 had received a mammogram in the prior 2 years, and 11% of those over 50 had received FOBT in the prior 2 years. In multivariate analysis, LEP was associated with a significantly lower odds of having a usual source of care (OR=0.7, p=0.01), of receiving a PAP (OR=0.6, p=0.04), and of receiving an FOBT (OR=0.20, p=0.01). A similar pattern was seen, with near-statistical significance, of LEP persons having lower odds of receiving an influenza vaccine (OR=0.6, p=0.05) and a mammogram (OR=0.5, p=0.13). Distance to nearest SNC had no significant effect on any of these associations.
CONCLUSIONS: Linguistic disparities in utilization of both routine and preventative healthcare are apparent among uninsured Californians in the 2005 CHIS. Distance between residence and nearest SNC did not significantly modify these disparities. Further identification of SNCs that provide language services are needed to more precisely evaluate the effect of SNCs on linguistic disparities.

LISTEN TO YOUR HEART: DEFICIENCIES IN CARDIAC EXAMINATION OF FEMALE PATIENTS DURING AN OBJECTIVE STRUCTURED CLINICAL EXAMINATION. R.J. Chakkalakal[1]; S. Higgins[1]; L. Bernstein[1]; J.P. Doyle[1]. [1]Emory University, Atlanta, GA. *(Tracking ID # 190802)*

BACKGROUND: Prior research has shown gender bias in physician interpretation of cardiac symptoms but few studies have explored gender bias in cardiac physical examination. The purpose of this project was to determine if Internal Medicine (IM) PGY-1 residents differ in the performance of key aspects of the cardiac exam of female versus male standardized patients (SPs) during an Objective Structured Clinical Exam (OSCE).
METHODS: 84 IM PGY-1 residents examined either a male or female middle-aged SP with acute chest pain during orientation OSCE's in June 2006. Due to a video recording error, only 50 of the 84 cases were recorded for evaluation by a single reviewer for the performance of 5 standard cardiac exam skills: auscultation of aortic, pulmonic, tricuspid, and mitral valve areas and palpation for apical impulse (1). 65 IM PGY-1 residents examined a middle-aged female SP with acute chest pain during orientation OSCE's in June 2007 and 64 encounters were recorded for evaluation of the same 5 skills. Maneuvers were observed then coded as "complete", "incomplete", "not done", or "unknown". A "complete" maneuver was visualized appropriately and performed at the correct location and directly against the patient's skin. Bivariate analysis of the data from 2006 and 2007 using Chi-square compared the number of complete maneuvers performed for each skill on the female versus male SP (2).
RESULTS: See Table 1. The difference in the number of complete maneuvers performed between the female and male patients was statistically significant with a P<0.0001 for auscultation of the tricuspid and mitral areas and palpation of PMI. Of the 88 IM PGY-1 residents who examined female SPs, 46 were male and 42 were female. The percentage of complete maneuvers performed by female residents was 48% for auscultation of aortic area, 47% for auscultation of pulmonic area, 56% for auscultation of tricuspid area, 60% for auscultation of mitral area, and 78% for palpation for apical impulse.
CONCLUSIONS: Our project identifies gender bias in the female cardiac exam, especially in areas requiring attention to breast tissue. This bias may be due to physician concern for modesty and inadequate teaching of gender-specific exam skills. The project also demonstrates that female residents perform a greater percentage of the complete exams than male residents for each of the 3 skills noted to have statistically significant deficiencies. Future research should study additional resident traits as predictors of performance and the validity of faculty evaluation of resident performance of female cardiac exam during OSCE's. References: 1. Seidel HM, Ball JW, Dains JE, Benedict GW. Mosby's Guide to Physical Examination. Fourth edition. St. Louis: Mosby, Inc, 1999. 2. http://www.graphpad.com/quickcalcs/index.cfm

Table 1: Performance of Complete Cardiac Exam Skills by SP Gender

Cardiac Exam Skill	Male SP (n=26) N,(%)	Female SP (n=88) N,(%)
Auscultation, aortic area	20 (77)	46 (52)
Auscultation, pulmonic area	20 (77)	47 (53)
Auscultation, tricuspid area	21 (81)	16 (18)
Auscultation, mitral area	19 (73)	15 (17)
Palpation for apical impulse	17 (65)	9 (10)

LONG TERM USE OF THIAZOLIDINEDIONES AND FRACTURES IN TYPE 2 DIABETES - SYSTEMATIC REVIEW AND META-ANALYSIS S. Singh[1]; Y. Loke[2]; C.D. Furberg[3]. [1]Society of General Internal Medicine, Winston Salem, NC; [2]University of East Anglia, Norwich,; [3]Wake Forest University, Division of Public Health Sciences, Winston-Salem, NC. *(Tracking ID # 189847)*

BACKGROUND: There has been considerable controversy and public interest surrounding the safety of the thiazolidinediones, rosiglitazone and pioglitazone. However, most of the information on fractures with the thiazolidinediones comes from non-peer reviewed warning letters sent out by the pharmaceutical companies, without any clear estimates of the relative and absolute levels of risk We aimed to systematically determine the risk of fractures with long term thiazolidinedione use in type 2 diabetes, and evaluate its effects on bone formation.
METHODS: We searched Web of Knowledge Citation Index, Medline, websites of regulatory authorities, pharmacovigilance databases, manufacturers' trial registries and product information sheets in Sep 2007 for clinical studies reporting on bone formation or fractures with thiazolidinedione therapy. Primary outcome: Eligible studies were randomized controlled trials of at least one year's duration with data on the rates of fractures in men, and women with type 2 diabetes The intervention had to be rosiglitazone or pioglitazone versus placebo or other oral hypoglycaemic agents. We used fixed effects meta-analysis to pool the relative risk for fractures separately by gender, and assessed heterogeneity using the I2 statistic. Secondary outcome: we selected controlled clinical studies on the effects of thiazolidinediones on bone density or turnover
RESULTS: We identified 507 potentially relevant citations from our search and found only two trials of thiazolidinediones in type 2 diabetes that reported the rate of fractures separately by gender. The pooled relative risk in 3615 women was 2.11 (95% Confidence Interval 1.57–2.82, p<0.00001) with no statistical heterogeneity (I2 = 0%) The Number Needed to Harm for one additional fracture with thiazolidinediones, was estimated to be 98 per year based on the average control event rate in the trials. In contrast, the pooled relative risk in 5974 men from the same two trials was 0.99 (95% CI confidence interval 0.72–1.36; p=0.96) with little heterogeneity(I2 = 26%). One randomized trial of 14 weeks duration showed significant reductions in biochemical markers of bone formation, and decreased bone density (at the hip, −1.9% with rosiglitazone versus −0.2% with placebo, p<0.01). Two observational studies suggest that thiazolidinediones have a direct effect on bone density at many sites, including the hip.
CONCLUSIONS: The long-term use of thiazolidinedione therapy doubles the risk of fractures in women with type diabetes, without a significant increase in the risk of fractures in men. Clinicians need to reconsider the use of thiazolidinediones in women with type 2 diabetes, as the risk of fractures may outweigh any benefit on glycemic control. Strategies to reduce the risk of fractures may need to evaluate potential androgenic or estrogenic factors that influence bone loss.

LONG-TERM EFFECTS OF A PRIMARY CARE FACULTY DEVELOPMENT FELLOWSHIP PROGRAM ON PROFESSIONAL AND ACADEMIC OUTCOMES K.M. Hla[1]; C.L. Gjerde[2]; P.K. Kokotailo[2]; A.D. Poehling[1]. [1]University of Wisconsin School of Medicine and Public Health, Madison, WI; [2]University of Wisconsin-Madison, Madison, WI. *(Tracking ID # 190140)*

BACKGROUND: To meet a need for primary care teachers, the Bureau of Health Professions has funded faculty development programs for preceptors of medical students and residents. The purpose of this study

was to determine how our primary care faculty development fellowship program graduates identified its long-term effect on their professional and scholarly outcomes.
METHODS: The Primary Care Faculty Development Fellowship program was a year-long series of five weekend workshops focusing on the preparation of preceptors to teach curricular areas relatively new to medical education: evidence-based medicine (EBM), teaching skills, technology tools, doctor-patient communication, quality improvement, cultural competence and leadership/advocacy. Participants included primary care physicians in community- and university-based practices from General Internal Medicine, General Pediatrics and Family Medicine. The first 100 preceptors who graduated 2 or more years ago from the fellowship program were surveyed specifically about professional and academic outcomes they attributed to program participation. Outcomes were categorized using the Kirkpatrick evaluation model; open-ended comments were analyzed thematically.
RESULTS: Eighty responses were received (80% response rate). The mean age of the participants at entry into the program was 39.4 years (range 28–54 years), 53% were females. Respondents did not differ significantly from non-respondents in primary care discipline or gender. Ninety percent of respondents were teaching either medical students, residents or faculty physicians. Program related topics that graduates were teaching included doctor-patient communication (48%), EBM (39%), giving presentations (28%), giving feedback (26%), quality improvement (18%) and cultural competence (16%). Outcomes attributed to the program by the graduates included improvement in teaching skills (81%), improvement in practicing and teaching EBM (73%), better use of technological tools and resources (68%), increased personal growth and self-confidence as a teacher (68%), and having a more active role as an educational leader (60%). Ninety-four percent of the graduates felt that the fellowship was a worthwhile learning experience and reported networking and mentoring during the program as one of the major impacts in their open-ended comments. Ninety-one percent had recommended the program to others.
CONCLUSIONS: Graduates of our primary care faculty development fellowship program identified positive professional and scholarly outcomes and found the fellowship useful for developing the skills and self-confidence required of teachers. These skills are highly valuable for teaching in today's rapidly-changing learning environment and highly compatible with the competency-focused education mandated by the Accreditation Council for Graduate Medical Education. Our findings suggest that federal agencies and health care institutions can enhance medical education by continuing to financially support faculty development programs.

LONG-TERM IMPACT OF RESIDENT WORK-HOUR RESTRICTIONS ON BURNOUT R.K. Gopal[1]; T.J. Miyoshi[2]; J.J. Glasheen[3]; A.V. Prochazka[1]. [1]Denver VAMC, Denver, CO; [2]University of Rochester, Rochester, NY; [3]UCHSC, Aurora, CO. *(Tracking ID # 190261)*

BACKGROUND: In July 2003, the Accreditation Council for Graduate Medical Education (ACGME) began enforcing work hour restrictions for all residents. Multiple studies that surveyed residents from surgical and non-surgical specialties have shown some short term improvement in resident burnout. However, most of these surveys evaluated burnout just prior to and just after implementation of work-hour restrictions. The long-term impact of the mandated work-hour restrictions on resident burnout remains unclear.
METHODS: We administered a postal survey to all internal medicine residents at the University of Colorado Health Science Center, in May of each year from 2003 to 2007. The survey contained the Maslach Burnout Inventory, a 22-item questionnaire organized into three subscales: emotional exhaustion (EE), depersonalization (DP), and personal accomplishment (PA). We defined burnout as high EE or DP since PA tends to be high in physicians. We used the Cochran Armitage test to evaluate the significance of trends. We also compared the rates of burnout between those residents who only experienced the new work hours (2006–2007) with those who only experienced the prior system (2003) using a Chi Square test.
RESULTS: The response rate ranged from 87% in 2003 to 61% in 2007 (p=0.003). The demographics were similar for each year including: age (majority 36–30 years old), gender (50% female), and post graduate year (equally distributed among the three classes). In 2006 and 2007, residents first reported being on a float rotation, (4% and 6% respectively). For the first time, in 2007, 15% of residents reported they are in the hospitalist training track with a commensurate decrease in the number reporting categorical training track. The self-reported average number of hours worked per week decreased initially but has subsequently stabilized (75, 67, 67, 65, 65 hours per week for 2003 through 2007 respectively). The percent of residents reporting high DP decreased from 61% just prior to work-hour restriction (2003) to 55% the next year (2004), but over the subsequent years increased back to pre-restriction levels in 2007 (47% in 2005, 61% in 2006, and 60% in 2007, p for trend = 0.92). A similar trend was noted for the percent of residents reporting high EE (42% in 2003, 29% in 2004, 24% in 2005, 39% in 2006, and 42% in 2007, p for trend = 0.73). Personal accomplishment has worsened, with more residents reporting low PA (16%, 14%, 19%, 20%, and 22% for 2003 through 2007 respectively, p for trend = 0.13). The percent of residents that met criteria for burnout have also returned to pre-restriction level (61%, 55%, 46%, 61%, and 61% for 2003 through 2007 respectively, p for trend = 0.81). There was no significant difference in the rate of burnout between those who only experienced the old system (61%) and those who have only experienced the new work hours (60%), p=0.90.
CONCLUSIONS: Despite a persistent reduction in the average number of hours worked, internal medicine resident burnout has returned to 2003 levels. Changing work hours does not appear to have had a lasting effect on burnout and further interventions need to be developed to combat resident burnout.

LONG-TERM SYMPTOMS AFTER WEST NILE VIRUS INFECTION R.L. Cook[1]; X. Xu[1]; R. Hess[2]; E. Yablonsky[2]; N. Sakata[3]; J. Tripp[4]; A. Chakrabarti[2]; P. Piazza[2]; C.R. Rinaldo[2]; J. Sejvar[5]; C. Mcmurtrey[6]; W. Hildebrand[6]. [1]University of Florida, Gainesville, FL; [2]University of Pittsburgh, Pittsburgh, PA; [3]Central District Health Department, Boise, ID; [4]Southwest District Health Department, Caldwell, ID; [5]Centers for Disease Control and Prevention, Atlanta, GA; [6]University of Oklahoma, Oklahoma City, OK. *(Tracking ID # 190892)*

BACKGROUND: Little is known about long-term sequelae after West Nile Virus (WNV) infection, an emerging infection with annual outbreaks across the US each summer and fall. The study objectives were to identify the prevalence of long term symptoms among persons infected with WNV in 2006, and to determine whether long-term symptoms vary according to gender or age.
METHODS: We mailed questionnaires to 336 persons with a confirmed diagnosis of WNV in 2006. Surveys were mailed 3–6 months after diagnosis; 230 persons returned it (68% response). We inquired about 20 specific symptoms, including their duration and severity. Symptoms were categorized as long-term (>2 weeks with any severity) and as severe and persistent (3 months or longer). Quality of life was assessed by a standard, 12-item measure (SF-12).
RESULTS: The sample was middle aged (mean 52 years, 31% >60 years), 60% were female. At the time of infection, 11% reported neuroinvasive disease (meningitis or encephalitis), while 5% were asymptomatic. 27% were hospitalized, and 33% of persons who had been working missed >=2 weeks of work. Most of the sample reported long-term symptoms (>2 weeks), with the most common being fatigue (72%), decreased activity (63%), and weakness (62%). Women were significantly ($p<0.05$) more likely than men to report long-term symptoms of headache (44% vs. 25%) and decreased activity (69% vs. 55%). Persons >= age 60 were significantly more likely to report several long-term symptoms including decreased activity (72% vs. 59%), balance problems (52% vs 31%), and bladder and urine problems 16% vs. 8%). Many continued to experience symptoms that are both severe and persistent, including fatigue (25%), decreased activity (17%), muscle aches (12%), balance problems (11%), and difficulty concentrating (10%). Quality of life scores were similar in women and men for the physical composite (45.3 vs. 45.6), but lower in women for the mental health composite (44.3 vs. 47.5, p=0.43).
CONCLUSIONS: The majority of persons with West Nile Virus infection experience multiple, long-term symptoms that affect their work and overall quality of life. Women may be affected more severely than men. Clinicians should emphasize prevention (e.g. avoidance of mosquitoes) and consider WNV as a cause of unexplained long-term symptoms. Treatment options are needed to reduce the prevalence of long-term symptoms resulting from this infection.

LONG-TERM WEIGHT LOSS MAINTENANCE IN THE UNITED STATES C.N. Sciamanna[1]; J. Esposito[1]; E. Lehman[1]; P. Horlacher[1]; D. Chu[1]. [1]Pennsylvania State University, Hershey, PA. *(Tracking ID # 189939)*

BACKGROUND: Though the rise in overweight and obesity in the US have been well-documented, no study to our knowledge has estimated the prevalence of long-term weight loss maintenance in the US. We therefore carried out the current study to understand the rates of long-term weight loss in the US population.
METHODS: We examined data from the 1999–2006 National Health and Nutrition Examination Survey (NHANES), which included measures of maximum weight, weight 1 year ago and current weight. We defined long-term weight loss maintenance (LTWLM) as losing at least 5% of weight between the maximum weight and 1 year ago and maintaining at least this 5% loss in the past year. We excluded individuals who were less than age 20, older than 84 or who were not overweight or obese (BMI 25) at their maximum weight.
RESULTS: Overall, among US adults who had ever been overweight or obese, 36.5%, 17.3%, 8.5% and 4.4% reported LTWLM of at least 5%, 10%, 15% and 20%, respectively. Among the oldest group of adults, aged 75–84, 50.7%, 29.2%, 17.7% and 9.7% reported LTWLM of at least 5%, 10%, 15% and 20%, respectively. LTWLM of at least 10% was higher among current smokers (versus never smokers, adjusted OR: 1.64; 95% CI: 1.46, 1.83), those who were widowed, divorced or separated (versus never married, adjusted OR: 1.50; 95% CI: 1.30, 1.74) and those who were female (versus male, adjusted OR: 1.28; 95% CI: 1.18, 1.40). LTWLM was higher among those who were ages 75–84 (versus ages 20–34, adjusted OR: 2.31; 95% CI: 1.94, 2.74) and among those who were non-hispanic White (versus Hispanic, adjusted OR: 1.55; 95% CI: 1.34, 1.80).
CONCLUSIONS: Fewer than 1 in 5 adults have lost at least 10% and kept it off. Whites, older adults, smokers, widowed, divorced or separated individuals and those with less education are more likely to report LTWLM. These low rates of long-term success support the need for more effective treatments, such as surgery, as few patients on their own are successful at losing weight.

LOST OPPORTUNITIES: RESIDENT FEEDBACK ON MEDICAL STUDENT CLINICAL PERFORMANCE K.T. Johnston[1]; J.D. Orlander[2]; A. Spires[1]; B. Manning[1]; H.Y. Warren[1]. [1]Boston University Medical Center, Boston, MA; [2]West Roxbury Veterans Affairs Administration Hospital, Boston, MA. *(Tracking ID # 189922)*

BACKGROUND: Feedback that identifies specific modifiable behaviors is invaluable to students' development on clinical rotations. We designed a structured observation of clinical skills (SOCS) intervention in which pocket cards were used to guide feedback delivery in brief observations of history-taking or physical examinations. We sought to examine whether the quality of written feedback differed according to academic status of observing physicians: resident versus attending.
METHODS: Our structured observation intervention was introduced to third year students at the start of the academic year. Students were given SOCS cards and instructed to present them to physicians for formative assessment during their clinical rotation. The card outlined ways in which specific behaviors could be observed and formatively assessed by physicians. After observing student behavior, physicians were instructed to use open space on the card to document two behaviors done well, two that could be improved and review these with the student. Resident physicians were oriented to the SOCS intervention and its goals of formative assessment in three ways: half the residents had a one-hour session on formative student feedback at a PGY2 retreat; discussion of the intervention and its goals were reviewed at multiple resident reports; and emails were sent out to all residents discussing the intervention. Attending physicians were sent two emails presenting the intervention goals. Students submitted the cards at the end of the term. Written feedback comments were qualitatively coded into themes and categorized by two investigators. Bivariate analyses were used to examine differences in written feedback according to academic status.
RESULTS: 172/200 requested cards (86%) were submitted in the first quarter. 70 cards (41%) were completed by residents and 99 (57%) by attending physicians. 107 cards (62%) included specific descriptions of behavior as either praise or advice. Resident cards were more likely to document non-specific comments, such as "Student will improve with time and experience" (99% vs. 88% for attending physicians, p=0.01). When advice for improvement was documented, residents were less likely than attending physicians to provide the recommended two or more comments of advice (36% vs. 55% attending physicians, p=0.02), document specific behaviors (26% vs. 57%, p<0.0001), describe a technical skill to improve (60% vs. 79%, p=0.008), or list clear steps for improvement (26% vs. 53%, p=0.0003).
CONCLUSIONS: Despite a modest, but more intensive orientation to formative assessment and our structured evaluation tool, resident physicians were less likely to document specific behaviors or provide clear advice to medical students on our structured feedback cards compared to attending physicians. More student observations were done by attending physicians and more than half the time our attending physicians documented modifiable behaviors and provided specific advice to the student on the card. Further assessment of the SOCS intervention needs to identify the training needs of all evaluators: resident and attending, as well as barriers to the structured feedback process in order to enhance the efficacy of our program.

LOW ANXIETY BUT NOT DEPRESSION ASSOCIATED WITH OVER-REPORTING ASPIRIN ADHERENCE AFTER ACUTE CORONARY SYNDROMES I.M. Kronish[1]; R. Waxman[2]; N. Rieckmann[1]; W. Chaplin[2]; K. Davidson[3]. [1]Mount Sinai School of Medicine, New York, NY; [2]Saint John's University, New York, NY; [3]Columbia University, New York, NY. *(Tracking ID # 190510)*

BACKGROUND: Aspirin is a cornerstone of pharmacologic therapy after acute coronary syndromes (ACS). Physicians do not have a reliable way of identifying which patients are at risk for over-reporting how well they adhere to aspirin, a patient group that may need more counseling on the importance of adherence to aspirin.
METHODS: We sought to understand possible risk-factors for over-reporting aspirin adherence by comparing self-reported adherence with electronically-monitored adherence in a cohort of 72 patients enrolled within 7 days of hospitalization for ACS. Adherence to aspirin was measured using the Medication Event Monitoring System (MEMS), an electronic device that records the date and time whenever a special pill bottle cap is opened. Only patients who were determined to be poor adherers by MEMS (took aspirin correctly on <80% of days monitored) were included in the analysis since they were the only ones at risk for over-reporting. Self-reported adherence was based on a questionnaire item asked 3 months after hospitalization: "Do you ever miss taking your aspirin?" Patients were categorized as over-reporters if they self-reported never missing their aspirin and yet were poor adherers by MEMS. Data on socioeconomic status (age, gender, race, ethnicity, employment status, years of school, family income), social support (partner status), depression (Beck Depression Inventory), and anxiety (Hospital Anxiety and Depression anxiety subscale (HADS anxiety)) were also collected as potential predictors of over-reporting at the 3-month follow-up visit.
RESULTS: Patients with poor electronically monitored adherence after ACS were on average 63 years old (SD 10 years); 51% were female and 47% were Hispanic. Two-thirds (48/72) of patients with poor adherence over-reported how well they adhered to aspirin. Significant (P<.05) univariate predictors of over-reporting included gender (81% of women vs 51% men were over-reporters, p=.01) and low anxiety (mean score on HADS anxiety 4.8 vs 6.9 among accurate reporters of poor adherence, p=.05). There was no significant difference in the proportion of depressed patients as compared to non-depressed patients who were over-reporters (66% vs 68%, p=1.00).Using logistic regression including univariate predictors with p<0.2 (gender, ethnicity, family income, HADS anxiety score), only female gender (OR 6.7, 95%CI 1.6–29.0) and anxiety (OR 0.9, 95%CI 0.7–1.0, p=0.05) remained significant predictors of over-reporting.
CONCLUSIONS: A majority of patients with poor aspirin adherence after ACS over-report how well they adhere such that self-reported adherence may greatly underestimate true adherence. Women are more likely to over-report than men. Contrary to the theory of depressive realism in which depressed patients are expected to be more likely to accurately report negative behaviors such as poor adherence, there was no significant association between depressive symptoms and over-reporting. In contrast, there was a potential association between low anxiety and increased risk of over-reporting.

LOW LEVELS OF AWARENESS OF PHARMACEUTICAL COST-ASSISTANCE PROGRAMS AMONG LOW-INCOME SENIORS
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BACKGROUND: Participation by low-income seniors in programs designed to lower out-of-pocket healthcare costs, such as pharmaceutical assistance programs and premium assistance programs, is often low. Awareness of such programs may be a major barrier to enrollment, yet little is known about seniors' knowledge of them. The objective of this study was to estimate awareness of major state and federal prescription drug assistance programs and identify characteristics of seniors that predict lack of awareness.
METHODS: 462 seniors (≥60 yrs) were interviewed in English or Spanish (24%) in 11 senior centers and 19 apartment complexes in New York City, NY. We assessed rates of awareness of 2 programs that assist older adults with medication costs and or pharmaceutical coverage premium costs: the New York State Elderly Prescription Insurance Coverage (EPIC) program and the federal Medicare Part D Extra Help (EH) program. We then examined the correlation of awareness of these programs with variables in 7 domains representing need, predisposing, and enabling factors: financial (income, assets, out-of-pocket medication spending, avoidance of medications due to cost); health status (activities of daily living, comorbidities, general health); intellectual (education, health literacy, cognitive impairment); social support and healthcare access (marital status, proxy decision maker for health insurance matters, senior center access, medical care setting); demographic (age, sex, race); and attitudes about medications.
RESULTS: The mean age of study respondents was 73 yr, 33% were male, 34% black, 34% white, 33% Latino; 64% had monthly incomes < $2000; 32% had Medicaid and 86% Medicare. Awareness of programs was limited: 20% knew of Part D Extra Help and 67% of EPIC. Among the most needy, those who skipped medications due to cost (n=80), awareness was no different (24% and 69%, respectively). In multivariable logistic regression analysis, awareness of Extra Help was significantly more likely among those who regularly attend senior centers (AOR 1.32, 95% CI 1.13–1.55) and those who had viewed live health insurance presentations (AOR 2.85, 95% CI 1.55–5.24). Awareness was less likely among those with low levels of health literacy (AOR 0.32, 95% CI 0.13–0.78). Factors associated with awareness of EPIC and Extra Help were similar.
CONCLUSIONS: Awareness of state and federal drug insurance assistance programs is suboptimal (and sometimes very low) among needy (low income) seniors in NYC. This may partly explain on-going underutilization of these existing, well-funded safety net programs. Use of live presentations with low literacy messages and materials may be important strategies in promoting knowledge and enrollment in these programs.

MANAGEMENT OF CARDIOVASCULAR DISEASE AND DIABETES IN THE UNITED STATES: TRENDS IN DISEASE CONTROL, DISPARITIES, AND EFFECTS OF INSURANCE COVERAGE
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BACKGROUND: Quality of care for cardiovascular disease and diabetes care has improved in recent years, and racial disparities in processes of care have become smaller among Medicare managed care enrollees. Self-reported cardiovascular outcomes of previously uninsured adults improve after acquiring Medicare coverage, and expanding coverage therefore may improve disease management for disadvantaged populations. However, trends in clinical outcomes and outcome disparities have not been comprehensively assessed for these conditions. Furthermore, the effects of insurance coverage on racial, ethnic, and socioeconomic differences in disease control have not been clearly demonstrated.
METHODS: We assessed trends in 3 measures of disease control: blood pressure (<140/90 mmHg), hemoglobin A1c (<7.0%), and total cholesterol (<200 mg/dL) among high-risk clinical subgroups of participants aged 45–85 years in the National Health and Nutrition Examination Survey. For four serial cross-sectional cohorts enrolled every two years from 1999–2006, we fitted linear probability models to determine if these trends differed by race, ethnicity, or education. Mean systolic blood pressure (SBP), hemoglobin A1c (HbA1c) levels, and non-HDL cholesterol were also compared by race, ethnicity, and education before and after Medicare eligibility at age 65.
RESULTS: Among 5235 adults with hypertension, rates of blood pressure control significantly improved from 1999 to 2006 (+3.8% per 2 years; P<0.001). Improvements also occurred in glycemic control for 1059 adults with diabetes (+9.5% per 2 years; P<0.001) and total cholesterol control for 2461 adults with diabetes, coronary heart disease (CHD), or stroke (+5.9% per 2 years; P<0.001). Trend estimates were unaffected by adjustments for age, gender, race, education, income, and body mass index. Blood pressure and glycemic control were significantly worse for black, US-born Mexican American, and less-educated adults, but trends did not differ by race, ethnicity, or education for any of the 3 measures of disease control. Among adults with hypertension, obesity, or diabetes, CHD, or stroke diagnosed before age 65, the mean difference in SBP between black and white adults was significantly greater at ages 45–64 than ages 65–85 (+7.2 vs +3.5 mmHg; P=0.03). Among adults with diabetes diagnosed before age 65, differences in HbA1c levels between black and white adults were greater at ages 45–64 than ages 65–85 (+1.3 vs +0.2%; P=0.001), as were differences between US-born Mexican American and white adults (+1.2 vs 0.1%; P=0.001). Differences in non-HDL cholesterol between less and more educated adults with diabetes, CHD, or stroke diagnosed before age 65 also were greater at ages 45–64 than ages 65–85 (+11.8 vs 3.9 mg/dL; P=0.048).
CONCLUSIONS: Disease control has improved for adults with cardiovascular disease and diabetes nationally since 1999, but these improvements have not been accompanied by reductions in racial, ethnic, or socioeconomic differences in blood pressure or glucose control. Eligibility for Medicare coverage is associated with disproportionately better disease control for black, US-born Mexican American, and less educated adults with cardiovascular disease and diabetes. Therefore, extending insurance coverage before age 65 to uninsured adults with these conditions is likely to improve outcomes and reduce health disparities.

MANAGEMENT OF PATIENTS WITH CHEST PAIN FOR MORE THAN 24 HOURS
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BACKGROUND: Evaluation of chest pain account for millions of emergency department visits each year. One of the standard evaluation for chest pain is risk stratification using predictive scores such as the GRACE or TIMI scores and biomarkers for cardiac ischemia. Cardiac Troponins are the most sensitive markers of cardiac ischemia. They peak at 24 hours and can remain elevated for 7–10 days. However most management and risk stratification models are based on patients presenting with chest pain less than 24 hrs. The goal of our study was to determine if patients with non ST elevation ECG's, a normal troponin and chest pain greater than 24 hrs can be successfully managed without further cardiac invasive or noninvasive testing.
METHODS: A retrospective chart review of 202 patients, evaluated for chest pain for more than 24 hrs between January 2006 and December 2007. Baseline characteristics, EKG's, laboratory results, medications and cardiac procedures were reviewed. Patients were risk stratified using the TIMI and Framingham risk scores then divided based on further work up with testing (invasive or noninvasive) or no further testing. We focused on length of stay, events of MI, in hospital and thirty day mortality.
RESULTS: The baseline characteristics were similar between the two groups. A total of 66 patients underwent cardiac testing for further evaluation of their chest pain. At 30 days there was no difference in events of MI or mortality between the two groups. Only 3 patients had initial troponin levels above the normal limits, two of those patients underwent PCI, neither had angiographic evidence of coronary artery disease. Of the 3 patients all were over 40 years, smokers, had hypertension, estimated GFR's of <70 cc/min/1.73 m^2, and a TIMI score greater than 2. Patients with similar risk profile but negative troponin were all found to be on ACEI.
CONCLUSIONS: Patients with chest pain greater than 24 hrs and a negative first troponin can be managed conservatively with no increase

in events of MI or death within 30 days. Further cardiac evaluation should be considered in patients with Age >40, HTN, GFR<70, Smoking, a TIMI score >2, and not on ACEI.

MANAGING OBESITY AS A CHRONIC DISEASE IN PRIMARY CARE: THE KANSAS PRIMARY CARE WEIGHS IN II EXPERIENCE

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BACKGROUND: Obesity is a public health threat of epidemic proportions, and primary care providers are on the front line of diagnosis and treatment. The CCM is a systems-based, multidisciplinary team approach to chronic disease management that has demonstrated improved patient outcomes. Group office visits can also improve chronic disease management in primary care. During a group office visit, 10 to 15 patients with a common chronic disease meet with a multidisciplinary team for a 90 to 120-minute visit. Given that obesity is a chronic disease with links to several common and serious chronic diseases, this clinical approach holds much promise for obesity care. The overall goal of this study is to develop and assess the impact of a primary care CCM program incorporating group office visits with intensive lifestyle training.
METHODS: We are conducting a 2-armed, 16-week pilot trial comparing a CCM program for obesity with usual care in two university-based primary care practices. We used a 2:1 ratio in randomizing participants to the active versus control arm to maximize our opportunity to assess the intervention. The active arm receives 90-minute weekly group office visits, with the first 30 minutes encompassing individualized assessments with biweekly alternating physician and nurse visits, and biweekly dietary behavior review with the psychologist. The final 60 minutes consist of standardized intensive lifestyle training modeled on a successful weight control program (Diabetes Prevention Program). We are providing regular feedback to the continuity primary care team on participant progress with specific recommendations for subsequent visits. The control arm received standardized educational materials at baseline, and will receive the same face-to-face assessments as the active arm at 16 and 24 weeks. Outcomes include weight loss, self-efficacy for weight control, physical activity, dietary behaviors, and physiologic markers of cardiovascular risk. We report selected week 4 outcomes herein.
RESULTS: We enrolled 29 participants (10 control arm, 19 active arm) to this project. Participant mean ± SD age is 49.8±11.5 years, 97% are women, 55% are white, and 41% are black, baseline mean ± SD body mass index (BMI) is 37.5±5.4, baseline mean ± SD body fat percentage is 48.7%±4.9%, and baseline mean ± SD total daily calorie intake as measured by 24-hour diet recall is 1738.1±821.9. Mean ± SD weight change in active arm at week 4 is −4.1±4.2 pounds (range −14.6 to.8 pounds). Two participants have withdrawn due to time limitations and other life stressors. Attendance has been 80% on average. Overall, participant satisfaction with the program has been excellent.
CONCLUSIONS: Better approaches are needed for obesity treatment in primary care. Preliminary findings suggest that patients are responsive to a group office visit CCM program treating obesity within a primary care settings. A CCM for obesity may be one method of closing the quality gap between currently observed low rates of nutritional, physical activity, and general obesity counseling in primary care settings, and guideline-recommended obesity care.

MARKERS OF ATHEROSCLEROSIS AND OF INFLAMMATION FOR PREDICTION OF CORONARY HEART DISEASE IN OLDER ADULTS

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BACKGROUND: Several markers of atherosclerosis and of inflammation have been shown to predict coronary heart disease (CHD) individually. However, the utility of markers of atherosclerosis and of inflammation on prediction of CHD over traditional risk factors has not been well established, especially in the elderly.
METHODS: We studied 2202 men and women, aged 70–79, without baseline cardiovascular disease over 6-year follow-up to assess the risk of incident CHD associated with baseline noninvasive measures of atherosclerosis (ankle-arm index [AAI], aortic pulse wave velocity [aPWV]) and inflammatory markers (interleukin-6 [IL-6], C-reactive protein [CRP], tumor necrosis factor-a [TNF-a]). CHD events were studied as either nonfatal myocardial infarction or coronary death ("hard" events), and "hard" events plus hospitalization for angina, or the need for coronary-revascularization procedures (total CHD events).
RESULTS: During the 6-year follow-up, 283 participants had CHD events (including 136 "hard" events). IL-6, TNF-a and AAI independently predicted CHD events above Framingham Risk Score (FRS) with hazard ratios [HR] for the highest as compared with the lowest quartile for IL-6 of 1.95 (95%CI: 1.38–2.75, p for trend<0.001), TNF-a of 1.45 (95%CI: 1.04–2.02, p for trend 0.03), of 1.66 (95%CI: 1.19–2.31) for AAI £0.9, as compared to AAI 1.01–1.30. CRP and aPWV were not independently associated with CHD events. Results were similar for "hard" CHD events. Addition of IL-6 and AAI to traditional cardiovascular risk factors yielded the greatest improvement in the prediction of CHD; C-index for "hard"/total CHD events increased from 0.62/0.62 for traditional risk factors to 0.64/0.64 for IL-6 addition, 0.65/0.63 for AAI, and 0.66/0.64 for IL-6 combined with AAI. Being in the highest quartile of IL-6 combined with an AAI £ 0.90 or >1.40 yielded an HR of 2.51 (1.50–4.19) and 4.55 (1.65–12.50) above FRS, respectively. With use of CHD risk categories, risk prediction at 5 years was more accurate in models that included IL-6, AAI or both, with 8.0, 8.3 and 12.1% correctly reclassified respectively.
CONCLUSIONS: Among older adults, markers of atherosclerosis and of inflammation, particularly IL-6 and AAI, are independently associated with CHD. However, these markers only modestly improve cardiovascular risk prediction beyond traditional risk factors. Acknowledgments: This study was supported by Contracts NO1-AG-6–2101, NO1-AG-6–2103, and NO1-AG-6–2106 of the National Institute on Aging. This research was supported in part by the Intramural Research Program of the NIH, National Institute on Aging.

MEASURING PHYSICIAN PERFORMANCE COMPREHENSIVELY: RESULTS FROM THE ABIM COMPREHENSIVE CARE PROJECT

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BACKGROUND: There is intense interest to measure and publicly report on quality at the individual physician level. However, most current approaches such as pay-for-performance, mainly target single medical conditions. Yet, general internists care for a broad spectrum of patients who often possess multiple medical conditions. The Comprehensive Care Project attempted to measure physician performance across multiple conditions and preventive services.
METHODS: We invited 6,709 general internists with time-limited certification in 13 different states, stratified by the 2005 AHRQ ranking of medical care, to participate. After identifying interested participants (N=534), we randomly sampled 254 physicians to undergo a comprehensive assessment of their practice through medical record audit, a provider-level Consumer Assessment of Health Plan patient survey (CAHPS), and a self-report of their systems capability. The medical record audit, using NQF (chronic care/prevention) or RAND (acute care) measures, targeted five chronic conditions: diabetes, coronary artery disease/acute myocardial infarction, congestive heart failure, hypertension and osteoarthritis; three acute care conditions: upper respiratory infection, urinary tract infection and low back pain; and five preventive services: immunizations, mammography screening, colorectal cancer screening and osteoporosis screening. In all, 56 performance measures were audited by trained abstractors (Westat, Inc.). We used a retrospective sequential sampling strategy, based on a pre-specified number of visits for the chronic and acute care conditions, to identify patients. However, all applicable conditions were audited for each patient. We report the results of performance on the quality measures.
RESULTS: Of the 254 physicians, 236 physicians (93%) completed the audit for a total of 22,526 medical records (mean=95/physician). The mean physician age was 42 years (SD 6.2) and 36% were female. The characteristics of physician's patient cohorts varied widely: The mean patient age was 61 (mean range 44–77/physician); mean Charlson comorbidity index was 1 (mean range 0.02 – 2.6/physician) and 40% were male (range 10–75%/physician). Performance on the quality measures

varied widely. The range of compliance at the patient level on the outcome measures was 44% (Hgb A1c<7%) to 66% (LDL<100 mg/dl), for process measures 8% (avoid bed rest in LBP) to 85% (avoid steroids, colchicine, antidepressants in LBP) and for prevention measures 44% (pneumovax) to 62% (Mammography). Within physicians, using mean results, the correlation between performance on the chronic conditions moderately correlated with performance on the prevention measures (Pearson coefficient 0.57), but poorly with performance on the acute care measures (Pearson coefficient 0.16). The correlation between prevention and acute care was only 0.11.Within category, the correlation between the chronic care conditions ranged from 0.30 to 0.60, and the range for acute care conditions was –0.08 to 0.58.
CONCLUSIONS: Performance varies widely among physicians on specific performance measures, and among conditions and measures within physicians, suggesting that current approaches that measure physician "quality" using single or limited number of conditions and/or measures are insufficient to judge performance at the physician level in a comprehensive care practice. These data also highlight the complexity and challenges for physicians to be effective across all conditions and populations.

MECHANISMS OF ASSOCIATION BETWEEN DEPRESSIVE SYMPTOMS AND CARDIOVASCULAR EVENTS IN THE HEART AND SOUL STUDY M.A. Whooley[1]. [1]VA Medical Center and University of California, San Francisco, San Francisco, CA. *(Tracking ID # 190221)*

BACKGROUND: Depressive symptoms predict adverse cardiovascular (CV) outcomes in patients with coronary heart disease, but the mechanisms responsible for this association are unknown.
METHODS: In a prospective study of 1024 outpatients with coronary heart disease recruited between 9/00 and 12/02, we measured basaeline depressive symptoms using the Patient Health Questionnaire (PHQ). CV events (heart failure, myocardial infarction, stroke, and CV death) were defined by review of medical records during 4.4 years of follow-up. We used Cox proportional hazards models to evaluate the extent to which the association of depressive symptoms with subsequent CV events was explained by baseline comorbidities, cardiac disease severity, potential biological mediators (heart rate variability, norepinephrine, cortisol, inflammation), and potential behavioral mediators (smoking, medication adherence, physical activity).
RESULTS: Follow-up information was available for 99% (1015/1024) of participants. CV events occurred in 26% (52/198) of participants with depressive symptoms (PHQ>=10) and 21% (170/817) of those without depressive symptoms (p=.002). After adjustment for CV disease severity, depressive symptoms were associated with a 39% greater rate of events. Further adjustment for biological mediators somewhat attenuated this association. However, adjustment for behavioral mediators, especially physical inactivity, virtually eliminated this association (Table). Results were similar when PHQ score was entered as a continuous variable.
CONCLUSIONS: We found that the association between depressive symptoms and CV events is almost entirely explained by behavioral factors, particularly physical inactivity.

Association between depressive symptoms (PHQ>=10) and cardiovascular events.

Model adjusted for	Hazard Ratio (95% CI)
Age and comorbid illnesses	1.47 (1.07–2.02)
+ CV disease severity	1.39 (1.01–1.91)
+ biological mediators	1.30 (0.94–1.81)
+ smoking, med adherence	1.27 (0.91–1.76)
+ physical inactivity	1.10 (0.78–1.55)
+ treadmill exercise capacity	1.02 (0.70–1.50)

MEDICAL SCHOOL DIVERSITY AND EDUCATIONAL OUTCOMES IN THE UNITED STATES S. Saha[1]; P.F. Wimmers[2]; G. Guiton[3]; L. Wilkerson[2]. [1]Portland VA Medical Center, Portland, OR; [2]University of California, Los Angeles, Los Angeles, CA; [3]University of Colorado at Denver and Health Sciences Center, Denver, CO. *(Tracking ID # 190932)*

BACKGROUND: Most medical schools in the U.S. explicitly seek to promote racial and ethnic diversity within their student bodies, in part based on the assertion that diversity enhances the educational environment. No studies, however, have directly examined whether diversity is associated with improved educational outcomes among medical students.
METHODS: We analyzed data from the Association of American Medical Colleges 2003 Graduation Questionnaire (GQ), a survey of all graduating medical students in the U.S. Using self-reported race/ethnicity data, we categorized students as white, underrepresented minority (URM: African American, Latino, American Indian), or "other minority" (non-URM minority). For each medical school, we calculated the proportion of students in each racial/ethnic category and considered higher proportions of minority students to represent greater diversity. We excluded historically black and Puerto Rican medical colleges, where "minority" students comprise the majority. We examined the association of medical school diversity with 3 outcome variables: students' self-perceived preparedness to care for individuals from racial/ethnic backgrounds different from their own ("cultural competence," 1 item, Likert scale 1–5); attitudes about equity and access to care ("social justice orientation," 2 items, Likert scale 1–5); and intent to practice in an underserved area (1 item, yes/no). We used hierarchical linear modeling to examine the effect of school-level diversity on each of these student-level outcomes, while controlling for individual student characteristics (race/ethnicity, age, gender) and other school-level variables, including average age and percent female. For the cultural competence outcome variable, we restricted our analysis to white students, since for minority students, preparedness to care for individuals from other racial/ethnic backgrounds could be interpreted as caring for majority (white) patients, while the concept of cultural competence most commonly relates to the care of minority patients.
RESULTS: The 2003 GQ was completed by 13,764 graduating students (response rate 89%). After excluding historically black and Puerto Rican medical colleges, our sample included 12,867 students from 117 medical schools. On average, the graduating classes were 13.2% URM and 34.5% other minority. White students at schools with higher URM proportions reported higher levels of cultural competence (β 1.089, p=.001). Students at schools with higher proportions of "other minority" groups also reported greater cultural competence (β.142, p=.005) and greater social justice orientation (β.376, p=.01). School-level diversity was not associated with intent to practice in an underserved area, but URM students were more likely than whites to report an intent to serve the underserved (β.709, p <.001).
CONCLUSIONS: Medical school diversity was associated with greater student preparedness to care for diverse patient populations and, to a lesser extent, with students' awareness and attitudes about access to care. By demonstrating that student body diversity is associated with important, measurable educational benefits, these findings support the prevailing rationale for continuing policies and programs to promote racial and ethnic diversity in U.S. medical schools.

MEDICAL STUDENT CHARACTERISTICS AND RECEPTIVITY TO A HEALTH CARE DISPARITIES CURRICULUM A. Fernandez[1]; E. Harleman[1]; A. Tamayo[1]; K.E. Hauer[1]; P. Fleisher[1]; E. Chen[1]. [1]University of California, San Francisco, San Francisco, CA. *(Tracking ID # 190919)*

BACKGROUND: Physician ethnicity is strongly associated with physician attitude toward health care disparities (HCD) and is associated with receptivity to national campaigns designed to raise awareness of health care disparities. Medical student ethnicity may also influence attitudes toward health care disparities which may in turn pose challenges to teaching interventions, or even suggest that different curricula would be appropriate for different groups. We designed a study to determine if ethnicity or other student demographic characteristics, specialty choice, or political philosophy was associated with receptivity to a novel curriculum on provider driven HCD.
METHODS: We used anonymous written questionnaires to survey third and fourth year medical students at one US medical school immediately before and after administration of an evidence based curriculum on provider driven HCD. Surveys contained items on student demographics, specialty choice and political philosophy. The pre-survey included items on belief in frequency of HCD based on patient race, education or insurance. Receptivity to curriculum was determined as composite from 3 items from the post curriculum survey, rating agreement that curriculum was useful in preparing student to "recognize", "address" and "teach others" about HCD.
RESULTS: 249 of 292 students (85%) returned both surveys. Student ethnicity was 42% white, 36% Asian, 10% Hispanic/Black, 12% multiracial /other. 72% identified as "liberal"; 35% planned careers in primary care, 75% reported working with underserved was very/

more important to career satisfaction. In multivariate analysis controlling for demographics, specialty choice, underserved interest, political philosophy and medical school year, Hispanic/Black ethnicity was associated with student belief that HCD based on race occurred somewhat/very often: 96% Hispanic (Adj. OR vs. whites 8.43, p=0.05), 80% Asian (Adj. OR vs. whites 1.42, p=0.4); 74% whites. By contrast, ethnicity was not associated with beliefs about HCD based on patient education or insurance. Students who reported "working with underserved was important to career satisfaction "(83% vs. 67%; Adj OR 2.32, p 0.03) and senior medical students (88% MS 4 vs. 72% MS 3; Adj OR 3.57, p<0.001) were more likely to agree that HCD based on race occurred somewhat/very often. While a majority of all students rated the HCD curriculum highly, Asian students were more likely than white students to agree on curriculum's impact (82% vs. 65%, Adj OR 2.75, p= 0.03) while Hispanic/black students were similar to whites (72% vs. 65%, Adj OR 1.57, p=0.4) Student receptivity to the HCD curriculum did not vary by other demographic variables, political philosophy, primary care or underserved interest, or medical school class.
CONCLUSIONS: While medical student ethnicity is associated with beliefs about the prevalence of HCD by race in a pattern similar to that seen with practicing physicians, receptivity to a HCD curriculum varied only somewhat by student ethnicity and not by other demographic characteristics or political philosophy. These findings suggest that efforts to teach diverse medical students about HCD can be broadly well received. More research is needed to determine if receptivity toward a curriculum on provider driven health care disparities leads to more equitable patient care.

MEDICAL STUDENTS' ATTITUDES TOWARD PERSONS LIVING WITH HIV A.R. Hoellein[1]; J.R. Olges[1]; C.M. Bincang[1]; J.F. Wilson[1]. [1]University of Kentucky, Lexington, KY. *(Tracking ID # 190233)*

BACKGROUND: Nearly thirty years into the HIV/AIDS epidemic, patients continue to report discrimination by the medical community, threatening the patient-provider relationship and ultimately the well-being of the patient. As medical students represent the future of their medical care, it is important to address student attitudes toward HIV and identify those factors which influence these attitudes.
METHODS: Anonymous surveys were distributed to medical students at the University of Kentucky during the spring of 2007. To measure attitudes, students were asked to use a 5-point Likert scale to rate their agreement of statements related to HIV testing, treatment of patients with HIV and healthcare workers with HIV. Multiple choice questions were used to assess student knowledge of HIV. Linear regression was conducted on individual items and on subscales of attitudes to identify possible predictors of attitudes held by medical students.
RESULTS: Students in the 3rd and 4th year returned 110 surveys for a response rate of 84%. Higher levels of knowledge of HIV were associated with higher levels of overall comfort as determined by subscale of comfort attitudes (p=0.0080). Knowledge of HIV was also significantly associated with 5 of the 8 components of the comfort subscale. Specifically, those with greater levels of knowledge of HIV were more likely to agree that they felt comfortable treating patients with HIV and that HIV positive practitioners should be allowed to continue practicing whether or not they perform invasive procedures (p=0.0196, p=0.0419, p=0.0423, respectively). Those with higher levels of knowledge of HIV were also less likely to worry about contracting HIV from a patient (p=0.0353). Other factors significantly associated with attitudes included having known someone with HIV, knowledge of universal precautions, and socioeconomic status.
CONCLUSIONS: Several factors, particularly knowledge of HIV, were found to be significant predictors of positive attitudes toward persons living with HIV among medical students in their clinical years. Evaluation of curriculum content and enhanced education of students with respect to HIV may play a critical role in improving the attitudes of future medical professionals toward persons living with HIV.

MEDICAL STUDENTS' PERCEPTIONS OF HIGH QUALITY LEARNING ACTIVITIES IN A MEDICINE CLERKSHIP CHANGE ACROSS THE ACADEMIC YEAR D. Torre[1]; R. Treat[1]; M. Elnicki[2]; D. Simpson[1]. [1]Medical College of Wisconsin, Milwaukee, WI; [2]University of Pittsburgh, Pittsburgh, PA. *(Tracking ID # 190008)*

BACKGROUND: The LCME states that educators must monitor students' educational experiences, and more specifically the expected level of student responsibility in the care of patients. Moreover as students develop new knowledge, skills and behaviors throughout the academic year, it is not known if such perceptions change over the length of the academic year. The purpose was to identify and compare medical students perceptions of high quality learning activities in the first six months versus the second of the half of the academic year during the inpatient rotation component of the medicine clerkship.
METHODS: Personal Digital Assistants (PDAs) allow students' to report their perceptions regarding of high quality learning activities in real-time, rather than exclusively at end of rotation. From July 2005 to May 2006, 195 M3 students in a two-month IM clerkship used daily PDA logs to record the perceived value of regarding a variety of learning interactions. Multiple linear regression analysis was performed to determine the association between students' perceptions of high quality teaching and learning activities.
RESULTS: A total of 4265 teaching/learning interactions were collected. Performing an H&P (71% responded yes), presenting a patient case (75%), giving an assessment (87%), making a plan (85%), writing a progress note (81%), discussing an evidence based medicine topic (45%), receiving high quality feedback (71%) and having an attending as teacher (40%) were significantly associated with students' perception of high quality teaching for the one-year period. Multiple linear regression analysis revealed a statistically significant model (F(9,2185) = 213, p<.001, R2=.47) of students' perception of high quality teaching for the first half of the academic year which incorporated receiving high quality feedback (= 0.6), evidence based medicine (= .1), being taught by a teaching attending versus a resident (= .1), making a plan (= .1), and writing a progress note (= .1) as statistically significant predictors (p <.001). Regression analysis of records for the second half of the academic year (F(9,1723) = 255, p<.001, overall R2=.57) revealed that evidence based medicine (= .1), cultural diversity (= .1), and receiving high quality feedback = (.7) were statistically significant predictors (p<.001).
CONCLUSIONS: Receiving high quality feedback and incorporating evidence based medicine into the clinical encounter were highly valued learning activities throughout the academic year. However students' perception of other learning activities varied between the first and second half of the academic year. Curriculum developers and educators should be aware of what activities students' value and how students' perceptions may evolve over the training year in order to design appropriate and effective curricula.

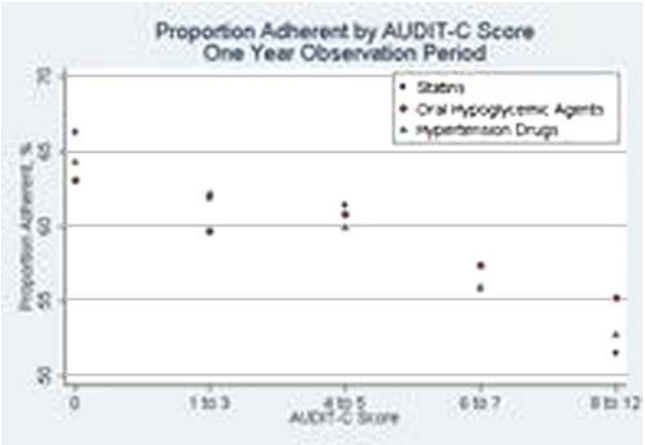
MEDICAL VERSUS ORTHOPEDIC SERVICE FOR HOSPITAL MANAGEMENT OF HIP FRACTURE PATIENTS G. Pinkowsky[1]; A. Armstrong[2]; C.H. Chuang[1]. [1]Penn State College of Medicine, Hershey, PA; [2]Pennsylvania State University, Hershey, PA. *(Tracking ID # 190490)*

BACKGROUND: Hospital management of hip fractures can often be complicated by advanced age and medical co-morbidities of this patient population. Recent research suggesting that medical comanagement improves outcomes in certain orthopedic cases led to change in guidelines at our institution. Beginning in 2004 the medicine service began admitting more hip fracture patients, whereas they were previously admitted to the orthopedic surgical service almost exclusively. It is unknown whether patient outcomes differ by the specialty of the primary service.
METHODS: We performed a retrospective cohort study to compare the rate of medical complications in patients undergoing surgery for hip fractures admitted to orthopedic versus medical services at the Penn State Hershey Medical Center during 2006. Data was extracted from both the electronic and paper medical record. We compared the characteristics and complication rate of patients admitted to the orthopedic versus medical services using chi-square statistics. Complications were characterized as severe (death, respiratory failure, acute myocardial infarction, renal failure requiring dialysis, cardiac arrest, and pulmonary embolism), intermediate (including pneumonia, congestive heart failure, deep vein thrombosis, and delirium) and minor (including urinary tract infection, fever, electrolyte abnormalities, and anemia requiring transfusion). Multiple logistic regression modelled the likelihood of severe or intermediate medical complications. Further risk adjustment modeling is planned using propensity score matching.
RESULTS: Of the 98 people included in the analysis, 42% were admitted to the medical service. Medicine patients were older, more likely to need ambulatory aids, and have medical co-morbidities. Medical complica-

tions during the postoperative period occurred in 63% of patients. Of these, 7% had a severe complication, 11% had intermediate complications, and 45% had minor complications. Patients admitted to a primary medical service were more likely to have a severe or intermediate complication than those admitted to an orthopedic surgery service (50% vs. 15%, p=0.0002). After adjusting for confounders using multiple logistic regression, the likelihood of medical complications was not significantly greater on the medical service (adjusted OR 3.08, 95% CI 0.95–9.97). Patients with pre-existing coronary artery disease were more likely to have a severe or intermediate complication (adjusted OR 12.60, 95% CI 3.22–49.31).
CONCLUSIONS: At our institution in 2006, hip fracture patients admitted to a primary medical service were more likely to have preexisting medical conditions and more likely to develop in-hospital complications compared to patients admitted to an orthopedic service, but there was no difference in risk of severe or intermediate complications by service in adjusted analysis. Further study into optimal health service delivery for hip fracture patients can help to further determine whether certain hip fracture patients benefit from being under the care of a primary medical team during the hospital period.

MEDICATION ADHERENCE DECREASES WITH INCREASING AUDIT-C ALCOHOL SCREENING SCORES C.L. Bryson[1]; D.H. Au[2]; H. Sun[1]; E.C. Williams[3]; D.R. Kivlahan[4]; K.A. Bradley[3]. [1]Health Services Research and Development Center of Excellence, VA Puget Sound Health Care System, Seattle, WA; [2]Health Services Research and Development Center of Excellence, VA Puget Sound Health Care System, University of Washington, Seattle, WA; [3]Health Services Research and Development Center of Excellence, VA Puget Sound Health Care System/University of Washington, Seattle, WA; [4]University of Washington/Health Services Research and Development Center of Excellence, VA Puget Sound Health Care System, Seattle, WA. *(Tracking ID # 190321)*

BACKGROUND: Daily oral medications are currently an indispensable modality used for risk factor modification and disease prevention. Many studies have examined predictors of medication adherence, but few studies have identified modifiable predictors of nonadherence. Alcohol misuse is a common and treatable condition with multiple negative effects on health. We examined whether a commonly used, brief, valid, and scaled 3-question screen of alcohol misuse, the AUDIT-C, was associated with medication adherence for three classes of medications commonly used for prevention: statins, oral hypoglycemic (OH) medications, and antihypertensive (HT) medications.
METHODS: We analyzed data from the Ambulatory Care Quality Improvement Project (ACQUIP, 1997–2000): approximately 30,000 patients active in 7 VA primary care clinics returned health status questionnaires which were linked to electronic pharmacy data. Three non-exclusive cohorts of patients were developed,: 1) a statin cohort; 2) OH cohort (sulfonylurea and/or metformin); and 3) HT cohort (self-reported hypertension on an antihypertensive). Patients were considered adherent if they obtained enough fills to have medication for at least 80% of a one year observation period. AUDIT-C scores were grouped into 5 categories: 0 (nondrinkers), 1–3 (drinkers who screen negative for alcohol misuse), 4–5 (mild misuse), 6–7 (moderate misuse), and 8–12 (severe misuse). Logistic regression adjusted for age, sex, marital status, education, total number of oral medications, smoking status, and MHI-5 depression score.
RESULTS: Most patients were over 65, white, and male, consistent with VA primary care. There were 5,473 patients in the statin cohort, 3,468 in the OH cohort, and 13,729 in the HT cohort. Over a one year observation period, fully adjusted analyses showed higher AUDIT-C scores were associated with a trend in lower adherence in each medication cohort (figure), with the percentage adherent falling 10 to 15% within each cohort from the non-drinkers to the highest consumption group. For the statin cohort, moderate and severe alcohol misuse were associated with a significantly decreased adherence (AUDIT-C score 6 to 7, ORadj 0.74, 95% CI 0.56 – 0.98; 8 to 12, ORadj 0.63, 95% CI 0.46 – 0.88). For the OH cohort, there was a significant unadjusted trend toward decreased adherence with higher AUDIT-C scores but no significant trend was observed after adjustment. Among the HT cohort, progressively higher levels of misuse as measured by AUDIT-C categories of 4 to 5, 6 to 7, and 8 or more were associated with approximately 10%, 20%, and 30% lower likelihood of being adherent (p<0.05 for each).



Proportion of patients adherent to medications by AUDIT-C score during 1 year observation period (*p<0.05 for all tests of trend)

CONCLUSIONS: Alcohol misuse as measured by AUDIT-C is correlated with medication adherence assessed by pharmacy records in active VA primary care patients. These results highlight alcohol misuse as a modifiable risk factor for medication nonadherence in primary care populations.

MEDICATION ALERTS IN AMBULATORY CARE: MORE NOISE THAN NEWS FOR PRESCRIBERS? T. Isaac[1]; J. Weissman[2]; R. Davis[3]; M. Massagli[4]; A. Cyrulik[5]; D.Z. Sands[3]; S.N. Weingart[6]. [1]MAVERIC, VA Boston Healthcare, Boston, MA; [2]Massachusetts General Hospital, Boston, MA; [3]Harvard University, Boston, MA; [4]Dana Farber Cancer Institute, Boston, MA; [5]Blue Cross Blue Shield of Massachusetts, Boston, MA; [6]Harvard University, West Roxbury, MA. *(Tracking ID # 190869)*

BACKGROUND: Electronic prescribing systems with decision support may improve patient safety in ambulatory care by offering clinicians medication safety alerts. However, preliminary studies that have examined the utility of medication alerts have been limited to few clinicians at teaching hospitals.
METHODS: We examined the prescribing behavior and responses to medication alerts among clinicians who used a commercial electronic prescribing system in MA, NJ, and PA between 1/1/06 and 9/30/06. After excluding duplicate alerts, we calculated the percentage of prescriptions that generated alerts (alert rate) and the percentage of alerts that clinicians accepted (accept rate). Alert acceptance was defined as either cancellation of the prescription or change in prescription to an alternate drug. We examined whether accept rates varied by clinician type (physician vs. non-physician), clinician specialty, alert type (drug-drug interaction vs. allergy), or alert severity using Fisher's exact tests. We also examined accept rates for all combinations of medication classes that interacted with one another. Finally, we fit logistic regression models using generalized estimating equations to examine the relationships among accepted alerts and patient, prescription, alert, and clinician characteristics.
RESULTS: 2,872 clinicians distributed across 862 practices wrote over 3.5 million electronic prescriptions and encountered 233,537 alerts during the study period. Clinicians were alerted for 6.6% of prescriptions attempts and accepted 9.2% of drug-drug interaction (DDI) alerts. High severity DDIs accounted for the majority of encountered alerts (61.6%), although clinicians accepted them only slightly more often than moderate or mild severity DDIs (10.4%, 7.3%, 7.1% respectively; p<0.001). Clinicians accepted between 0% and 43.1% of DDIs depending upon the classes of interacting medications. For example, clinicians commonly accepted DDI alerts involving combinations of antibiotics and anti-arrhythmic medications, or antibiotics and warfarin. Clinicians frequently overrode DDI alerts for medications used in combination to treat an illness, such as steroids and anti-rheumatic agents. In adjusted analyses, all clinician types and specialties responded to alerts similarly (p=0.10 and 0.16 respectively).

CONCLUSIONS: Ambulatory care clinicians distinguish among alerts based on their perceived value. Since clinicians override the majority of alerts, many alerts may be perceived as more of a nuisance than an asset. Informaticists may improve alert utility by reducing the proportion of alerts considered high severity and eliminating alerts which clinicians find meaningless. Unless steps are taken to improve clinical decision support systems, the potential benefits of electronic prescribing may not be realized.

MEDICATION NON-ADHERENCE IS ASSOCIATED WITH INCREASED MORTALITY IN VETERANS WITH TYPE 2 DIABETES L.E. Egede[1]; P.D. Mauldin[1]; M. Mueller[1]. [1]Medical University of South Carolina, Charleston, SC. *(Tracking ID # 190202)*

BACKGROUND: To assess the effect of medication non-adherence on survival of veterans with type 2 diabetes.
METHODS: In this retrospective study, fiscal year 2004 data were analyzed on 4,695 veterans from the Ralph H. Johnson VA Medical Center in Charleston SC with type 2 diabetes. Veterans were identified through administrative data using established algorithms. Medication non-adherence was calculated as the summation (in days) of excessive refill gaps (15 days or more) over multiple intervals within the year. The sample was limited to only non-Hispanic (NH) Whites and NH Blacks. A Cox proportional-hazards model was used to examine the effect of medication non-adherence on survival controlling for age, gender, and race. SAS was used for statistical analysis.
RESULTS: Out of the 4,695 type 2 diabetic veterans in our sample, 2,812 (60%) were considered non-adherent. Mean age was 60.7 years for non-adherent veterans, compared to 59.8 years for adherent veterans (p=0.011). 97% were men in both groups, and approximately 63% overall were NH Whites. There was no significant difference in race between the two groups. 67.6% of the adherent veterans were married and 25.5% separated or divorced, compared to 65.0% of non-adherent veterans being married, and 29.0% separated or divorced (p=0.023). Roughly 22% of the veterans in each group were active duty or employed. The unadjusted Cox proportional-hazards model revealed that non-adherent type 2 diabetic veterans were 7.94 (95% CI: 3.4, 18.2) times more likely to die within the year than adherent veterans. When adjusting for baseline age, gender and race, the model revealed that non-adherent type 2 diabetic veterans were 7.46 (95% CI: 3.3, 17.2) times more likely to die than adherent veterans.
CONCLUSIONS: Type 2 diabetic veterans who are non-adherent with their medications are nearly 8 times more likely to die within the year than those veterans who are adherent with their medications. Multilevel interventions to enhance medication adherence in veterans with type 2 diabetes are urgently needed. Interventions that address patient, provider, and systems level barriers to optimal medication adherence are likely to be most effective.

MENTAL DISORDERS, TOBACCO USE AND SMOKING CESSATION AMONG PATIENTS ATTENDING A SMOKING CESSATION CLINIC J. Humair[1]; N. Righini Camparini[1]. [1]University Hospitals of Geneva, Geneva,. *(Tracking ID # 190709)*

BACKGROUND: Tobacco smoking and mental disorders, particularly depression, are associated in a causal relationship which is probably bidirectional and influences processes and outcomes of smoking cessation. This study aims to estimate the prevalence and types of mental disorders as well as to evaluate management, evolution and tobacco abstinence among smokers attending a smoking cessation clinic.
METHODS: In this retrospective study, we reviewed medical records of 495 patients who visited a smoking cessation clinic of a university hospital over 2 years. We extracted from the structured smoker's sheet and physician's notes data on socio-demographic variables, mental disorders defined by axis I diagnoses of DSM-IV classification, somatic diseases, tobacco consumption, nicotine dependence, medical management, cessation process and self-reported smoking abstinence at the end of follow-up. We compared these variables between 3 groups of patients in good mental health (group 1), with past mental illness (group 2) or with a current mental disorder (group 3).
RESULTS: 73.2% of smokers have a history of mental disorder as 49% suffer from a current disease and 24.2% had one in the past. The main current and prior mental disorders are respectively major depression (49.5% and 74.2%), alcohol abuse or dependence (27.5% and 26.7%) and cannabis abuse or dependence (11.5% and 12.5%). Compared to group 1, patients with a current mental disorder are more likely to have a cardiovascular disease (15.1% vs. 12.7%) or a pulmonary disease (19.3% vs. 8.9%) due to tobacco. They also have a significantly higher mean daily cigarettes consumption (24.1 vs. 18.5) and duration of smoking (26.2 vs. 23.6 years). A heavy nicotine dependence is significantly more common among patients with a current (85.7%) or past (85.1%) mental disorder than among those in good mental health (75.8%). Physicians identified relapse situations and planned follow-up less frequently (p¡Ü0.05) for patients in group 3. About 90% of smokers in all groups received pharmacological therapy with more prescriptions for nicotine patch and less for bupropion to patients in group 3 (p< 0.05). A new mental problem, typically a depression, appeared during follow-up more commonly among patients in group 3 (20%) and 2 (14%) than in group 1 (2.1%). Smokers in groups 3 (57.9%) and 2 (44.4%) relapsed more often during follow-up than those in group 1 (28.6%). Considering patients who missed the last visit as smokers, smoking abstinence at the end of follow-up was higher among patients in good mental health (20.6%) or with a past mental illness (20%) than among those with a current mental disorder (11%).
CONCLUSIONS: Most patients attending for smoking cessation have a current or past mental disorder, mainly a major depression or a problematic alcohol use. These disorders are associated with more frequent physical illness, a heavier tobacco consumption and a higher nicotine dependence. During the cessation process, smokers with a history of mental disorder are more likely to develop a depression and to relapse. Patients with a current mental disorder have a lower abstinence rate at the end of follow-up than those without an active illness. In smoking cessation clinics, interventions should include systematic assessment of patients for mental disorders, more intensive support and counseling for relapse prevention to patients with mental disorders and alertness to detect depression.

MENTAL HEALTH DISORDERS AND PTSD INCREASE NON-MENTAL HEALTH SERVICES UTILIZATION: A STUDY OF 180,324 VETERANS RETURNING FROM IRAQ AND AFGHANISTAN SEEN AT DEPARTMENT OF VETERANS AFFAIRS FACILITIES B.E. Cohen[1]; S.E. Kim[1]; K.S. Gima[2]; D. Bertenthal[1]; C.R. Marmar[1]; K.H. Seal[1]. [1]University of California, San Francisco/ SF VA Medical Center, San Francisco, CA; [2]San Francisco VA Medical Center, San Francisco, CA. *(Tracking ID # 189605)*

BACKGROUND: Over 35% of veterans returning from Iraq and Afghanistan have received mental health diagnoses (MH Dx)- PTSD being the most common diagnosis. However, little is known about the impact of mental health disorders on utilization of non-mental health services. Such information is urgently needed to plan for the care of this growing population of veterans.
METHODS: We analyzed data from the Veterans Administration (VA) National Patient Care Database for veterans of Iraq and Afghanistan who were new users of VA healthcare from 10/15/2001 (invasion of Afghanistan) through 9/30/2006, (N=180,324). We used ICD-9 codes to categorize veterans into 3 groups: those with no MH Dx, those with PTSD and co-morbid MH Dx (if any), and MH Dx other than PTSD. We used VA clinic codes to create 7 categories for the types of services used. We excluded outpatient visits for MH services and inpatient visits with a primary code for MH Dx. To control for variations in length of VA use, we limited utilization to 1 year after each veteran's initial VA visit. We used log binomial regression models to calculate adjusted incident rate ratios for service utilization.
RESULTS: Veterans with MH Dx had significantly greater utilization in all 7 non-mental health service categories (see Table; data for Medical/ Surgical Subspecialty and Diagnostic Tests/Procedures were similar; p <0.01 for all 7 trends). Veterans with PTSD had the highest rates of utilization in 6 of the 7 categories. Utilization remained significantly higher after adjustment for age, sex, race/ethnicity, and component type (Active Duty vs. National Guard/Reserve).
CONCLUSIONS: Veterans with mental health diagnoses, particularly PTSD, utilize significantly more non-mental health services. With the large number of returning combat veterans and the high prevalence of mental health disorders, we must be prepared to expand VA healthcare, including non-mental health outpatient, inpatient, and emergency services.

	No MH Dx N=116,215	MH Dx (except PTSD) N=27,334	PTSD (± other MH Dx) N=36,775
All Non-MH visits* Mean # visits (± SD) Adjusted IRR	4.68 (5.1) 1.00	6.90 (7.1) 1.44	7.64 (7.7) 1.58
Primary Care* Mean # visits (± SD) Adjusted IRR	0.83 (1.3) 1.00	1.49 (1.8) 1.76	1.61 (1.9) 1.89
Ancillary Services* Mean # visits (± SD) Adjusted IRR	1.14 (2.2) 1.00	1.59 (2.9) 1.38	1.89 (3.1) 1.62
Emergency Room* Mean # visits (± SD) Adjusted IRR	0.29 (0.7) 1.00	0.39 (0.9) 1.34	0.40 (1.0) 1.37
Hospitalization* Mean # visits (± SD) Adjusted IRR	0.01 (0.1) 1.00	0.02 (0.2) 1.84	0.02 (0.2) 1.79

*p= for trend <0.01

MENTAL ILLNESS AND PAIN AS BARRIERS TO CANCER SCREENING IN WOMEN E.F. Yee[1]; R.E. White[2]; S.J. Lee[3]; E. Yano[4]; D. Washington[5]; G. H. Murata[1]; C. Handanos[1]; R.M. Hoffman[1]. [1]New Mexico VA Health Care System, Albuquerque, NM; [2]Lovelace Clinic Foundation, Albuquerque, NM; [3]University of New Mexico, Albuquerque, NM; [4]VA Greater Los Angeles Health Care System, Sepulveda, CA; [5]VA Greater Los Angeles Health Care System, Los Angeles, CA. *(Tracking ID # 189580)*

BACKGROUND: Mental illness and pain may be important barriers to cancer screening in women. Given the high rates of these issues in women veterans, we examined the association of mental illness and pain with cancer screening in a population of women veterans. Mental illness is associated with less cancer screening, but the effect of having pain is unknown.
METHODS: We searched an electronic clinical database to identify all New Mexico VA Health Care System female patients ages 50–65 who were continuously enrolled in primary care from 2003 to 2006 (n=748). We abstracted data on demographics, clinical history, screening tests for breast cancer (mammography), cervical cancer (Pap smear), and colorectal cancer (fecal occult blood, flexible sigmoidoscopy, or colonoscopy), pain scores recorded in vital signs using a standardized 0–10 scale (minimum, maximum, and mean overall score for each patient), visits to the pain clinic, opioid prescriptions, ICD-9 mental health diagnoses, primary care provider (PCP) gender, site of primary care (VA medical center (VAMC) versus community clinic (CC)), and visits to the Women's Clinic. We excluded 189 women: those with a history of breast cancer/bilateral mastectomy (n=20), cervical (n=7), or colorectal cancer (n= 6) were excluded from the respective screening eligible cohorts; 150 women with hysterectomies were excluded from the cervical cancer screening cohort; the other exclusions were deemed too ill or of limited life expectancy to be screened. We used stepwise multivariate logistic regression to assess significant factors associated with screening frequency.
RESULTS: The mean age of the cohort was 57 years (SD±5.4), 25% were non-Hispanic White, 6% were Hispanic, and 62% were of unknown race/ethnicity. Most women (62%) lived in Albuquerque, and 59% were seen in the Women's Clinic. Overall, 42% had diagnoses of depression, 26% had anxiety, 4% had problematic substance use, and 1% had dysfunctional personality traits. During the study period, 80% (586/728) of eligible women had 1 mammograms; 79% (469/590) had 1 Pap smears, and 60% (442/737) had colon cancer screening. On multivariate analysis, Women's Clinic visits were predictive of receiving more breast cancer screening (OR 6.6, 95% CI 4.8–9.3). However, higher minimum pain score (OR 0.92, 95% CI 0.86–0.98) and problematic substance use (OR 0.4, 95% CI 0.2–0.9) were associated with less screening. For cervical cancer screening, Women's Clinic visits (OR 65.1, 95% CI 22.1–191.5) and having a female PCP (OR 2.1, 95% CI 1.02–4.4) were associated with more screening while having a dysfunctional personality disorder (OR 0.1, 95% CI 0.004–0.7) was associated with less screening. Colon cancer screening was associated with older age (OR 1.1, 95% CI 1.1–1.1), more PCP visits (OR 1.02, 95% CI 1.01–1.03), having a VAMC rather than CC PCP (OR 1.02, 95% CI 1.01–1.03), and Women's Clinic visits (OR 1.8, 95% CI 1.1–2.4).
CONCLUSIONS: Mental health illness was associated with less breast and cervical cancer screening while pain was associated with less breast cancer screening. Women seen in the Women's Clinic were more likely to have increased screening for all cancers. Further research is needed to determine barriers and facilitators to cancer screening in patients with mental health illness and pain, as well as the consequences of not screening.

MID WEST RESIDENT AWARD WINNER: EFFICACY OF USING MDRD (MODIFICATION OF DIET IN RENAL DISEASES) EQUATION IN EGFR (ESTIMATION OF GLOMERULAR FILTRATION RATE) IN PREVENTION OF CONTRAST NEPHROPATHY S. Subramanian[1]; A. Kumaravel[2]. [1]Case Western Reserve University, Cleveland Heights, OH; [2]cleveland clinic foundation, cleveland, OH. *(Tracking ID # 189354)*

BACKGROUND: Glomerular filtration rate (GFR) is one of the best predictors of renal function. Clinical practice guidelines do not recommend the use of serum creatinine alone as measure of the kidney function (level A recommendation). Most hospitals use serum creatinine level alone to screen kidney function prior to contrast administration and at creatinine levels >1.5mg/dl, contrast precautions are used. GFR is not considered in risk stratification prior to contrast use. GFR varies with age and muscle mass. Patients with serum creatinine level < 1.5 mg/dl may have abnormal GFR which remains undetected, putting the patient at risk for contrast induced nephropathy (CIN). Estimation of GFR from MDRD (Modification of diet in renal diseases) equation uses variables like age, sex, race, body surface area in addition to creatinine to overcome some of the limitations of the use of serum creatinine alone.
METHODS: Retrospective review of the lab values of patients who underwent contrast studies was done. Inclusion criteria: Any patient who underwent contrast studies in a downtown community hospital patient population in whom serum creatinine had been measured between Jan 2006 to Dec 2006(angiography subjects) and Jan 2006 to March 2006(for subjects with CT contrast) with baseline serum creatinine >1 mg/dl and <2.0 mg/dl. Exclusion Criteria: Patients with end stage renal disease, renal transplant or other documented causes of acute renal failure. In the specified time period 95/366 patients who underwent CT with contrast, 21/232 patients who underwent angiogram met the inclusion criteria. The information regarding age, sex, race, weight, serum albumin, baseline serum urea, creatinine and creatinine at 24hrs, 48 hrs and 5 days post contrast was retrieved from patient records. GFR was estimated using the MDRD equation available from web based medical calculators (http://www.kidney.org/professionals/kdoqi/gfr_calculator.cfm) using baseline creatinine levels and patients who had developed contrast induced nephropathy (CIN) was determined. CIN was defined as an increase of 0.5mg/dl or 25% in serum creatinine value within 24–48 hrs after contrast.
RESULTS: In the 116 included patients the mean age was 69.65, creatinine 1.15 mg/dl, and eGFR 60.19 ml/min respectively. Gender was equally distributed. Racial distribution was African American 60.5%, Caucasian 36%, others 3.5%. Of the included patients 50 (43.1%) developed contrast induced nephropathy. Regression analysis indicated that patients with eGFR <60 as calculated using MDRD equation were significantly associated with the development of CIN (95% C.I −0.521 to −0.153, p<0.0001). Chi – square test also showed similar results. The serum creatinine value did not reliably predict development of CIN (95% C.I −1.545 to 0.353, p<0.373).
CONCLUSIONS: Our analysis shows that the eGFR using MDRD equation is a significantly better method for screening patients prior to contrast administration when compared to serum creatinine alone. The patients with eGFR<60 should be given preventive treatment prior to contrast administration as this level is significantly associated with increased risk of CIN. We also recommend that patients with eGFR >60 ml/min/1.73 m2 should have their individual risks for CIN calculated taking into account other risk factors and appropriate contrast precautions should be administered.

MORE THAN A PAIN IN THE NECK: DISCUSSION OF CHRONIC PAIN AT PRIMARY CARE VISITS DECREASES THE LIKELIHOOD OF MEDICATION INTENSIFICATION FOR HYPERTENSION E.A. Kerr[1]; T.P. Hofer[1]; R. Holleman[2]; C.J. Standiford[3]; M.L. Klamerus[2]; S.L. Krein[1]. [1]Ann Arbor VA Center for Clinical Management Research and University of Michigan, Ann Arbor, MI; [2]Ann Arbor VA Center for Clinical Management Research, Ann Arbor, MI; [3]University of Michigan, Ann Arbor, MI. *(Tracking ID # 190590)*

BACKGROUND: Patient comorbidities have been shown to compete with delivery of routine preventive and some chronic disease care in

primary care visits. Primary care providers (PCPs) may be particularly diverted from managing chronic conditions such as hypertension by the need to address unrelated acute and chronic conditions. Chronic pain is a prevalent comorbidity that has been shown to act as a competing demand with patient diabetes self-management. We therefore examined whether addressing pain syndromes at a primary care visit acts as a competing demand in decisions to intensify blood pressure (BP) medications for diabetic patients presenting with an elevated BP.
METHODS: We conducted a prospective cohort study of 1169 diabetic patients of 92 PCPs in nine Midwest VA facilities. Patients were enrolled if their triage BP prior to a PCP visit was >=140/90. For 1136 of the visits, PCPs provided information after the visit about the top three issues they discussed with the patient during the visit, whether or not they intensified medications at the visit and reasons for not intensifying medications. We classified the issues discussed as unrelated or discordant with hypertension (e.g., related to pain, respiration, cancer, mental health, etc.) or concordant (e.g., glycemic control, obesity, cardiac and renal disease). Patient characteristics were obtained from a baseline patient survey (91% completion rate). Prescribed medications and their dosages and BP values were obtained from Veterans Health Administration automated data sources. We constructed a multi-level multivariate logit model to assess whether discussing pain conditions during the visit decreased the likelihood of BP medication intensification (addition of new BP medication or increase in dose of existing medication). We controlled for discussion of other discordant and/or concordant conditions at the visit, visit BP and mean systolic BP in the prior year, number of BP medication classes, patient age, race and gender, and the number of minutes allotted for a primary care visit. From this model, we calculated predicted probabilities of medication intensification when pain was or was not discussed.
RESULTS: PCPs discussed pain during 222 (20%) of the patient visits. Over 75% of the patients with whom pain was discussed reported having chronic or persistent pain in the baseline patient survey. Patients with whom pain was discussed did not differ from those in which it was not in their visit BP, mean prior year BP, or number of BP medication classes. 511 patients (44%) had BP medications intensified during the visit. The predicted probability of medication intensification when pain was discussed was significantly lower than when pain was not discussed (41% vs. 51%, p=0.03). Concern about pain contributing to BP elevation was noted in only 13 of the 143 visits in which PCPs discussed pain and did not intensify medications. Discussions of other discordant conditions or concordant conditions were not associated with likelihood of medication intensification.
CONCLUSIONS: Discussing pain at a primary care visit competed with medication intensification for elevated BP. This effect did not seem to be driven by the perceived effect of pain on BP elevations. Given the prevalent nature of chronic pain and the complexity of its management, we need to develop care management models to ensure that both pain and other chronic conditions are adequately addressed in these complex patients.

MOTIVATION AND READINESS FOR SUBSTANCE ABUSE TREATMENT AMONG MEDICALLY ILL HOMELSSS ADULTS T.P. O'Toole[1]; R. Pollini[2]; D.E. Ford[3]; G. Bigelow[4]. [1]Providence VA Medical Center, Providence, RI; [2]University of California, San Diego, San Diego, CA; [3]Johns Hopkins Univeristy, Baltimore, MD; [4]Johns Hopkins University, Baltimore, MD. *(Tracking ID # 189730)*

BACKGROUND: Homeless substance-abusing persons utilize acute health services at disproportionately high rates. However, effectively engaging them in substance abuse treatment (SAT) while homeless is difficult. We sought to assess and compare motivation for SAT and readiness for behavior change among substance-using homeless and nonhomeless adults admitted to an inpatient medicine service.
METHODS: Face-to-face survey of sequential homeless substance abuser admissions to an inpatient medicine service. Study subjects had used drugs or alcohol within 7 days of admission and were interviewed within 72 hours of admission. Demographics, substance use history (ASI), Likert-scaled extrinsic and intrinsic motivations for wanting SAT, and readiness for behavior change (URICA) were assessed and compared with a control group of nonhomeless substance abusing adults admitted under similar circumstances.
RESULTS: Overall, 370 subjects surveyed (response rate: 70.1%) of whom 266 were homeless (71.9%). Homeless respondents were younger (median age 41 vs. 43 years; p=0.03), more likely to be uninsured (58.3% vs. 44.2%; p=0.05) and to have <12 years education (48.5% vs. 36.5%; p=0.04). Most reported being "doubled-up" with a family member or friend (67.3%); 22.6% were unsheltered, 6.0% were in an emergency shelter, and 4.1% in a transitional housing program. The majority in both groups used heroin and/or cocaine prior to admission (79.0%, 70.2%); just over half of both groups used alcohol. There was no difference in co-morbid illnesses except for hepatitis B/C which was significantly more prevalent among homeless persons (73.7% vs. 55.8%; p<0.01). There was no difference in composite URICA readiness for behavior change scores (10) although more nonhomeless respondents were in a contemplative stage and more homeless persons were in an action stage (p=0.06) with homeless respondents being half as likely to be in a contemplative stage (AOR 0.57; 95% CI: 0.33–0.98). There were no differences in self-identified reasons for wanting to receive SAT with the most commonly cited most important reason being the intrinsic reasons of "tired of using" and "want to do more with my life". Over 80% in both groups also cited extrinsic reasons of "physical health concerns", "mental health concerns"(70%), and two thirds reporting "family concerns". Currently homeless persons were significantly more likely to report homelessness (current or projected) as a motivation for wanting treatment (56.7% vs. 35.9%; p<0.01). There was no significant difference in the URICA score/stage between those homeless who were doubled-up and those who were either unsheltered or in an emergency shelter,. However, those persons in unsheltered/emergency sheltered arrangements were significantly older (AOR 1.04; 95% CI:1.00–1.07), less likely to be on probation or parole (AOR 0.39; 95% CI: 0.16–0.92), more likely to be diagnosed with depression (AOR 2.92; 95% CI: 1.57–5.42), and more likely to report homelessness as a motivator for treatment (AOR 3.45; 95% CI: 1.83–6.49).
CONCLUSIONS: Medically ill, substance-using homeless persons are at least as motivated and ready for treatment and behavior change as nonhomeless persons, especially those in less stable sheltering arrangements. Tailored interventions in hospital settings may be a treatable moment for this population.

MOUNTAIN WEST RESIDENT AWARD WINNER: COMMUNITY-BASED PREFERENCES FOR STOOL CARDS VERSUS COLONOSCOPY IN COLORECTAL CANCER SCREENING A.C. Debourcy[1]; S. Lichtenberger[1]; S. Felton[1]; K.T. Butterfield[1]; D.J. Ahnen[1]; T.D. Denberg[1]. [1]University of Colorado at Denver School of Medicine, Aurora, CO. *(Tracking ID # 189302)*

BACKGROUND: In the United States, compliance with colorectal cancer (CRC) screening recommendations remains suboptimal. Professional organizations advocate use of shared decision making in screening test discussions, but strategies to facilitate informed choice in CRC screening have not been well elucidated. The objectives of the study were to determine screening test preference among colonoscopy-naïve adults after considering a detailed, written presentation of fecal occult blood testing (FOBT) and colonoscopy and to assess whether their preferences are associated with demographic characteristics, attitudes, and knowledge.
METHODS: Colonoscopy-naïve supermarket shoppers age 40–79 in low- and middle-income, multiethnic neighborhoods in Denver, CO, reviewed a detailed, side-by-side description of FOBT and colonoscopy and answered questions regarding test preference, strength of preference, influence of physician recommendation, basic knowledge of CRC, and demographic characteristics.
RESULTS: Descriptive statistics characterized the sample. Bivariate and multivariable logistic regression analyses identified correlates of screening test preference. In a diverse sample of 323 colonoscopy-naïve adults, 53% preferred FOBT, and 47% preferred colonoscopy for CRC screening. Individuals of Latino ethnicity and those with lower educational attainment were more likely to prefer FOBT than non-Latino whites and those with at least some college. Almost half of the respondents felt "very strongly" about their preferences, and one third said they would adhere to their choice regardless of physician recommendation.
CONCLUSIONS: After considering a detailed, side-by-side comparison of the FOBT and colonoscopy, a large proportion of community-dwelling, colonoscopy-naïve adults prefer FOBT over colonoscopy for CRC screening. In light of professional guidelines and time-limited primary care visits, it is important to develop improved ways of facilitating informed patient decision making for CRC screening.

MULTI-FACETED INTERVENTION RESULTS IN IMPROVEMENT IN SYSTOLIC BLOOD PRESSURE A. Underwood[1]; B. Stults[2]; R. Rose[3]; R. Rupper[4]; J.R. Nebeker[5]; T. Williams[6]; G. West[7]; T. Huhtala[5]; M. Battistone[8]; C.K. Milne[2]. [1]University of Utah/VA staff MD, Salt Lake

City, UT; [2]University of Utah, Salt Lake City, UT; [3]VA SLCHCS/University of Utah, Salt Lake City, UT; [4]VAMC Salt Lake, Salt Lake, UT; [5]VAMC, Salt Lake City, UT; [6]Univ of Utah, Salt Lake City, UT; [7]Department of VA, Salt Lake City, UT; [8]University of Utah School of Medicine, Salt Lake City, UT. *(Tracking ID # 190227)*

BACKGROUND: Achieving appropriate blood pressure goals for clinic populations with hypertension remains a difficult challenge. The literature demonstrates that the interventions yielding the greatest gains in quality of hypertension care address barriers at multiple levels including the clinic, provider, and patient. We describe the effect on blood pressure goals and quality measures of one such multifaceted intervention undertaken at the primary care teaching clinic at the Salt Lake City VA.
METHODS: The intervention consisted of educational efforts and clinic reengineering regarding the technique and process of measuring blood pressures, supervised chart reviews of clinic panels conducted by residents, and protocol driven medication review and adjustment. Eligible patients for analysis include all veterans with hypertension attending the clinic for an eleven month period in 2007. The analysis compares the mean systolic blood pressure and the proportion of patients achieving performance goals for blood pressure control during a four month baseline pre-intervention period and the intervention period.
RESULTS: Over 12,000 blood pressures associated with a clinic visit were included in the analysis. Compared to a mean blood pressure of 133.3 (132.7–133.8) in the pre-intervention period, mean blood pressure was reduced to 131.0 (130.7–131.4) in the intervention period. In the pre-intervention period, 70% (69–72%) of patients were meeting the pre-specified goal of having a systolic blood pressure under 140 (or 130 for patients with diabetes). This percentage increased to 78% (77–79%) in the intervention phase. The percentage of patients with systolic pressures greater than 160 fell from 7.6% (6.8–8.4%) during pre-intervention to 5.7% (5.2–6.2%) during intervention.
CONCLUSIONS: This multi-faceted intervention led to significant and clinically important improvement in mean systolic blood pressure and the proportion of patients meeting quality performance measures. The greatest impact appeared to be associated with clinic reengineering and education regarding measurement technique.

NATIONAL TRENDS IN TREATMENT FOR TYPE 2 DIABETES MELLITUS, 1994–2007 G.C. Alexander[1]; N.L. Sehgal[2]; R. Moloney[1]; R. Stafford[3]. [1]University of Chicago, Chicago, IL; [2]University of California, San Francisco, San Francisco, CA; [3]Stanford University, Palo Alto, CA. *(Tracking ID # 190224)*

BACKGROUND: Diabetes mellitus is common, costly, and increasing in prevalence. The majority of diabetes expenditures are due to the cost of caring for complications, which highlights the pivotal role of pharmacologic interventions that decrease complication rates through improved glycemic control. There have been numerous recent innovations in drug therapy for diabetes, including non-sulfonylurea insulin secretagogues (e.g. repaglinide), alpha-glucosidase inhibitors (e.g. acarbose), incretins (e.g. exenatide), dipeptidyl peptidase-4 (DPP-4) inhibitors (sitagliptin), and new ultra-long acting insulins. Despite these innovations, little is known about patterns and costs of drug treatment.
METHODS: We used the IMS Health National Disease and Therapeutic Index (NDTI) to analyze nationally representative medications prescribed between1994 and 2007 for all U.S. office visits among subjects ages 35 years and older that included a diagnosis consistent with Type 2 diabetes. We used the National Prescription Audit (NPA) to examine prescription expenditures between 2001–2007 for a nationally representative sample of approximately 20,000 retail, mass merchandise, and mail order pharmacies.
RESULTS: The estimated number of patient visits for treated diabetes increased from 25 million in 1994 to 35 million by 2007. The mean number of diabetes medication therapies per treated patient increased from 1.14 in 1994 to 1.63 in 2007. Monotherapy declined from 82% of visits in which a treatment was used in 1994 to 48% in 2007. Insulin use declined from 38% of treatment visits in 1994 to a nadir of 26% in 2000, and then increased to 28% in 2007. Sulfonylurea use declined from 67% of treatment visits in 1994 to 34% in 2007. By 2007, biguanides (54% of treated visits) and thiazolidinediones (29%) were the leading therapeutic classes. Increasing use of thiazolidinediones, newer insulins, sitagliptin, and exenatide largely accounted for both recent increases in the mean cost per prescription ($56 in 2001 to $74 in 2007) and aggregate drug expenditures ($6.7 billion in 2001 to $12.1 billion in 2007).
CONCLUSIONS: Our study, using a large and nationally representative survey of physician office visits, indicates that the landscape of diabetes treatment has changed dramatically during the past 15 years, with increases in diabetes prevalence, the complexity of pharmacotherapy, the availability of new, innovative therapies, and the cost of diabetes care. Although increasing costs of therapy are partly due to more patients with diabetes and more medications per patient, the greatest contributor to increasing costs of care is the substantially greater use of newer, more costly medications. Data on comparative effectiveness is needed to examine whether the rapid increases in costly therapies will result in proportionately improved outcomes. Our findings suggest the importance of generating this new comparative data and coupling this information with clinical and formulary guidelines that contribute to constraining costs, maximizing glycemic control, and minimizing diabetes-related morbidity and mortality.

NEED FOR TARGETED TRAINING IN SUBSTANCE ABUSE PREVENTION AND TREATMENT COMPETENCIES A. Truncali[1]; C. Gillespie[2]; T.K. Ark[2]; J. Lee[1]; S. Zabar[1]; A.L. Kalet[1]. [1]New York University, New York, NY; [2]New York University, New York City, NY. *(Tracking ID # 190507)*

BACKGROUND: Drug abuse and alcohol disorders are ubiquitous, yet few residency programs provide in-depth, formal training on substance abuse (SA) prevention and treatment. This study describes residents' attitudes and perceived competence in this area, assesses differences by specialty, and explores the relationship between competence and attitudes.
METHODS: Data are from an online needs assessment survey conducted with senior (PGY3+) residents (n=77) in Emergency Medicine (EM; n=12), Categorical Medicine (CAT; n=31), Primary Care (PC; n=11), Pediatrics (PEDS; n=11), and Psychiatry (PSYCH; n=11). Response rate was 75% and did not differ by program. Residents were asked to rate their competence in performing 19 SA prevention and treatment tasks (4-point scale) and their agreement with 20 items representing attitudes toward substance abusing patients and their treatment(4-point scale). Factor analysis was used to reduce the data to 3 core competencies (screening and assessment, patient counseling, and acute management and referral) and to 4 core attitudes (positive views of SA patients, negative views of patients, attitudes toward treatment, treatment-related outcome expectancies).
RESULTS: On average, residents reported feeling competent in screening and assessment (mean=3.00, SD.68), as well as acute management and referral (mean=3.10, SD.64). Compared with these two domains, residents felt significantly less competent in patient counseling (mean=2.55, SD.76) (t=5.81, p<.001 and t=7.08, p=.006 respectively). Perceived competence varied by program with psychiatry residents reporting greater competence in screening and assessment (F=3.77, p=.009; pairwise comparisons: PSYCH>PEDS, CAT, PC, p<.05); EM residents reporting less competence in patient counseling (F=4.18, p=.005; pairwise comparisons: EM PSYCH, p<.05); and pediatric residents reporting less competence in acute management and referral (F=4.02, p=.006; pairwise comparisons: PEDS CAT, PSYCH, p<.05). Residents who reported formal training in SA had greater competence in screening and assessment (t=2.21, p=.031) and patient counseling (t=2.22, p=.032), but not acute management and referral (t=1.37, p=.175). Attitudes did not differ significantly by specialty or by report of formal SA training. The only significant correlations between competency areas and attitudes were for counseling: feeling more competent in counseling was associated with having more positive attitudes toward substance abusing patients (e.g., "addiction is more of a health problem than a character problem" and "alcohol- and drug-abusing patients have challenging medical conditions I can learn from"; r=.26, p=.049), whereas feeling less competent was associated with having more negative attitudes toward substance abusing patients (e.g., "it is frustrating to work with addicted patients" and "It is difficult for me to feel empathy for substance abusing patients"; r=-.28, p=.032).
CONCLUSIONS: While senior residents feel competent in screening and assessment, as well as acute management and referral of SA disorders, they report less ability in counseling, a skill critical for motivating patients to change addictive behavior. Perceived competence in this complex skill is associated with both attitudes and training experience. This suggests that educational interventions may increase competence. The question remains as to whether training should focus on attitudes, skills or a combination of the two.

NEW METHODS FOR PERFORMANCE MEASUREMENT IN HYPERTENSION: RESULTS FROM AN EXPERT PANEL M. Steinman[1]; M.K. Goldstein[2]. [1]San Francisco VAMC/UCSF, San Francisco, CA; [2]Stanford University, Palo Alto, CA. *(Tracking ID # 190914)*

BACKGROUND: Many patients with hypertension have legitimate reasons to forego standard blood pressure treatment goals yet are nonetheless included in VA's performance measurement system. Traditionally, performance measurement programs have dealt with over-selection by setting performance goals below 100%. However, there is little data about what the correct performance goal should be, or if current systems promote overtreatment of patients who may suffer more harm than benefit from tight blood pressure management.
METHODS: As preliminary work to a study, we convened an 11-member multispecialty panel to refine a taxonomy of situations in which the balance of benefits and harms do not mandate control of blood pressure to <140/90. We used semi-structured methods to obtain panelists' opinions about which situations should merit a patient being exempted from performance measurement that define "success" as a blood pressure <140/90.
RESULTS: The panel identified several categories of reasons that could reasonably exempt a patient from performance measurement systems based on controlling blood pressure to <140/90. These included (1) patients who suffer adverse effects from multiple classes of antihypertensive medications; (2) patients already taking >=4 antihypertensive medications; (3) patients with terminal disease, moderate to severe dementia, or conditions that overwhelmingly dominate the patient's clinical status at present; and (4) other patient factors, including comfort care orientation, patient refusal to take medications despite adequate education, and poor medication adherence despite attempts to remedy adherence difficulties. Several general principles also emerged. First, performance measurement should focus only on patients for whom the ratio of benefits to harms from treatment clearly favors treatment. Second, performance measurement for hypertension should incorporate a longitudinal approach, whereby clinicians should be given an opportunity to intervene on their patients with high blood pressure. Third, the patient's risk of adverse events from hypertension should be a key consideration in how strict the criteria should be for exempting that patient from performance measurement.
CONCLUSIONS: It is possible to develop a method of performance measurement for hypertension that incorporates "real world" clinical principles and judgment. This method will be used to validate current approaches to performance measurement for hypertension, and to determine whether performance goals are being appropriately set.

NO PLACE LIKE HOME: BENEFITS OF A HOME VISIT CURRICULUM S. Zabar[1]; K. Hanley[1]; S. David[1]; T. Ark[1]; K. Mara[1]; M. Fumansky[1]; J. Adams[1]; K. Adina[1]. [1]New York University School of Medicine, New York, NY. *(Tracking ID # 189935)*

BACKGROUND: While most Primary Care Internal Medicine Residents (PCIM) hold positive attitudes toward patient home visits in principle, they view them as impractical in practice. We developed and evaluated an experiential curriculum for PCIM residents designed to improve comfort, confidence, skills and knowledge needed to carry out and document clinically meaningful patient home visits.
METHODS: Over a 9-month period, each resident joined a group of 4–6 peers and a faculty member on three home visits to different homes of patients selected from a resident's panel. A structured debriefing followed each visit. Residents completed a 5-station observed structured clinical experience (OSCE) and 11-item questionnaire pre-and post- the curriculum. The OSCE tested residents' skills in: 1) Determining goals for a home visit (Chart review), 2) Asking the patient's permission to visit (Standardized Patient (SP) interaction), 3) Assessing the home for safety risks (Photographic home tour), 4) Negotiating a safety plan with patient (SP interaction) and 5) Documenting the visit (Writing a note). Residents' skills were rated by the SP using a checklist of communication (Cronbach's alpha.9) and case-specific items (Cronbach's alpha.6) summarized as the percent of items "well done". The content of notes was analyzed and coded by two independent raters and summarized. Pre and post OSCE and summary notes data was compared using paired t-tests and the attitude survey data was compared using an independent t-test.
RESULTS: Over 9 months 38 residents visited 17 patients, utilizing 51 hours of faculty time. The OSCE (n=38 pre and 21 post, 21 matched pairs) showed residents' communication skills improved (pre=60%, post=82%, p=.001; Cohen's d=1.78) and they were better at making specific home safety recommendations and checking the patient's willingness to do so (pre=60%, post=90%, p=.003; Cohen's d=1.54). Post curriculum, residents identified significantly more specific items to evaluate in a home visit (pre=28%, post=36%, p=.004; Cohen's d= 1.47), identified more safety hazards (i.e. loose rug in hallway) and provided more correct recommendations to prevent physical injury in the patient's home (pre= 54%, post=66%, p<.001; Cohen's d=1.55). While residents were just as likely to address fall prevention in their pre and post-OSCE notes, post-curriculum they more often addressed medication issues (i.e. intake and removal of outdated medicine; pre= 6%, post=35%, p<.001; Cohen's d=1.29) and recommended contacting a family member regarding fall prevention (pre=18%, post=71%, p <.001; Cohen's d=1.52) more often post curriculum. Compared with before (N=27), after the curriculum (N=17), residents felt more comfortable doing a comprehensive home visit (pre=2.2, post=3.7 on a 5 point scale, p<.001) and confident to assess their patients' physical safety at home (pre=2.3, post=4.0, p<.001) and less concerned about the time investment in making home visits. In all 17 visits new and important clinical information was uncovered.
CONCLUSIONS: A focused patient centered experiential curriculum improved residents' confidence, comfort and skills to conduct effective patient home visits. This makes them better able to make such visits clinically meaningful in particular by preventing future physical injuries in patients at risk.

NON ASPIRIN NSAIDS, CYCLO-OXYGENASE 2 INHIBITORS AND THE RISK FOR CARDIOVASCULAR EVENTS: STROKE, ACUTE MYOCARDIAL INFARCTION, AND SUDDEN CARDIAC DEATH N.N. Choma[1]; C.L. Roumie[1]; L. Kaltenbach[2]; E. Mitchel[2]; P. Arbogast[2]; M.R. Griffin[1]. [1]VA Tennessee Valley Healthcare System, Vanderbilt University, Nashville, TN; [2]Vanderbilt University, Nashville, TN. *(Tracking ID # 190566)*

BACKGROUND: We determined if nonsteroidal anti-inflammatory drugs (NSAIDs), including coxibs, are associated with increased risk of adverse cardiovascular events: acute myocardial infarction (AMI), stroke, and sudden cardiac death.
METHODS: We conducted a retrospective cohort study of Tennessee Medicaid enrollees aged 35–94 years between January 1,1999 and December 31,2005. Eligible persons had continuous enrollment in Medicaid and had no serious noncardiovascular illnesses (HIV, cancer, liver, or renal disease). Exposure to all three coxibs (celecoxib, rofecoxib, valdecoxib) and the four most common NSAIDS (ibuprofen, naproxen, diclofenac and indomethacin) was studied. The primary outcome was first hospitalization for AMI, stroke, or out of hospital cardiac death. We conducted a stratified analysis to assess risk differences based on prior history of cardiovascular disease (CVD). Proportional hazard models were used to adjust for demographics, health care utilization, and cardiovascular risk factors in the year prior to cohort entry. Adjusted hazard ratios (aHR) and 95% Confidence Intervals (95% CI) were calculated with non-users of NSAIDs as the reference.
RESULTS: The final cohort included 610,003 persons of whom 84,752 (14%) had a history of CVD. Users of coxibs were older and had higher cardiovascular risk at baseline than nonusers. In those with no history of CVD there were 1,699,672 person-years of follow-up and 14,712 events. Among non-users with no CVD, there were 8.88 events per 1000 person years. Events per 1000 person-years of current NSAID use were 11.32 for celecoxib (aHR 0.97, 95% CI 0.87–1.08), 12.27 for rofecoxib (aHR 1.20, 95% CI 1.07–1.34), 14.22 for valdecoxib (aHR 1.30, 95% CI 1.08–1.57), and 13.84 for indomethacin (aHR 1.30, 95% CI 1.07–1.58). Current users of other NSAIDs had risks similar to non-users. In those with CVD there were 257,871 person-years of follow-up and 7,720 events. Non-users with CVD had 33.58 events per 1000 person years. Among those with CVD, only rofecoxib use was associated with an increased risk of the composite endpoint (34.39 events per 1000 person years [aHR 1.22, 95% CI 1.07–1.40]).
CONCLUSIONS: There is an increased risk of acute cardiovascular events with use of two highly selective coxibs, rofecoxib and valdecoxib, and with indomethacin in patients with no history of CVD. Among patients with CVD at baseline, only rofecoxib was associated with an increase in risk of the composite cardiovascular endpoint.
Table: Rate of cardiovascular events per 1000 person years, and Proportional Hazards Model for time to event by NSAID stratified by CVD history

	No CVD history		Past CVD history	
Exposure	Rate/1000 person-years	Adjusted HR (95% CI)	Rate/1000 person-years	Adjusted HR (95% CI)
Non-user	8.88	Ref.	33.58	Ref.
Celecoxib	11.32	0.97 (0.87, 1.08)	27.92	0.94 (0.82, 1.07)
Rofecoxib	12.27	1.20 (1.07, 1.34)	34.39	1.22 (1.07, 1.40)
Valdecoxib	14.22	1.30 (1.08, 1.57)	22.92	0.86 (0.64, 1.15)
Ibuprofen	8.65	0.99 (0.90, 1.10)	30.58	1.04 (0.91, 1.19)
Naproxen	8.50	0.96 (0.87, 1.05)	26.14	0.91 (0.80, 1.03)
Indomethacin	13.84	1.30 (1.07, 1.58)	29.90	0.94 (0.71, 1.24)
Diclofenac	8.83	1.07 (0.85, 1.35)	20.99	0.90 (0.63, 1.28)

NOT PERFECT, BUT BETTER: PRIMARY CARE PROVIDERS AND ELECTRONIC REFERRALS IN A SAFETY NET HEALTH SYSTEM Y. Kim[1]; A. Chen[2]; E. Keith[1]; H. Yee[1]; M. Kushel[1]. [1]University of California, San Francisco, San Francisco, CA; [2]U, San Francisco, CA. *(Tracking ID # 189686)*

BACKGROUND: Specialty care is a limited resource in safety net settings. We conducted a cross-sectional survey of primary care providers (PCPs) at sites that use eReferral, a public-hospital-based electronic referral system that relies on centralized specialist review, feedback, and triage to respond to referral requests and clinical questions. We hypothesized that eReferral would improve satisfaction with communication, education, and access to specialty care compared to paper-based referrals.
METHODS: We performed a cross-sectional electronic survey of PCPs who were eligible to use eReferral by emailing an 18-item electronic questionnaire. Follow-up for non-responders included 4 weekly email reminders, a phone reminder, and mailed paper questionnaire. Dependent variables included time spent making a referral (number of minutes and less, the same, or more time compared to paper referrals), guidance of work-up prior to specialty visit, wait times between referral and specialty visit, and overall improvement in patient care (change in clinical care compared to prior paper-based methods). Independent variables included clinic setting, level of training (attending physician, resident, mid-level) and affinity for technology (willingness to use technologic innovations in clinical practice). We used logistic regression to identify variables associated with satisfaction, adjusting for setting and training level, and rank correlation to examine differences by training level and setting.
RESULTS: The response rate was 80% (n=295) from 24 clinics in a single urban area. 18% of responses were from community clinics loosely affiliated with the hospital, 25% from hospital-affiliated publicly-funded clinics, and 57% from hospital-based clinics. Fifty-four percent were attending physicians, 24% residents, and 22% mid-level providers. While 78% of all participants spent less than 10 minutes submitting an eReferral, equal proportions reported spending more (43%) or less (39%) time submitting an eReferral compared to prior methods (p=.42). Compared to prior paper referrals, 72% reported eReferrals helped guide the primary care work-up and 53% reported improved access to a specialist for non-urgent patient care issues. Seventy-two percent percent (95% CI 66.7–77.3%) reported that eReferral had improved clinical care compared with 7% (3.8%–9.8%) who reported worsened. Adjusting for training level, specialty, and technologic affinity, providers from loosely-affiliated clinic settings were less likely to agree that eReferral had improved clinical care (AOR 0.32, 95%CI 0.14–0.79), or that eReferral had improved time spent making a referral (AOR 0.045, 0.003–0.64).
CONCLUSIONS: eReferral is acceptable to referring providers in an urban safety net health system. Electronic access problems may have impacted satisfaction in those who reported that eReferral had not improved clinical care. Our findings imply that iterative communication with, and centralized triage of referrals by specialists may involve workflow changes for PCPs, but improve the ability to effectively work up patients and access to limited resources.

NOVEL PREDICTORS OF MEDICATION ADHERENCE AMONG VETERANS J.A. Long[1]; S.E. Kimmel[2]; W. Yang[2]; A. Troxel[2]; K. Volpp[1]. [1]VA Center for Health Equity Research and Promotion, Philadelphia, PA; [2]University of Pennsylvania, Philadelphia, PA. *(Tracking ID # 190312)*

BACKGROUND: Medication adherence has been studied extensively; however, efforts to understand factors that affect adherence have yielded an incomplete understanding of medication adherence. The CHORD study is an ongoing clinical trial to improve hypertension (HTN) medication adherence and to better understand factors affecting medication adherence. In this study from CHORD we evaluate the association between self-reported medication adherence and three novel econometric scales and their interactions with race.
METHODS: This study consists of 506 people with poorly controlled hypertension who completed the validated Hill-Bone medication adherence scale. Due to the extreme skew in responses, we report here the risk of perfect (n=246) versus imperfect adherence (n=260). Our predictors of interest were patient worry, time preferences, and discount rates. The worry scale includes 20 questions asking how frequently patients worry about hypertension, other medical conditions, bioterrorism, safety, and finances. Higher scores indicate greater worry. The time preference scale includes four questions assessing a person's orientation toward the future. Higher scores reflect stronger future orientation. The discount rate scale assesses preferences toward small, immediate monetary rewards versus larger, delayed rewards. Higher scores indicate a higher preference for more immediate gain. The worry scale and the discount scores were log transformed. The time preference scale was divided into quartiles. All models included at least one scale, race, age, education, income, and any factors associated with imperfect adherence at $p < 0.2$ (demographics, clinical factors, and number and type of medications). We examined the relationship between the scales and imperfect adherence, the interaction between the scales and race, and the effect of all three scales in one model predicting imperfect adherence.
RESULTS: In bivariate analyses imperfect adherence was associated with increased worry ($p<0.001$), orientation toward the present ($p=0.016$), and preference for more immediate monetary gain ($p=0.013$). In the final model with all three scales, increased worry was associated with an odds of 1.94 (95% CI 1.12–3.37) for imperfect medication adherence, while compared to those with the greatest future orientation, those with the least future orientation had an odds of 2.09 (95% CI 1.10–3.99) for imperfect medication adherence. Discount rates were not significantly associated with self-reported medication adherence. Although race was significantly associated with imperfect adherence in bivariate analyses ($p <0.001$), it was not a significant predictor of in the final multivariable model. No interaction terms between the scales and race were significant.
CONCLUSIONS: We identified novel predictors of self-reported adherence in patients with poorly controlled hypertension. Financial incentives may help reduce total worry as well as provide patients oriented toward the present with immediate gain for medication adherence. These hypotheses are being tested in the CHORD trial.

NUMERACY SKILLS ARE INVERSELY ASSOCIATED WITH BODY MASS INDEX M. Huizinga[1]; B. Beech[1]; K. Cavanaugh[1]; T.A. Elasy[1]; R. L. Rothman[1]. [1]Vanderbilt University, Nashville, TN. *(Tracking ID # 189481)*

BACKGROUND: Low numeracy skills and obesity are common. Numeracy skills are often used in weight management to monitor caloric and other nutrient intake. However, the relationship between obesity and numeracy skills is unknown.
METHODS: A cross-sectional study was performed at an academic primary care clinic. Exclusion criteria included: age less than 18 years, non-English speaking, a diagnosis of dementia and a corrected visual acuity less than 20/50. Body mass index (BMI) was assessed by self-reported weight and height. Numeracy skills were assessed with the mathematics portion of the Wide Range Achievement Test, 3rd Edition (WRAT-3). Literacy was assessed with the Rapid Estimate of Adult Literacy in Medicine (REALM). The relationship between numeracy and BMI was first assessed with Spearman's rank correlation and then by linear regression that adjusted for age, sex, race, years of education and literacy. Numeracy and literacy were assessed as continuous variables and as categorical variables, determined a priori.
RESULTS: 160 participants completed the study. The mean (± standard deviation (SD)) BMI was 30.5 kg/m2 (± 8.3). The mean age (± standard deviation (SD)) was 46 years (± 16), 66% were white, 70% were female and 91% reported completing high school. Twenty-three percent had less than 9th grade literacy skills as assessed by the REALM while 66% of participants had less than 9th grade numeracy skills as measured by the WRAT-3. Participants with numeracy skills less than 9th grade had

a mean BMI (± SD) of 31.8 (± 9.0) while participants with numeracy skills equal to or greater than 9th grade had a mean BMI (± SD) of 27.9 (± 6.0), p = 0.008. Numeracy was negatively and significantly correlated with BMI (rho=−0.26, p=0.001) (see Figure 1). After adjusting for age, sex, race, income, literacy and years of education, the inverse association of numeracy skills and BMI persisted with a coefficient of −0.14, p=0.010. Literacy skills were not associated with BMI.

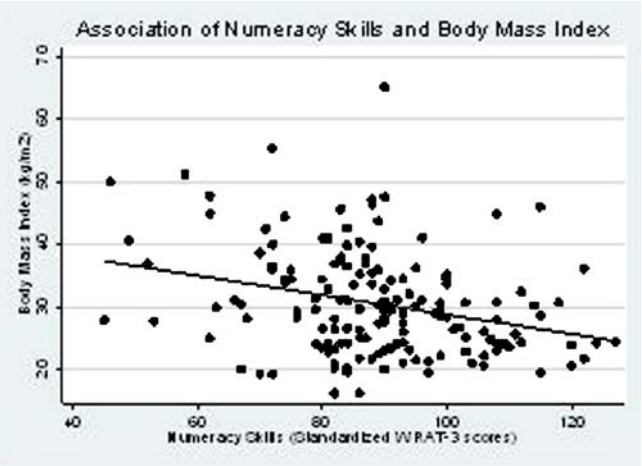


Figure 1. Association of Numeracy Skills and Body Mass Index

CONCLUSIONS: We found a significant inverse association between numeracy skills and BMI in adult primary care patients. While a causal relationship cannot be determined, numeracy may have important implications in the design and implementation of healthy weight management interventions. Longitudinal research may further clarify the magnitude of this association.

OMEGA 3 FATTY ACIDS AND PERIODONTITIS A.Z. Naqvi[1]; C. Buettner[1]; R.S. Phillips[1]; R.B. Davis[2]; K.J. Mukamal[3]. [1]Harvard University, Boston, MA; [2]Beth Israel Deaconess Medical Center, Harvard Medical School, Boston, MA; [3]Harvard University, Brookline, MA. *(Tracking ID # 189813)*

BACKGROUND: Periodontitis is a common chronic inflammatory disease that is associated with cerebrovascular disease. Long-chain omega-3 fatty acids have been shown to treat periodontitis in some trials, but it is unknown if alpha-linolenic acid (ALA, a vegetable source of omega-3 fatty acids) is also inversely associated with periodontitis. This study aims to examine the association between ALA intake and periodontitis prevalence in a nationally representative sample of adults.
METHODS: We used data from 12,038 adults aged 20 years and older who participated in the National Health and Nutrition Examination Survey (NHANES) between 1999 and 2004. Periodontitis was assessed by a dental exam and was defined as >3 mm attachment loss in any mid-facial or mesial tooth. Fatty acid intake was assessed by 24-hour dietary recall. Multivariable logistic regression was used to estimate the associations between periodontitis and intakes of ALA and long-chain omega-3 fatty acids (eicosapentaenoic acid [EPA] and docosahexaenoic acid [DHA]). Given some suggestions of an interaction between omega-3 and omega-6 intakes on inflammatory conditions, we also tested for interaction with linoleic acid (mg/d), an omega-6 fatty acid. Sampling weights were used to generate weighted effect estimates, including odds ratios (OR) and 95% confidence intervals (CI).
RESULTS: The population prevalence of periodontitis was 40% (95% CI 39–41%). Median ALA intake was 1.24 gm/d (interquartile range 0.76–1.92). Compared with ALA intake in the lowest quintile, the OR associated with ascending quintiles of intake were 0.90 (CI 0.75–1.08), 0.97 (CI 0.80–1.17), 0.87 (CI 0.71–1.06) and 0.76 (CI 0.61–0.94; p linear trend 0.02; p quadratic trend 0.07) after controlling for age, gender, race/ethnicity, current and former smoking, education, income, physical activity, pregnancy, self-reported health status, and long-chain omega 3 fatty acid intake. We found no association between periodontitis and EPA and DHA intakes (p linear trend 0.74). There was no evidence for an interaction of ALA intake with linoleic acid intake (p interaction 0.75).
CONCLUSIONS: In this nationally representative population, dietary ALA intake was associated with a modestly decreased prevalence of periodontitis, independent of long-chain omega-3 fatty acids, particularly at the highest levels of intake. Interventional trials with moderate to high doses of ALA are needed to verify these findings, particularly since vegetable sources of omega-3 fatty acids may be a more palatable and economic option for the prevention and treatment of chronic inflammatory states.

OPENING THE 'BLACK BOX' OF SELF-REFLECTION: A MODEL TO GUIDE EDUCATORS' EFFORTS P. Haidet[1]; B. Thompson[2]; C. Teal[1]; J. C. Rogers[2]; D. Paterniti[3]. [1]DeBakey VAMC and Baylor College of Medicine, Houston, TX; [2]Baylor College of Medicine, Houston, TX; [3]University of California, Davis, Sacramento, CA. *(Tracking ID # 190673)*

BACKGROUND: Despite increasing emphasis on self-reflection in medical education, educators currently employ widely varying strategies to promote reflection. In addition, while a number of theorists have described the role of reflection in practice, the cognitive and emotional processes of reflection itself remain largely unexplored, as do the educational elements that promote such processes. In this study, we used previously collected qualitative curriculum evaluation data to better understand the processes of reflection among medical students participating in educational reflective activities.
METHODS: Data consisted of 94 pages of single-spaced transcript from four focus groups conducted with students in each of the classes of 2000, −01, −02, and −03 (one group for each class) at Baylor College of Medicine. The focus groups were originally designed to evaluate a first- and third- year intervention designed to promote self-reflection about attitudes toward the patient-physician relationship, psychosocial medicine, and uncertainty in practice. The focus groups were co-moderated by a physician and a sociologist, and contained a number of stories about both the educational intervention and other educational experiences that stimulated self-reflection. For this analysis, we followed a series of iterations of reading, discussion, notations, coding, and constructing graphical representations of categories and relationships among categories. We used Atlas.ti to assist data management, and systematically searched the coded data for positive and negative cases to confirm our emerging conceptual model. In total, we spent approximately forty hours in group discussions, and 240 hours in individual reading and coding activities.
RESULTS: Several elements emerged that were related to students' inner reflective processes. These elements included the educational activity itself (which can be planned or unplanned), the presence or absence of cognitive or emotional dissonance as a result of the educational activity, and one of two processes (which we termed 'escape' and 'reconciliation') that students employed in reaction to dissonance. Operating in the background during all of these elements was a relationship between students' own views of what an ideal doctor is or does, and students' perceptions of what the teacher thinks an ideal doctor is or does. The 'inner' pathways that students followed through these elements had implications for the students' emerging self-identities. In addition, the educational context during which reflection occurred had an important influence on these pathways. Such contexts provided opportunities for teachers to influence the inner reflective processes of the students. We have constructed a conceptual model that illuminates the possible pathways of reflection and can help educators to strategically construct the context to favor pathways that foster adoption of professional values and attitudes.
CONCLUSIONS: The self-reflective process is a complex one, and includes varying pathways characterized by a) the presence or absence of cognitive and emotional dissonance, and b) resulting escape or reconciliation. The overall process profoundly influences students' emerging identities. Further, recognition of the process has implications for educators, who can influence the direction of students' self-reflections by constructing the educational activity and its context so that it fosters certain pathways at critical junctures.

OPTIMIZING ANTIDEPRESSANT THERAPY IN PRIMARY CARE PATIENTS WITH MUSCULOSKELETAL PAIN AND DEPRESSION: A RANDOMIZED CONTROLLED TRIAL M.J. Bair[1]; T.M. Damush[1]; J. Wu[2]; S. Hoke[1]; J.M. Sutherland[1]; K. Kroenke[3]. [1]Indiana University/ Roudebush VAMC, Indianapolis, IN; [2]Indiana University, Indianapolis, IN; [3]Indiana University and Regenstrief Institute, Indianapolis, IN. *(Tracking ID # 189981)*

BACKGROUND: Pain is the most common physical complaint in primary care and depression is the most common psychological condition. Moreover, they co-occur 30–50% of the time and have adverse reciprocal effects on quality of life, disability, and health care costs. However, the effectiveness of antidepressants in patients suffering from both conditions is not well-established. Therefore, we conducted the Stepped Care for Affective disorders and Musculoskeletal Pain (SCAMP) trial to determine if optimized antidepressant therapy improves both pain and depression in primary care patients with comorbid pain and depression.
METHODS: SCAMP enrolled 250 primary care patients with 3 months of low back, hip or knee pain and at least moderate depression (PHQ-9 score 10). Patients were randomly assigned to the intervention (n=123) or to usual care (n=127). The intervention consisted of 12 weeks of optimized antidepressant therapy administered by a nurse care manager using a medication algorithm and supervised by a physician specialist. Assessments were conducted at baseline, 1 and 3 months by interviewers blinded to treatment group. Primary outcomes included depression severity and diagnoses as well as pain severity, pain interference and pain-specific disability days.
RESULTS: There were no differences between intervention and control subjects, with a mean age of 55.5 years; 52.8% were women; 60.4% were white, 36.4% black, and 3.2% other. Two-thirds of patients were enrolled from university and one-third from VA clinics. Work status was 25.6% employed, 31.6% unemployed or unable to work, and 42.8% retired. The site of pain was the back in 60% of subjects and the hip or knee in 40%. At baseline, patients had moderately severe depression (SCL-20 score of 1.89, on 0–4 scale) with 75% having major depression, 21% dysthymia only, and 4% minor depression. Likewise, the mean BPI severity and interference scores of 6.15 and 6.97 (on 0–10 scale) and SF-36 bodily pain score of 26.8 represent moderately severe pain At 3 months, 37.8% of intervention patients had a 50% or greater reduction in depression severity from baseline compared with 8.6% of usual care patients (odds ratio [OR], 6.5; 95% CI, 3.1 to13.8), corresponding to a much lower residual rate of major depression (41.6% vs. 74.8%). Intervention patients were much more likely to report overall improvement in pain at 3 months (43.5% vs. 7.9%; OR= 9.0; 95% CI, 4.1–19.6) as well as 11 fewer pain-related disability days (P=.002). Effect sizes in symptom severity reduction were large for depression (1.05) and moderate for pain (0.53). The intervention also produced greater improvements in secondary outcomes such as anxiety and health-related quality of life. Half of the patients required a switch to a different antidepressant during the trial.
CONCLUSIONS: Optimized antidepressant therapy is as effective in improving depression in patients with chronic pain as in depressed populations without pain. There are also moderate benefits in terms of pain severity and disability. Additional strategies to co-manage pain may be desirable to achieve even greater improvements in pain outcomes and, possibly, depression response rates.

OPT-OUT HIV TESTING IN A BRONX COMMUNITY HEALTH CENTER
C.O. Cunningham[1]; B. Doran[1]; J. Deluca[1]; R. Dyksterhouse[1]; R.G. Asgary[1]; G.M. Sacaju[1]. [1]Montefiore Medical Center/Albert Einstein College of Medicine, Bronx, NY. *(Tracking ID # 190225)*

BACKGROUND: Undiagnosed HIV infection remains a significant public health problem in the U.S. To address this, the Centers for Disease Control and Prevention recently revised HIV testing recommendations. These recommendations call for routine HIV screening among adults in all health care settings using an opt-out screening strategy. This strategy entails informing patients that HIV tests will be performed, unless patients decline. Currently, routine opt-out HIV testing in health care settings has yet to be widely implemented. In addition, few studies have examined the feasibility and patient acceptance rate of opt-out HIV testing in primary care settings. This study's objectives were to determine the feasibility of opt-out HIV testing in a Bronx community health center, and to examine factors associated with accepting HIV testing.
METHODS: From July to December 2007, we implemented an opt-out HIV testing program at a Bronx community health center. During 41 clinical sessions, an HIV tester attempted to approach all adult patients in private exam rooms prior to their physician visit. Patients were told they "would be tested for HIV unless they declined testing." Those who agreed to HIV testing were legally required to receive pre-test counseling and give written informed consent. Patients' blood was drawn and ELISA tests performed. We conducted a retrospective review of medical records extracting demographic, clinical, and visit characteristics. We conducted bivariate analyses with chi-square tests, examining associations between demographic, clinical, and visit factors with accepting HIV testing. Factors significant at $p<0.20$ were included in the multivariate logistic regression analysis.
RESULTS: During targeted clinical sessions, the HIV tester approached 262 (93.9%) patients. Patients' mean age was 54 years (SD=15); 72.0% were female, 55.8% black, 39.4% Hispanic, and 74.5% had public insurance. A total of 89 (34.0%) patients agreed to HIV testing. The most common reasons for declining HIV testing were not feeling at risk (55.5%) and having tested for HIV previously (45.1%). Compared to those who declined, patients who accepted HIV testing were more likely to be less than 55 years old (43.9% vs. 64.0%, $p<0.005$) and have another blood test during the visit (16.8% vs. 54.6%, $p<0.001$). On multivariate analysis, age less than 55 years (AOR=2.6, 95%CI=1.4–4.8) and having another blood test during the visit (AOR=6.7, 95% CI= 3.6–12.4) remained significant.
CONCLUSIONS: Implementing an opt-out HIV testing program in an urban community health center with a designated HIV tester was feasible. Over one third of patients agreed to HIV testing. Of those who declined testing, most reported not feeling at risk or having a previous HIV test. Factors independently associated with accepting HIV testing included age less than 55 years and having a blood test during the same visit. In opt-out HIV testing programs, exploring the use of HIV tests requiring oral fluid instead of blood is warranted. Opt-out HIV testing programs in community health centers may be one successful strategy to improve rates of HIV testing.

ORALCANCERPREVENTION.ORG - TRANSLATING TOBACCO CONTROL INTO DENTAL PRACTICE: A DENTAL PBRN STUDY
T.K. Houston[1]; C.I. Kiefe[2]; G.H. Gilbert[2]; J.J. Allison[2]; J. Richman[2]; C. Kohler[2]; R.M. Shewchuk[2]. [1]For the DPBRN Collaborative Group, Birmingham, AL; [2]University of Alabama at Birmingham, Birmingham, AL. *(Tracking ID # 189365)*

BACKGROUND: Evidence on the effectiveness of brief provider counseling for tobacco cessation has not been effectively translated into dental practice. We adapted the standard physician "5A's" counseling into a series of cases and resources for dentists and hygienists and deployed these through an interactive motivational website designed to improve performance of tobacco control.
METHODS: We tested the Internet-delivered intervention in a group-randomized trial of 190 dental practices. Pre-intervention and again eight months after first accessing the website, each dental practice distributed exit cards (brief patient surveys completed immediately after the dental visit) to 100 patients. Based on these exit cards, two patient-reported measures were calculated: whether patients were asked about tobacco use (ASK) and, among tobacco users, whether they were advised to quit tobacco (ADVISE). Using an intent-to-treat analysis, we quantified differences between intervention versus wait-listed control practices in the proportions of patients reporting ASK and ADVISE pre-intervention and post-intervention. We used generalized linear mixed models to account for clustering of patients within practices.
RESULTS: Of the 143 (75%) dental practices providing follow-up data, most were general dentistry practices (92%) and 78% were solo practices. Of the 14,300 pre-intervention exit cards distributed, 11,898 (84%) were completed. Intervention practices' mean performance improved post-intervention by 4% on ASK from 29% at a baseline (adjusted odds ratio=1.29 (95% CI 1.17–1.42)), and by 11% on ADVISE (44% baseline), OR=1.55 (1.28–1.87). Control practices improved by 3% on ASK (Adj. OR 1.18 (1.07–1.29) and did not significantly improve in ADVISE. Using a group-by-time interaction term, we found that intervention practices demonstrated more improvement over the study period than control practices for ADVISE ($p=0.042$) but not for ASK. Of 70 practices randomized to the intervention, 70% actually logged onto the website. Within the intervention group, we found that greater participation in the intervention resulted in greater improvement, with increases in ADVISE of 4% among those who did not logon, 10% in those who viewed less than the median number of pages, and 14% in those with the highest level of participation (above median).
CONCLUSIONS: This low-intensity, easily disseminated intervention was successful in improving patient-reported provider performance on advice to quit among tobacco users. NIH Support: DA-17971, DE-16746, DE-16747.

OVERCOMING VARIATION IN PRECISION FOR FACULTY TEACHING EVALUATIONS USING PSEUDO-BAYESIAN ADJUSTMENT T.K. Houston[1]; J.J. Allison[1]; J. Richman[1]; L.L. Willett[1]; C.A. Estrada[1]; W. Curry[1]. [1]University of Alabama at Birmingham, Birmingham, AL. *(Tracking ID # 190071)*

BACKGROUND: When evaluating faculty teaching performance, evaluators often deal with unequal numbers of evaluations per faculty. Should faculty with similar ratings based on 30 versus 3 resident evaluations be ranked similarly? We have translated a method from the quality improvement field – pseudo-Bayesian adjustment – to address the issue of varying numbers, and thus precision, of faculty teaching performance ratings.
METHODS: To assess the impact of adjustment, we used residents' ratings of 20 general medicine faculty teaching in ambulatory morning reports (AMRs) in 2007 in an academic internal medicine residency. Immediately following each AMR, residents completed an assessment rating the "number of AMRs today's faculty should facilitate per month" on a four-point scale (0,1–2, 3–4, over 4). We first calculated a mean rating for each faculty member. Then, using a generalized linear latent mixed model in STATA, we calculated a Bayesian adjustor for each faculty's mean rating. The adjustor accounts for varying precision by "shrinking" the individual's mean rating toward the mean of all faculty as a function of the individual faculty's variance and the overall group of faculty's variance. With the Bayesian adjustor, less precise ratings, due to fewer evaluations, were shrunk more heavily toward the group mean than faculty ratings with more observations. Finally, to simplify the calculations of the adjustor, we developed an analogous pseudo-Bayesian mimic, using the number of ratings per faculty, the faculty-specific mean rating, the overall mean rating and mean number of ratings.
RESULTS: Faculty ratings (n=639, resident response rate 75%) were completed in 98 AMRs. Due to varying number of AMRs facilitated, the number of ratings completed per faculty varied widely from 2–114. Faculty mean ratings on the 0 to 3 scale ranged from 1.5–2.2 (overall mean 1.8 (SD 0.2)). Based on the raw means, the highest and lowest rated faculty had fewer than 10 ratings. Using the Bayesian-adjusted means, 11 faculty went up in rank, and 8 faculty went down relative to other faculty (two faculty went down by seven positions), and the top rated faculty now had 63 ratings. The Bayesian and pseudo-Bayesian adjusted means were highly correlated (Pearson's r=0.99).
CONCLUSIONS: In this example, rankings of faculty changed considerably using the raw versus adjusted ratings. Our pseudo-Bayesian estimate, specifically designed for scaled teaching evaluations, very closely mimicked the true Bayesian and was much easier to calculate. Both the raw and adjusted ratings provide useful but different perspectives on performance. Program and curriculum directors, promotions committees and other consumers of teaching evaluations could consider presenting both raw and adjusted ratings when considering faculty teaching performance.

OVERVIEW OF A FORMAL SCOPING REVIEW ON HEALTH SYSTEM REPORT CARDS S.E. Brien[1]; D.L. Lorenzetti[1]; S. Lewis[1]; J. Kennedy[2]; W. Ghali[1]. [1]University of Calgary, Calgary, Alberta; [2]University of Oxford, Oxford,. *(Tracking ID # 190501)*

BACKGROUND: There exists an extensive body of literature on health system quality report cards that has yet to be characterized. 'Scoping reviews' are a novel methodology for systematically assessing the breadth of a body of literature in a particular research area. Our objectives were: 1) to showcase the scoping review methodology applied to the literature on health system report cards; and 2) to catalogue and report on the extent of existing literature from this review.
METHODS: A scoping review was performed using the formal methodological template proposed by Arksey and O'Malley (University of York, United Kingdom). We searched 14 multidisciplinary peer reviewed and grey literature databases and limited the search to English language and non-English language articles with English abstracts published between 1980 and June 2006. Articles were included if the abstracts indicated they contained: original research on 1) efficacy or effectiveness of health system report cards; or 2) stakeholder views of report cards; or a focused discussion of 3) ethical considerations; or 4) methodology of health systems report cards. One member of the research team reviewed all abstracts to determine inclusion in the review. A sample of 30 abstracts was reviewed in duplicate to demonstrate reproducibility of the review criteria (kappa=0.79). Similar procedures were followed for focused searches of internet sources and reference lists from relevant articles and key journals. Information from relevant studies was abstracted to generate an indexed database of literature pertaining to health system report cards.
RESULTS: Of the 10,218 articles identified in the database search, 774 were judged to be relevant to our scoping review. An additional 156 relevant articles were identified from the internet search, and 71 articles were uncovered from reference lists and key journals, for a total of 1001 articles charted, covering a range of clinical areas and topics (e.g. cardiac conditions, long-term care and nursing homes, overall hospital performance, cancer care, mental health, patient satisfaction). Articles were categorized according to the inclusion criteria as follows: 1) report card effectiveness n=167 articles; 2) stakeholder views n=103; 3) ethical considerations n=36; and 4) report card methodology n=695. The methodology category was further subdivided into: a) articles on dissemination methods for report cards n=25; b) data display or framing n=30; c) report card framework n=75; d) data sources n=107; e) statistical methods n=104; and f) articles describing quality indicator development and/or validation n=350. The resulting literature catalogue created by this scoping review is available from the authors upon request.
CONCLUSIONS: The scoping review methodology has permitted us to characterize and catalogue the extensive body of literature pertaining to health system report cards. Substantial literature exists on health system report cards, particularly in relation to various aspects of methodology for producing report cards, and to some extent also on the effectiveness of report cards. The resulting catalogued literature database is now available to various parties (e.g., health system decision makers, quality improvement teams, and researchers) as a tool for guiding future applied and academic work in this domain.

PANEL SIZE FOR MEDICAL RESIDENTS: CAN IT INFLUENCE PATIENT CARE? K. Ahmed[1]; E. Warm[1]; D. Schauer[1]. [1]University of Cincinnati, Cincinnati, OH. *(Tracking ID # 190257)*

BACKGROUND: It is unknown what the ideal ambulatory patient panel size is to maximize education or patient care. To our knowledge there are no reports connecting resident ambulatory panel size to hard outcomes such as emergency department (ED) visit rates. We report the association of patient panel size and ED visit rate for our Internal Medicine resident practice over the past 4 years.
METHODS: Data was collected from 2003 to 2006 on clinic visit volume, and ED visit volume by clinic patients. Resident panel size was determined by the number of clinic patients divided by the number of residents. Linear regression modeling was used to determine if relationships existed between patient panel size and clinic visits per patient, ED visits per patient, ED visits per patient who were subsequently discharged home from the ED, ED visits per patient that resulted in admission, and percentage of ED visits that resulted in admission.
RESULTS: From 2003 to 2006 patient individual patients in the practice dropped from 7593 to 4518 individuals. Clinic visit volume did not change appreciably. Average resident panel size decreased from 109 to 74 over this time. Linear regression modeling shows positive trends between panel size reductions and the decline in the total number of ED visits by clinic patients, the number of ED visits per patient per year, and the number of ED visits per patient leading to discharge. There was also a trend toward increased patient visits to the clinic per year. There was a statistically significant relationship between residency panel size and percentage of clinic patients seen in the ED that resulted in admission (p=0.001).
CONCLUSIONS: Our study is unique in that we demonstrate smaller panel sizes are associated with trends toward decreased ED utilization and increased clinic utilization. A larger sample size would likely have shown a more significant effect. We did demonstrate a statistically significant association between panel size and the percentage of clinic patients who visit the ED and are admitted. This suggests lower panel sizes shift non-urgent patient problems to the clinic, and more severe illnesses to the ED. Future research should investigate other clinical and educational outcome measures to determine the optimal panel size.

Clinic and ED data from 2003–2006

Year	Total # of visits in Clinic	Patiets/ PCP (Panel Size)	Visits in Clinic per Pt per Yr	Total # of ED Visits	Visits in ED per Pt per Yr	Visits in ED to Home per Pt	Visits in ED Admit per Pt	% of total in ED Admitted	Total # Contacts Points per Pt
2003	18118	109	2.39	11078	1.46	1.15	0.31	21	3.85
2004	18320	107	3.09	9468	1.6	1.27	0.33	21	4.69
2005	18938	99	3.52	8931	1.66	1.28	0.38	23	5.18
2006	18875	74	4.17	5069	1.12	0.8	0.32	29	5.29

PARTICIPATION IN AND PERCEPTIONS OF UNPROFESSIONAL BEHAVIORS AMONG INTERNS AT THREE CHICAGO-BASED INTERNAL MEDICINE RESIDENCY PROGRAMS V. Arora[1]; D. Wayne[2]; R.C. Anderson[3]; A. Didwania[2]; J.M. Farnan[1]; S. Reddy[1]; H.J. Humphrey[1]. [1]University of Chicago, Chicago, IL; [2]Northwestern University, Chicago, IL; [3]Evanston Northwestern Healthcare, Evanston, IL. *(Tracking ID # 189659)*

BACKGROUND: Little is known regarding participation in and perceptions of unprofessional behaviors among internal medicine interns. This study assesses participation in and perceptions of unprofessional behaviors among categorical and preliminary interns in three Chicago-based internal medicine residency programs: University of Chicago Medical Center, Northwestern Memorial Hospital, and Evanston Northwestern Healthcare.
METHODS: Based on a prior medical student survey, an anonymous survey was developed to assess participation and perception of 29 unprofessional behaviors that may occur during internal medicine residency. Survey items asked participants to report whether or not they had participated in a behavior and to rate their perception of this behavior as "unprofessional" on a Likert scale ranging from 1 (Unprofessional) to 5 (Professional). Behaviors corresponded to categories such as misrepresentation (introducing a student as a doctor), fraud (falsifying medical records), and on-call etiquette (celebrating a blocked admission, disparaging the ER). Acknowledging the wide spectrum of what may be considered unprofessional, behaviors ranged from the egregious (making fun of patients) to the more controversial (attending a drug rep-sponsored dinner, staying past required shift). Surveys were administered at a required orientation at one site, and electronically at the two other sites. Descriptive statistics were used to summarize participation in unprofessional behaviors. To test the effect of participation on perception, site-adjusted ANOVA was used with statistical significance defined as $p<0.05$.
RESULTS: Over 90% (108/119) of interns in the 3 programs completed the survey within three months of starting internship. While making fun of patients, falsifying medical records, and reporting test results as "normal" when you are uncertain were perceived as the most unprofessional items, 18% of interns admitted to making fun of patients, 13% to falsifying medical records, and 10% to reporting test results as normal when they were uncertain. Staying past shift limit was considered the least unprofessional behavior (mean 3.5) and 79% of interns reported doing so. Likewise, answering family questions during cross-cover, attending a drug rep dinner, and blocking an admission were considered least "unprofessional" with mean scores of 3 or higher. For 9 of the 29 behaviors, site differences were significant pointing to differences in institutional culture [men's dress, white coats in poor condition, celebrating blocked admission, arriving late to rounds, introducing a student as doctor, consenting patients for procedures without supervision, staying past shift, answering family questions during cross-cover, and disclosing an error to the attending]. There were no significant differences between categorical and preliminary interns. In site-adjusted ANOVA analyses, participants in the behavior were less likely to perceive the action as inappropriate. For example, interns who reported signing out to leave early were significantly less likely to view this as unprofessional (3.12 participant vs. 1.64 nonparticipant; $p=0.0001$).
CONCLUSIONS: Internal medicine interns report participating in a variety of unprofessional behaviors. Interns who participate in unprofessional behaviors are less likely to perceive these behaviors as unprofessional. Further study is needed to assess the impact of additional clinical training and education on the behavior and perceptions of internal medicine trainees.

PARTICIPATORY DECISION-MAKING AND TRUST ARE ASSOCIATED WITH DIABETES UNDERSTANDING, ATTITUDES AND BEHAVIOR M.M. Safford[1]; J. Halanych[1]; C.I. Kiefe[1]; H. Jessica[1]; J.J. Allison[1]. [1]University of Alabama at Birmingham, Birmingham, AL. *(Tracking ID # 190440)*

BACKGROUND: Diabetes (DM) care requires patient understanding, a positive attitude and salutary self-care behaviors. The roles of trust in physicians and shared decision-making towards achieving these outcomes have not been well-described.
METHODS: We surveyed 1784 Southeastern diabetic Medicare beneficiaries in 2006–7. The 2 exposures were shared decision-making (Medical Outcomes Study (MOS) Scale) and trust (Wake Forest Trust Scale). Five subscales of the Michigan Diabetes Research & Training Center Diabetes Care Profile were the dependent variables in separate regression models: DM understanding, attitude towards DM, ability to care for DM, importance of DM, and diet adherence. All models adjusted for sociodemographics, medical illnesses and social support. Incremental rise in adjusted R^2 with entry of first MOS and then trust scores into each adjusted model was noted.
RESULTS: Participants were mean age 73, 64% female, 45% Black, 59% had annual income <$15,000, 8.2% had <6th grade education, and 46% were married; mean Charlson Index was 2.75, 35% had a diabetes complication (nephropathy, retinopathy or neuropathy), mean Center for Epidemiology Studies Depression (CES-D) score was 6.0, and 5% smoked. Trust and MOS were not correlated (correlation coefficient −.02, $p=.35$); both were associated with all 5 outcomes ($p<.05$). Adjusted R^2 rose significantly with addition of MOS and trust into the adjusted models for all outcomes. For importance of DM, adjusted R^2 of the adjusted model was 1.5%; 18.8% adding MOS; and 20.2% adding both MOS and trust. For understanding, adjusted R^2s were: 13.9% (adjusted model), 21.5% (adjusted model + MOS) and 22.0% (adjusted model + MOS + trust). Ability to care for DM: 10.5%, 14.6%, 16.0%. Attitude: 28.4%, 30.4%, 31.0%. Diet adherence: 2.4%, 6.1%, 6.4%. MOS accounted for 85.6% of the total explained variation in importance of caring for DM, and 57.8% in diet adherence.
CONCLUSIONS: In older diabetic Americans, aspects of patient-physician communication, especially shared decision-making, substantially impacted patients' understanding, attitudes and behavior. Optimizing patient-physician communication may improve outcomes in diabetes.

PATIENT ACTIVATION TO REDUCE CARDIOVASCULAR RISK: IS FAILING TO FILL LIPID-LOWERING DRUG PRESCRIPTIONS AT THE PHARMACY ASSOCIATED WITH FAILING TO FILL ANTIHYPERTENSIVE DRUG PRESCRIPTIONS? B.J. Turner[1]; M.G. Weiner[1]; S. Eachus[1]; S. Fox[2]; C. Roberts[3]. [1]University of Pennsylvania, Philadelphia, PA; [2]Keystone/AmeriHealth Mercy Health Plan, Philadelphia, PA; [3]Pfizer, Inc., New York, NY. *(Tracking ID # 190487)*

BACKGROUND: A key initial step to prevent cardiovascular (CV) disease occurs when the patient accepts treatment to reduce risk and fills a prescription at the pharmacy (filling behavior). We hypothesized that patients' filling behavior for one type of medication to reduce CV risk, lipid-lowering medication (LLM Rx), would be associated with filling behavior for another, antihypertensive medication (AHM Rx). If so, the physician should be alerted to a broader problem when a patient fails to fill a CV prescription.
METHODS: We studied hypertensive patients with >=3 visits to 6 primary care practices from 1/1/04–12/31/06. Of 22,055 patients, 2,633 (12%) were enrolled >=1 month in a managed care plan. Prescriptions from study sites' electronic medical records were linked to concurrent drug claims from the plan. Of 1,333 (51%) patients prescribed formulary AHM(s) within >=3 month insured window(s), 514 (39%) were prescribed LLM(s). For each AHM Rx or LLM Rx, we defined filling from a paid claim within 30 days. LLM Rx filling behavior was categorized as 0%, <33%, 33–66%, 67–99%, 100% of all LLM Rxes. The outcome was filling an AHM Rx within one month. Using generalized estimating equations to account for clustering, we adjusted for demographics, clinical covariates (i.e., most recent blood pressure, LDL cholesterol level, CV-related and unrelated comorbidities), AHMs in current regimen, adherence to primary care visits, number of AHM Rxes given to fill, and number of LLM Rxes given to fill.
RESULTS: The study cohort of 514 patients was 85% African American and 73.7% women, with a mean age of 55.9 years (SD 12.0). Of 4,668

AHM Rxes (mean per patient 9.9 SD 7.9), 70.0% were filled while, of 1,846 LLM Rxes (mean 3.6 SD 3.1), only 61.4% were filled. Of the cohort, 18.3% filled no LLM Rx and 22.4% filled all. Both before and after adjustment, poor filling behavior for LLM Rxes was significantly associated with failure to fill AHM Rxes with an adjusted odds ratio (AOR) for: no filled LLM Rxes of 0.68 [CI 0.60–0.77]; less than one-third filled of 0.83 [CI 0.71–0.96]; one-third to two-thirds filled of 0.88 [CI 0.81–0.96]; and over two-thirds to 99% filled of 0.98 [0.91–1.06] vs. 100% filled. Other factors negatively associated with AHM Rx filling included: the highest quartile of the number of AHM Rxes given to fill vs. the lowest (AOR 0.86 [CI 0.78–0.96]) and stage 1 vs. normal blood pressure (AOR 0.94 [CI 0.88–0.99]). Compared with the lowest quartile of patient primary care visit adherence, higher adherence to visits was positively associated (AOR 1.08 [CI 1.00–1.16]) as was having >=3 drugs in current AHM regimen (AOR 1.12 [CI 1.03–1.21]) vs. none.
CONCLUSIONS: Hypertensive patients' phamacy filling behaviors for drugs to prevent CV disease appear to be related such that patients who fail to fill one type are also less likely to fill another. Physicians should consider also addressing barriers to filling AHM Rxes when patients fail to fill a LLM Rx.

PATIENT AND PHYSICIAN REMINDERS TO INCREASE RATES OF COLORECTAL CANCER SCREENING. A RANDOMIZED CONTROLLED TRIAL T.D. Sequist[1]; A.M. Zaslavsky[2]; R. Marshall[3]; R. H. Fletcher[2]; J.Z. Ayanian[2]. [1]Brigham and Women's Hospital, Boston, MA; [2]Harvard Medical School, Boston, MA; [3]Harvard Vanguard Medical Associates, Newton, MA. *(Tracking ID # 189681)*

BACKGROUND: Screening reduces colorectal cancer (CRC) incidence and mortality but remains underused. Systematic reminders to patients and physicians may increase screening rates.
METHODS: We conducted a randomized trial of patient and physician reminders in 11 ambulatory health centers with an integrated electronic health record. Participants included 21,680 patients ages 50 to 80 overdue for CRC screening and 110 primary care physicians caring for them. Patients were randomly assigned to receive a personalized mailing containing an educational pamphlet, fecal-occult-blood test kit, and instructions for direct scheduling of flexible sigmoidoscopy or colonoscopy. The initial patient mailing was repeated 6 months later to patients still overdue for screening. Physicians were randomly assigned to receive electronic reminders via the electronic health record during office visits with patients overdue for screening. The primary outcome was receipt of CRC screening over 15 months, including fecal occult blood testing, sigmoidoscopy, or colonoscopy. New colorectal adenomas and cancers were identified from the electronic health record.
RESULTS: Patients' mean age was 60 years, 57% were female, 58% were white, 69% had commercial insurance, and 24% were covered by Medicare. All characteristics were well balanced among intervention groups. Approximately one-third of patients had no primary care office visit during the study period, and one-quarter had at least 3 visits. Screening rates were higher for patients who received mailings compared to those who did not (44.0% vs. 38.1%, p<0.001). Screening rates after patient mailings increased comparably among women (+5.6%) and men (+6.1%) (both p<0.001). The effect increased with age: +3.7% for ages 50–59 years; +7.4% for ages 60–69; and +10.0% for ages 70–80 years (p=0.009 for trend). Screening rates were no higher among patients of physicians receiving electronic reminders compared to the control group (41.9% vs. 40.2%, p=0.47). However, among patients with 3 or more office visits to their primary physician, electronic reminders tended to increase screening rates (59.4% vs. 52.8%, p=0.06), but not among patients with fewer visits. No significant interaction was evident between the patient and physician interventions. Detection of colorectal adenomas did not differ between patients who did and did not receive mailings (5.7% versus 5.2%, p=0.11), but adenomas were detected more often among patients of physicians receiving electronic reminders compared to the control group (6.0% versus 4.9%, p<0.001). Overall, 43 (0.2%) patients were newly diagnosed with colorectal cancer during the study, with no difference in detection rates among intervention and control groups.
CONCLUSIONS: Mailed reminders to patients are an effective tool to promote CRC screening among eligible adults. Electronic reminders to physicians increase detection of adenomas and may increase screening among regular users of primary care. *(ClinicalTrials.Gov ID NCT00355004)*

PATIENT ASSIGNMENT IN A DIABETES DECSION SUPPORT SYSTEM: IMPLICATIONS FOR POPULATION MANAGEMENT AND PAY FOR PERFORMANCE C.D. Maclean[1]; B. Littenberg[1]. [1]University of Vermont, Burlington, VT. *(Tracking ID # 190051)*

BACKGROUND: The Chronic Care Model promotes the use of registries to support clinical decision support, patient activation, and population-based care. Challenges to population management include accurate assignment of patients to the treating provider, confirmation of diagnosis, clinical appropriateness of each patient for the guideline, and potential for gaming by intentional exclusion of difficult to control patients. We sought to determine the proportion of patients appropriate for full use of a diabetes decision support system and to compare guideline acheivement across the included and excluded categories.
METHODS: The Vermedx Diabetes Information System (VDIS) is a decision support registry that identifies eligible patients through laboratory test results. We analyzed data after 1 year of operation at an academic medical center with 9 primary care practice locations and 127 providers. Eligible patients had one or more A1C tests ordered in the previous two years. Providers reviewed patient rosters on a quarterly basis, confirmed the diabetes diagnosis, and excluded those not appropriate for full participation in the decision support system. The reasons for exclusion were recorded and iteratively categorized with input from providers. A1C test results were summarized across exclusion categories and compared with the active group using Fishers exact test.
RESULTS: 3619 subjects were identified; 136 had died since the index A1C test. Of the remaining 3493 patients, 61% were included in the registry by the PCP. Reasons for exclusion were: DM diagnosis not confirmed; inability to assign the primary provider; DM managed primarily by a specialist; ineligibility on clinical grounds such as a terminal comorbid condition or advanced age; missing data because of travel for a significant portion of the year; and patient refusal. The proportion of patients at the guideline targets for glycemic control across the ineligibility categories are shown in the Table. Patients identified as non-diabetic had appropriately low A1C results; those cared for by specialists had significantly worse glycemic control. Other exclusion categories were similar to the active group.
CONCLUSIONS: Patient assignment to full participation in a decision support sytem is complex and requires input from providers. We found no evidence for gaming or for exclusion of difficult patients on clinical grounds. The lack of a national consensus on exclusion criteria for population reporting may limit comparisons across systems or organizations and therefore has important implications for pay for performance comparisons.

Guideline acheivement of patients included and excluded from VDIS registry

Status	Proportion (n=3493)	Mean A1C	Proportion with A1C<7%	P value (relative to Active)
Active decision support	61%	7.1	59%	–
Non-diabetic	20%	5.6	99%	<0.001
Cannot assign PCP	7%	7.1	61%	0.99
Diabetes managed by specialist	5%	7.5	44%	<0.001
Clinically ineligible	4%	7.0	66%	0.11
Missing results	2%	6.8	68%	0.12
Refused	<1%	6.6	82%	0.08

PATIENT PERCEPTIONS OF GENERIC MEDICATIONS W. Shrank[1]; E. R. Cox[2]; M.A. Fischer[1]; J. Mehta[1]; N.K. Choudhry[3]. [1]Brigham and Women's Hospital, Harvard Medical School, Boston, MA; [2]Express Scripts, St. Louis, MO; [3]Harvard University, Boston, MA. *(Tracking ID # 190062)*

BACKGROUND: Despite widespread efforts to reduce unnecessary spending on prescription drugs, generic medications are underused and are used variably. Little is known about patient perceptions about generic medications, both for themselves and for the population.
METHODS: We performed a national mailed survey of a random sample of commercially insured adult patients, age 18–95, and explored patient perceptions about generic medications.
RESULTS: The response rate among beneficiaries for whom we had correct addresses was 48% (1047 respondents /2202 correct addresses

surveyed). Average age was 52. Patients overwhelmingly agreed that generics are less expensive (94% agreed) and offer better value (70% agreed), and few believed generics cause more side effects than branded drugs (<10% disagreed). Almost 56% reported that Americans should use more generic drugs. However, when asked if they would rather take generic than branded medications themselves, only 37.6% agreed. Respondents had mixed feeling about whether private insurers or the government should create rules to increase generic use. Patients with an income of $100,000 or greater had 75% greater odds of preferring generic drugs than low income patients (95% C.I. 1.08 – 2.83). Females, younger patients, high-income patients, and healthier patients reported more favorable views about either the safety, efficacy, or value of generic drugs.
CONCLUSIONS: While there is variability in perceptions about generic medications, patients have positive perceptions about generic drugs and believe that more Americans should use them. However, many patients do not prefer to use generics themselves and have mixed feeling about strategies to increase generic drug use. These findings underscore the challenge that providers, insurers and policy-makers face when trying to stimulate cost-effective medication use.

PATIENT RACE AND DOCTOR-PATIENT COMMUNICATION IN THE ORTHOPEDIC SETTING L. Hausmann[1]; D. Kresevic[2]; P.Z. Cohen[3]; R. Grant[2]; S. Zickmund[4]; M. Mor[4]; M. Geng[4]; H.S. Gordon[5]; S.A. Ibrahim[4]. [1]VA Pittsburgh Healthcare System, Pittsburgh, PA; [2]Louis Stokes DVA Medical Center, University Hospitals Case Medical Center, Cleveland, OH; [3]VA Pittsburgh Healthcare System, University of Pittsburgh School of Medicine, Dept. of Orthopaedic Surgery, Pittsburgh, PA; [4]VA Pittsburgh Healthcare System, University of Pittsburgh, Pittsburgh, PA; [5]Jesse Brown VAMC, University of Illinois at Chicago, Chicago, IL. *(Tracking ID # 190264)*

BACKGROUND: There is a marked racial disparity in the utilization of joint replacement, which is an effective treatment option for end-stage knee/hip osteoarthritis (OA). The role of doctor-patient communication in this disparity has never been examined. We therefore sought to evaluate whether differences in doctor-patient communication patterns exist for white and African American (AA) patients consulting with orthopedic doctors for OA treatment.
METHODS: Our sample consisted of patients with moderate to severe knee/hip OA who were referred to Pittsburgh and Cleveland VA orthopedic clinics for consultation. We audio-recorded the discussions between patients and orthopedic doctors. The recordings were coded by trained research staff using the Roter Interaction Analysis System (RIAS). The RIAS classifies patient and doctor communication into 34 mutually exclusive categories reflecting socioemotional or task-focused dialogue. We combined communication codes into 10 summary categories for patients and 10 for doctors (see Table). We also computed overall measures of patient centeredness (the ratio of socioemotional to biomedical and task-focused speech) and physician verbal dominance (the ratio of doctor to patient speech). We used Poisson regression models to analyze each communication variable as a function of patient race, controlling for study site, patient age, gender, education, number of prior visits in the clinic, clinical severity of OA, and clustering by doctor.
RESULTS: The sample included 235 white and 56 AA patients who consulted with 55 orthopedic doctors. Patients were mostly male (95%), ranged in age from 50 to 89, and most (62%) had no prior visits in the clinic. AA patients gave less medical information during visits than did whites [Incidence-Rate Ratio (IRR)=.9, 95% CI=.8-.9]. In contrast, AA patients had more instances of positive (IRR=1.3, 95% CI=1.1–1.6), emotional (IRR=1.7, 95% CI=1.2–2.6), and procedural (IRR=1.9, 95% CI=1.2–3.0) speech than did white patients. AA patients also had more patient-centered communication during their visits compared to white patients (IRR=1.1, 95% CI=1.0,1.2). In contrast, orthopedic doctor communication patterns did not differ by race of the patients, nor did the overall doctor verbal dominance (see Table).
CONCLUSIONS: AA and white patients in this sample differed in their communication patterns during an orthopedic consultation. Orthopedic doctor communication patterns, however, did not differ by patient race. More studies are needed to examine whether racial differences in patient communication patterns such as those in this study contribute to the racial disparity in utilization of knee/hip joint replacement as a treatment for end-stage OA.

Table: Frequency of Communication Variables and their Association with Patient Race

Communication Variables	Patient Speech		Doctor Speech	
	Median	Patient Race	Median	Patient Race
	(IQR)	IRR (95% CI)	(IQR)	IRR (95% CI)
Medical Question	6 (3–12)	1.1 (0.9–1.4)	33 (21–48)	0.9 (0.8–1.1)
Lifestyle/ Psychosocial Question	0 (0–0)	0.6 (0.2–1.6)	3 (0–5)	1.2 (0.9–1.6)
Medical Information Giving	84 (58–118)	0.9 (0.8–0.9)*	83 (55–122)	1.0 (0.9–1.1)
Psychosocial Information Giving	7 (3–14)	1.2 (0.9–1.16)	0 (0–1)	1.6 (1.0–2.8)
Partnership Building	1 (0–2)	0.9 (0.6–1.3)	23 (14–36)	1.0 (0.9–1.1)
Positive Speech	25 (17–36)	1.3 (1.1–1.6)*	23 (16–34)	0.9 (0.8–1.0)
Emotional Speech	0 (0–1)	1.7 (1.1–2.6)*	2 (0–4)	1.2 (0.9–1.6)
Negative Speech	0 (0–0)	2.0 (0.9–4.4)	0 (0–0)	1.1 (0.7–1.4)
Social Speech	3 (2–4)	1.3 (0.7–2.3)	4 (3–6)	1.0 (0.7–1.4)
Procedural Speech	1 (0–3)	1.9 (1.1–3.0)*	19 (10–30)	0.9 (0.8–1.1)
Doctor-Patient Summary Measures				
Patient Centeredness	.7 (5–8)	1.1 (1.0–1.2)*		
Physician Verbal Dominance	1.5 (1.2–1.9)	1.0 (1.0–1.0)		

*p=<.05; IRR = (Incidence Rate Ratios) >1 indicate that African Americans had higher scores than whites; IQR=Interquartile Range

PATIENT SATISFACTION AND REPEAT EMERGENCY DEPARTMENT VISITS IN POSSIBLE ACUTE CORONARY SYNDROME (ACS) D.A. Katz[1]; S.L. Hillis[1]; T.P. Aufderheide[2]; M. Bogner[3]; P.S. Rahko[3]; H.P. Selker[4]. [1]University of Iowa, Iowa City, IA; [2]Medical College of Wisconsin, Milwaukee, WI; [3]University of Wisconsin, Madison, WI; [4]Tufts University, Boston, MA. *(Tracking ID # 190938)*

BACKGROUND: Up to 21% of Emergency Department (ED) patients with chest pain return to the ED for re-evaluation within 6 months of initial presentation. Possible causes for ED "recidivism" are the patient's uncertainty regarding the underlying cause of his/her symptoms, lack of access to primary care, and poor communication of test results and self-care instructions by ED staff. The aim of this study is to determine the association between satisfaction with initial emergency department (ED) care and subsequent ED and outpatient follow-up care in patients with possible ACS.
METHODS: We performed a cross sectional analysis of 550 consecutive ED patients with symptoms of possible ACS who were discharged directly from the ED; all patients participated in a prospective guideline implementation trial at 2 University hospitals [Med Decis Making 2006; 26: 606–16]. At 30-day telephone follow-up, we identified all subsequent ED and outpatient clinic visits (confirmed by medical record review), and assessed satisfaction with ED care at the initial visit [Press-Ganey, Inc.]. All satisfaction items were rated on a 5-point Likert scale; subscale scores were computed as the sum of items within each domain (Satisfaction with EP care and Overall ED care are scaled from 5–30 and 5–25, respectively). We used logistic regression to determine the association between individual satisfaction items (dichotomized at fair-poor vs. very good-good) and the occurrence of any ED revisits and outpatient follow-up, after adjusting for potential confounding variables (demographics, insurance status, presenting symptoms, comorbidities, and hospital) and accounting for clustering at the EP level. We used propensity methods to analyze satisfaction subscale scores. Within each propensity score stratum (e.g., decile of predicted probability of ED revisit), we used the Wilcoxon rank sum test to compare satisfaction subscale scores among those with and without the outcome of interest; results were combined across strata using Cochran-Mantel-Haenszel statistics.
RESULTS: Fair-poor ratings on the following satisfaction items were associated with an increased odds of ED revisits (95% CI): 1) degree to which the EP took your problem seriously: OR 2.6 (1.1–6.0), 2) technical

skill of the EP: OR 3.5 (1.3–9.9), and 3) how well you were kept informed about delays: OR 2.0 (1.1–3.8). Mean EP subscale scores were lower for patients who revisited the ED versus those who did not (26.2 vs. 27.7, p=.06); similar results were observed for mean overall satisfaction scores (21.1 vs. 22.2 on a 5–25 scale, p=.03). No significant associations were observed between single satisfaction items (or subscale scores) and the odds of outpatient follow-up visits.
CONCLUSIONS: Patients with possible ACS who revisit the ED during follow-up have significantly lower satisfaction with ED care. Although the primary focus in the care of these patients has been reducing diagnostic uncertainty, efforts to improve patient satisfaction may further reduce ED recidivism and improve adherence to clinicians' recommendations.

PATIENT SELF REPORTED LEVELS OF PATIENT CENTERED CARE AND ACTIVATION PREDICTS MEDICATION ADHERENCE AMONG VETERANS WITH HYPERTENSION C.L. Roumie[1]; K.A. Wallston[1]; R. Greevy[1]; T.A. Elasy[1]; W.J. Stone[1]; X. Liu[1]; R.S. Dittus[1]; T. Speroff[1]. [1]VA Tennessee Valley Healthcare System, Vanderbilt University, Nashville, TN. *(Tracking ID # 190620)*

BACKGROUND: There is increasing evidence that patient centered care is an essential component of chronic care. Our objective was to prospectively evaluate patient centered care and patient activation level as determinants of antihypertensive medication adherence. Our hypothesis was that patients who score higher in domains of patient centered care or activation will be more adherent to medications and subsequently have better blood pressure (BP) control.
METHODS: We mailed 1341 surveys to veterans who took part in a trial to improve hypertension care within VA primary care clinics. The Short Form Primary Care Assessment Survey (PCAS) is a 22-item questionnaire measuring 7 elements of patient centeredness in primary care: access; continuity; comprehensiveness; integration of care; clinical interactions; interpersonal treatment and trust. The Patient Activation Measure (PAM) assesses patients' knowledge, skill and confidence in managing their own health. We prospectively tracked each respondent's individual antihypertensive medication adherence for 6 months after the survey was returned using VA pharmacy fill data. A summary score of antihypertensive adherence was calculated as the weighted average of each individual medication's adherence excluding furosemide (given the potential for variable use among many patients). Patients were characterized as adherent using >=0.8 as the criterion. We also determined if each responders BP was controlled at 6 months after the survey date using <=140/90 mmHg.
RESULTS: 648 patients (48%) responded to at least one of the surveys: 584/1341 (43.5%) PCAS surveys and 624/1341 (46.4%) PAM surveys contained complete data. Responders were 97.2% male (630/648) and older than non responders (66.9±11.2 vs. 63.4±12.7 p<0.001). Adherence could be calculated for 1113 of the 1341 patients in the cohort (83.0%). Survey responders were more adherent to their antihypertensive medications than non responders [465/600 (77.5%) vs. 317/513 (61.8%) p<0.0001]. Both patient centeredness and activation correlated with antihypertensive medication adherence. For each 1 point change in patient centered care (Scale 1–5, mean: 3.58±0.82), the odds of being adherent increased (OR 1.39 95% CI 1.09, 1.77 p=0.009). For each 10 point change in PAM (Scale 0–100, mean: 54.5±11.5), the odds of being adherent to antihypertensives also increased (OR 1.19 95% CI 0.99, 1.43 p = 0.06). PCAS and PAM did correlate with each other (Pearsons R=0.39). In an adjusted logistic regression accounting for patient age, education level and Charlson score, patient centered care remained a unique significant predictor of adherence (OR 1.34 95% CI 1.03, 1.74 p=0.03). As expected, medication adherence predicted BP control at 6 months (OR 1.36 95% CI 1.01, 1.83). The relationship between either PCAS or PAM and BP control at 6 months did not reach statistical significance. This finding indicates that the relationship between patient centeredness and activation and subsequent BP control is mediated by adherence.
CONCLUSIONS: Self-reported levels of activation and patient centeredness in primary care are associated with medication adherence. In turn, medication adherence leads to BP control. Our findings suggest that improving patient centered care could lead to improvements in health related behaviors such as medication adherence. Improving patient centered care and activation should be a focus for further investigation as opportunities for improving health behaviors.

PATIENT TIME REQUIREMENTS FOR ANTICOAGULATION CARE D. E. Jonas[1]; M.E. Bryant Shilliday[1]; W.R. Laundon[1]; M. Pignone[1]. [1]University of North Carolina at Chapel Hill, Chapel Hill, NC. *(Tracking ID # 190131)*

BACKGROUND: Oral anticoagulation therapy with warfarin has been shown to be effective and cost-effective but previous economic analyses have not adequately included the cost of patient time required for anticoagulation therapy. To better assess the true costs of different options for testing, we sought to measure the time requirements for patients on chronic anticoagulation therapy and the value of that time.
METHODS: We enrolled patients from a university-based anticoagulation program within a General Internal Medicine practice. Participants were asked to complete a written questionnaire and keep a diary that recorded the time requirements for one visit to the anticoagulation clinic, including travel, waiting, and the clinic visit. The value of patient time was assessed by two different economic methods, the human capital method and contingent valuation. For the human capital method, time was valued at $19.29 per hour, the national average wage from the National Compensation Survey, June 2006. For contingent valuation, subjects were asked the most they would be willing to pay for each use of a technology that would allow them to check their INR at home with a fingerstick and tell them what changes, if any, to make with their warfarin, thus replacing the anticoagulation clinic visit and eliminating the need for travel to and from the clinic. Chart reviews were used to obtain clinical data on frequency of anticoagulation visits.
RESULTS: 144 patients were approached,120 were eligible and enrolled, and 85 (70%) completed the questionnaire and diary. Mean age was 56.8 years (20–89), 52% were male, 72% were Caucasian, 24% African American, 93% of the patients were insured, and 46% had annual household incomes under $30,000. The mean (median) total anticoagulation clinic visit time including travel to and from the clinic was 147 (123) minutes. Patients had an average of 15 anticoagulation visits per year and spent 2338 minutes (39.0 hours) (median 1760, 29.3 hours) per year for travel, waiting, and anticoagulation visits. Other anticoagulation activities, such as extra time for food preparation, prescription refills, and phone calls or emails to their anticoagulation provider added an average of 3163 additional minutes (52.7 h) (median 1140, 19 h) per year. Therefore, subjects had a cumulative mean yearly time requirement of 5597 minutes (93.3 h) (median 3520, 58.7 h) for anticoagulation related activities. From the human capital method, the mean annual value of time spent traveling, waiting, and attending anticoagulation visits was $707 (median $591). The mean annual value of time spent when also including food preparation, pharmacy trips, and phone calls or emails was $1799 (median $1132). The mean willingness to pay for each use of a technology that would allow subjects to check their INR at home with a fingerstick was $28 (median $10). Thus, with an average of 15 visits per year, they were willing to pay $420 per year.
CONCLUSIONS: Average time requirements for anticoagulation care are considerable: over 2 hours per visit and 93 hours per year. This time has significant value whether measured by human capital or contingent valuation. Methods for reducing patient time requirements, such as home-based testing, for which patients were willing to pay an average of $420 per year, could significantly impact the time requirements for anticoagulation management and be more cost-effective for patients.

PATIENT-PROVIDER CULTURAL DISSIMILARITY AND RACIAL DISPARITIES IN HIV CARE S. Saha[1]; P.T. Korthuis[2]; V. Sharp[3]; J.A. Cohn[4]; P.M. Haidet[5]; R.D. Moore[6]; M.C. Beach[6]. [1]Portland VA Medical Center, Portland, OR; [2]Oregon Health & Science University, Portland, OR; [3]Saint Luke's and Roosevelt Hospitals, New York, NY; [4]Wayne State University, Detroit, MI; [5]Baylor College of Medicine, Houston, TX; [6]Johns Hopkins University, Baltimore, MD. *(Tracking ID # 190936)*

BACKGROUND: Numerous studies report racial disparities in the quality of patient-provider relationships, clinical care, and outcomes. Though cultural differences between patient and provider are hypothesized as important sources of these inequalities, few studies have directly examined the role of patient-provider cultural discordance as a cause of racial disparities.
METHODS: We surveyed patients at 4 geographically diverse HIV clinics as part of the Enhancing Communication and HIV Outcomes (ECHO) study. The survey assessed patients' self-identified race and included a previously validated, 4-item scale measuring patients' perceived cultur-

al dissimilarity with their HIV care provider. We evaluated patients' trust in their HIV care provider using the Stanford Trust in Physician scale, antiretroviral (ARV) medication adherence (no missed doses in prior 3 days), and viral load (from medical records). We used logistic regression to examine the association of patient race (white vs. nonwhite) with trust (dichotomized at the median), ARV adherence, and viral suppression (<75 copies/ml), controlling for covariates (Model 1). We then added cultural dissimilarity to each model to determine whether racial differences were mediated by cultural dissimilarity (Model 2). We accounted for clustering of patients by provider using generalized estimating equations. Analyses for adherence were limited to patients on ARV therapy, and for viral suppression to patients either on or eligible (CD4 count <350) for ARV therapy.
RESULTS: The study sample of 437 patients included African Americans (58%), whites (25%), Latinos (14%), and patients identifying as "other" race (3%). Women made up 34%. Nonwhite race was associated with lower trust, adherence, and viral suppression (Table). Nonwhites reported slightly greater cultural dissimilarity with their providers than white patients did (2.21 vs. 1.97, p=.06, possible range 1–6). Cultural dissimilarity was associated with trust and accounted for a small portion of the racial difference in trust. Cultural dissimilarity did not explain racial differences in adherence or viral suppression.

Table Association (odds ratios, 95% CI) of patient race and patient provider cultural dissimilarity (CD) with HIV care and outcomes

	Trust in Provider		Adherence		Viral Suppression	
	Model 1*	Model 2**	Model 1*	Model 2**	Model 1*	Model 2**
Race						
White	–	–	–	–	–	–
Nonwhite	.56 (.33–93)	.61 (.36–1.0)	.37 (.15-.88)	.37 (.15-.89)	.47 (.26-.89)	.46 (.26-.82)
CD Score	–	.58 (.47-.73)	–	.94 (.70–1.3)	–	1.09 (.87–1.4)

*Model 1 includes study site; patient race, age, gender, education, marital status, employment, substance abuse, self-rated quality of life, depression, health literacy, and social support, and provider age and gender.
**Model 2 includes all variables in Model 1 plus patient reported cultural dissimilarity with provider.

CONCLUSIONS: Patient-provider cultural dissimilarity may explain some of the racial disparity in patients' trust in providers, but in this study it did not explain differences in adherence or clinical outcomes. Interventions to reduce the impact of cultural differences between patients and providers may confer limited benefit if not combined with initiatives targeting other sources of racial disparities in healthcare quality.

PATIENT'S PERCEPTION OF ELECTRONIC MONITORING DEVICES AFFECTS MEDICATION ADHERENCE IN HYPERTENSIVE AFRICAN AMERICANS A. Schoenthaler[1]; G. Ogedegbe[1]. [1]Columbia University, New York, NY. *(Tracking ID # 190189)*

BACKGROUND: Electronic monitoring devices (EMD) have been regarded as the "gold standard" to assess rates of medication adherence in clinical research. However, little is known about the affect of patient's acceptability of EMD on medication adherence in hypertensive African Americans receiving care in community-based primary care practices.
METHODS: The objective of this study was to evaluate perceived acceptability of EMD and its relation to rates of adherence in 138 hypertensive African-American patients followed in community-based primary care practices. Patients were recruited from a larger randomized control trial assessing the effect of motivational interviewing versus usual care on medication adherence and blood pressure among hypertensive African-American patients receiving care in two community-based primary care practices in New York City. Medication adherence was assessed with Medication Event Monitoring System (MEMS) during a 12-month monitoring period. At the 12-month follow-up, patient's perception of MEMS was assessed with a 17-item questionnaire created for the purposes of this study. Analysis of variance (ANOVA) was used to compare participants responses (agree, neither, disagree) to MEMS adherence over the 12-month monitoring period. Tukey's post hoc tests were also used to determine if there were any significant differences between groups.
RESULTS: Majority of the study participants were female, low-income, unenmployed, had a high school education, with mean age of 53 years. Approximately two-thirds of patients stated MEMS helped them remember to take their medications, three-quarters liked MEMS and used it everyday, while one-third of patients preferred using a pillbox and one-quarter did not like traveling with MEMS. Patients stating they used MEMS everyday, felt comfortable using it in front of others, and remembered to put their refills in had significantly higher rates of mean adherence over the study period than those that disagreed (p.05).
CONCLUSIONS: MEMS can be an acceptable assessment of adherence in community-based practices. More research is needed to determine whether MEMS is a cost-effective addition to primary care settings.

PATIENTS' REASONS FOR CHOOSING OFFICE-BASED BUPRENORPHINE: PREFERENCE FOR PATIENT-CENTERED CARE P.T. Korthuis[1]; J. Gregg[1]; W.E. Rogers[1]; D. Mccarty[1]; J. Boverman[1]. [1]Oregon Health & Science University, Portland, OR. *(Tracking ID # 190167)*

BACKGROUND: Opioid dependence is common among HIV-infected patients and associated with suboptimal outcomes. Office-based buprenorphine maintenance is a promising treatment modality that may help opioid dependent patients engage in both addiction treatment and HIV care. The objective of this study was to explore HIV-infected patients' attitudes about buprenorphine treatment in office based and substance abuse treatment center settings.
METHODS: 32 HIV-infected patients seeking treatment for opioid dependence were assigned to receive office-based buprenorphine from their HIV provider (n=16) or buprenorphine from a federally certified methadone maintenance treatment center (n=16). Patients were allowed to cross-over after their initial evaluation. In-depth qualitative interviews were conducted with 30 patients 3 months after enrollment. Interview guides contained open-ended questions about patient perceptions and attitudes toward care integration for HIV and opioid dependence treatment and probed potential barriers and facilitators of integrated care. Audiotaped interviews were transcribed and analyzed using grounded theory, with the assistance of ATLAS.ti software. Narratives were reviewed for recurrent themes and coded by 2 investigators.
RESULTS: Thirteen of 16 patients enrolled in buprenorphine maintenance at the methadone maintenance treatment center crossed-over to office-based treatment within the first 3 months of treatment. No patients enrolled in office-based buprenorphine crossed-over to receive buprenorphine at the methadone maintenance center. Patients voiced a strong preference for office-based buprenorphine and many said they would not have pursued treatment at all if only available at the methadone maintenance center. Four themes emerged as reasons for preferring office-based therapy. First, patient preference for office-based buprenorphine was grounded in their relationships with providers, staff, and counselors. This was manifest as increased trust and respect from HIV providers and staff. Patients with experience in the methadone clinic reported concerns about HIV confidentiality and a perceived lack of respect. Second, patients perceived more of a harm-reduction approach from their HIV providers versus a stronger emphasis on abstinence in the methadone maintenance clinic. This led to greater comfort discussing substance use issues and shared decision making with HIV providers. Third, patients perceived a more internalized locus of control over their treatment in office-based settings and a more paternalistic posture from methadone maintenance treatment center staff. Finally, patients reported that office-based treatment was a more supportive community environment for relapse prevention. At the methadone maintenance center there were more opportunities for purchasing and using illicit opiates.
CONCLUSIONS: HIV-infected patients, many of whom declined treatment in a methadone maintenance center, preferred buprenorphine maintenance treatment for opioid dependence in an HIV clinic setting. The HIV clinic provided a more patient-centered approach to care and patient-provider relationships that facilitated open discussions of substance use issues. Office-based buprenorphine maintenance may facilitate engagement in care for patients with co-existing opioid dependence and HIV infection.

PATTERNS AND DETERMINANTS OF INAPPROPRIATE ANTIBIOTIC USE AMONG INJECTION DRUG USERS J.L. Starrels[1]; F.K. Barg[2]; J.P. Metlay[1]. [1]University of Pennsylvania/ Philadelphia VA Medical Center, Philadelphia, PA; [2]University of Pennsylvania Department of Family Medicine and Community Health, Philadelphia, PA. *(Tracking ID # 189783)*

BACKGROUND: Inappropriate antibiotic use is a pressing public health issue that contributes to the emergence and spread of drug-resistant infections. Drug-resistant infections are a particular problem in injection drug users. However, previous work on understanding and improving antibiotic use in the general population has not examined the potentially unique behavioral issues that drive inappropriate antibiotic use in this group. The aims of this study were to understand patterns of antibiotic use and to identify determinants of inappropriate antibiotic use among injection drug users.
METHODS: Five focus groups were conducted with 26 current injection drug users participating in a syringe exchange program in Philadelphia. Focus group transcripts were analyzed using NVivo 7 software by two independent researchers using the constant comparison method. The coding scheme was repeatedly revised based on content analysis of the transcripts then the final working coding scheme was used to identify patterns in the data. Participants also completed a written survey instrument to assess participant demographics, recent infections, and antibiotic use.
RESULTS: Ninety-six percent of participants were current heroin users, 85% were male, 42% were homeless, and 35% were uninsured. Forty-six percent of participants reported an infection in the previous thirty days and, of these, all reported use of antibiotics. Injection drug users reported suboptimal antibiotic use behaviors, including delays in seeking care, seeking care from inconsistent or non-provider sources, failing to fill prescriptions in a timely manner, and poor adherence to prescribed regimens. One prominent pattern of inappropriate antibiotic use that emerged was self-directed treatment of infections. This included obtaining antibiotic medications from non-provider sources such as family members and friends and purchasing antibiotics on the street. The major determinants of inappropriate antibiotic use identified in this study were: lack of insurance, fear of mistreatment by providers, reluctance to wait for care, prioritizing purchasing drugs of abuse over antibiotics, concern about interactions of antibiotics with alcohol or drugs, having a disorganized daily routine, and being distracted from antibiotic adherence by the demands of addiction. Additionally, injection drug users in the sample commonly misunderstood the concept of antibiotic resistance and equated it with tolerance, as experienced to opioid drugs.
CONCLUSIONS: Injection drug users reported frequent exposure to antibiotics and identified key determinants of inappropriate use. Interventions to improve antibiotic use in injection drug users will need to address unique factors that influence care seeking, filling of prescriptions, and adhering to medication. Targeting such factors could lead to reductions in inappropriate antibiotic exposure, thereby reducing the burden of drug-resistant infections in this population.

PATTERNS OF CHANGE FOR NON-HARMFUL/NON-HAZARDOUS DRINKERS WITH HEPATITIS C A.T. Perzynski[1]; N.V. Dawson[1]; R.C. Mccormick[1]; N.J. Webster[1]; C.E. Blixen[1]; S.W. Kanuch[2]; C.L. Thomas[1]. [1]Case Western Reserve University, Cleveland, OH; [2]MetroHealth Medical Center, Cleveland, OH. *(Tracking ID # 190283)*

BACKGROUND: We developed a survey to determine whether non-harmful/non-hazardous drinkers with hepatitis C (HCV) could be sorted into meaningful empirical typologies of psychosocial characteristics that would be associated with alcohol reduction.
METHODS: We conducted a cross-sectional telephone survey of 577 non-harmful/non-hazardous drinkers with hepatitis C. All patients were screened for alcohol use with the Alcohol Use Disorders Identification Test (AUDIT). Those with AUDIT >10 were not eligible for the study. The survey included brief measures of alcohol self-efficacy, decisional balance, illness knowledge, coping styles, and readiness to change. A K-Means cluster analysis was conducted to examine whether meaningful patterns existed across the set of psychosocial concepts. Groups identified by the cluster analysis were then compared with responses to the single self-report item, "Have you quit drinking?" Yes or No.
RESULTS: The cluster analysis divided the sample into two distinct groups. Group 1 consisted of patients who were confident in their ability to abstain from drinking, demonstrated above average knowledge of how alcohol affects people with HCV, identified many negative aspects of drinking, were more likely to have a religious coping style, and had contemplated alcohol reduction. Group 2 consisted of patients who had lower alcohol self-efficacy, had below average knowledge of how alcohol affects people with HCV, did not identify many negative aspects of drinking, were less likely to have religious or seeking coping styles, and had not seriously contemplated alcohol reduction. Ninety-four percent (94%) of those sorted into Group 1 reported having quit drinking as opposed to 32% of those who were sorted into Group 2 (Chi-square= 246.93, df=1, p<.001).
CONCLUSIONS: Non-harmful drinkers with HCV varied in their alcohol self-efficacy, illness knowledge, coping styles, decisional balance and readiness to change. Variation on these concepts does not occur in isolation, but can be seen as part of an empirical typology that is related to alcohol reduction. This suggests that there are patient related factors that interact and can be used by clinicians to intervene in patients who need to reduce their alcohol consumption.

PERCEIVED NEIGHBORHOOD SAFETY IN LOS ANGELES COUNTY: IS THERE AN ASSOCIATION WITH BODY MASS INDEX? J. Fish[1]; A. Ang[1]; S. Ettner[1]; A.F. Brown[1]. [1]University of California, Los Angeles, Los Angeles, CA. *(Tracking ID # 189251)*

BACKGROUND: Obesity is a major public health problem in the United States and is associated with poor quality of life and higher mortality. An important component of this epidemic is the neighborhoods in which people live; yet, we have a limited understanding of how neighborhood characteristics may influence weight and weight gain. We studied the assocation of perceived neighborhood safety and body mass index (BMI).
METHODS: We analyzed data from the Los Angeles Family and Neighborhood Survey, 2000–01 (LA FANS), to study the association of perceived neighborhood safety and BMI. LA FANS conducted in-person interviews with participants from a representative sample of 65 neighborhoods in Los Angeles County, oversampling poor areas, to evaluate neighborhood influences on health. The main covariate of interest is perceived neighborhood safety, defined in response to the question "How safe is it to walk around alone in your neighborhood after dark?" with a response set of completely safe, fairly safe, somewhat dangerous, and extremely dangerous. This variable was then dichotomized: feeling unsafe (completely or fairly safe) or feeling safe (somewhat dangerous or extremely dangerous). The dependent variable in these analyses, BMI in kg/m2, was based on self-reported height and weight and evaluated as a continuous variable. Each census tract was assigned a neighborhood Socioeconomic Status Index (SEI), an unweighted average of the standardized values of five variables from the 2000 U.S. Census: % 25+ years without HS degree, median family income, median home value, % blue collar, and % unemployed. Three of the variables were reverse coded (% 25+ years without HS degree, % blue collar, and % unemployed). The SEI was evaluated in the three categories based on the original sampling frame ("very deprived," "deprived," and "not deprived" census tracts). We constructed a weighted instrumental variable model to evaluate the independent influence of perception of neighborhood safety on BMI. This model was appropriate given the possibility of reverse causality, i.e. for BMI to affect perceived safety. The instrumental variables were household experience of vandalism or theft and neighborhood collective efficacy (a group aggregate variable based on 10 questions about neighborhood willingness to intervene and social cohesion). The models were adjusted for individual characteristics, including age, gender, race/ethnicity, marital status, household income, education, immigration status, chronic disease, depression, current employment, health insurance status, self-rated health, and smoking status, and for neighborhood SEI.
RESULTS: Our sample consisted of 1,599 adult respondents: mean BMI (SE) 26.8 kg/m2 (0.13); mean age 36.3 (0.51) years; 61% women; 60% Latinos, 24% white, 8% African-American, and 8% Asian/Pacific Islander. In adjusted analyses, mean BMI was 3.75 kg/m2 higher for individuals who perceived their neighborhoods as unsafe (SE 1.30, P= 0.005). The mean BMI for individuals living in deprived neighborhoods was 1.46 kg/m2 higher than those living in not deprived neighborhoods (SE 0.51, P=0.006).
CONCLUSIONS: Adults living in neighborhoods they perceive as unsafe have higher BMIs. Understanding how individuals' perceptions of their neighborhoods influence their health-related behaviors and outcomes may be a critical component of designing individual- and neighborhood-level interventions to reduce the burden of obesity.

PERCEIVED PREPAREDNESS OF JAPANESE MEDICAL GRADUATES FOR POSTGRADUATE TRAINING: A COMPARISON TO US GRADUATES
H. Obara[1]; Y. Tokuda[2]; S. Miyagi[3]; K. Tamaki[4]; M. Sadohara[5]; J.D. Orlander[6]. [1]Boston University, Boston, MA; [2]St. Luke's Life Science Institute, Chuo city, Tokyo; [3]Muribushi Project for Okinawa Residency Programs, Urasoe, Okinawa; [4]Okinawa Chubu Hospital, Uruma, Okinawa; [5]Fukuoka Tokushukai Hospital, Kasuga, Fukuoka; [6]VA Boston Health Care System, Boston, MA. *(Tracking ID # 189577)*

BACKGROUND: Anecdotal observations by non-Japanese trained physicians have reported the lack of basic clinical competencies in Japanese medical students and physicians-in-training. However, there is little objective data measuring basic clinical competencies in Japanese medical graduates. Furthermore, an outcome-based curriculum for undergraduate clinical education has not been established in Japan, and requirements for clinical skill acquisition remain unclear. The purpose of this study was to assess the perceptions of Japanese medical graduates about their clinical preparedness for postgraduate training, and to compare their self-reported clinical competencies with US medical graduates.
METHODS: We administered a cross-sectional self-administered survey to all incoming physicians-in-training during their program orientation at 29 teaching hospitals in Japan in 2007. The questionnaire included 15 questions related to the preparedness of clinical competencies from the Association of American Medical Colleges (AAMC) 2006 Graduation Questionnaire (GQ), translated into Japanese. The questions represented a broad range of clinical competencies: general clinical skills (e.g. diagnosis and management for common conditions), specific clinical areas (e.g. end of life care, safe sex counseling), cognitive skills (e.g. basic skills in clinical decision making) and communication skills (e.g. patient interviewing, interprofessional communication). Participants rated their confidence for each clinical skill using a five-point scale from 1 (strongly agree) to 5 (strongly disagree). We also asked participants to report the duration of clinical clerkships, number of patients seen during clinical clerkships, ambulatory medicine training during their medical school experiences, degree of satisfaction with their medical education, and perceived appropriateness for instruction time for various topics. We compared the results of Japanese graduates to the results of the AAMC 2006 GQ in US medical graduates through Chi-square test or t test.
RESULTS: 100% of the 149 eligible PGY-1 physicians-in-training completed the questionnaire. These participants were graduates of 56/80 (70%) medical schools in Japan. Seventy participants (47%) reported that they had been assigned less than 10 patients during a clerkship and 122 participants (82%) had no ambulatory medicine rotation. Japanese medical graduates were less satisfied with the quality of medical education at their medical schools compared to US medical graduates (mean 3.6 v. 1.8, $p<0.001$). 121 Participants (82%) disagreed or strongly disagreed with the statement that they were confident that they have acquired the clinical skills required to begin postgraduate training. Compared to US medical graduates, Japanese medical graduates were significantly less confident in all 15 questions assessing preparedness for postgraduate training (e.g. acquisition of clinical skills (4.1 v. 1.7), diagnosis and management for common conditions (3.6 v. 1.7), and communication skills (2.7 v. 1.4, all $p<0.001$)).
CONCLUSIONS: Japanese medical graduates perceive that they are not well prepared clinically to start working as physicians-in-training. Further research is essential to validate the perceptions of Japanese medical graduates, and to evaluate acquisition of these critical clinical competencies in Japanese physicians-in-training. Japanese medical schools should consider establishing minimum requirements for clinical competencies for their medical graduates.

PERCEPTION, EXPERIENCE, AND EXPECTATION FROM THE U.S. HEALTH AND SOCIAL SYSTEM AMONG TORTURE SURVIVORS AND ASYLUM SEEKERS EVALUATED IN PRIMARY CARE SETTING; FOCUS GROUPS AND SEMI-STRUCTURED INTERVIEWS
R.G. Asgary[1]; O.J. Blackstock[2]; K. Flachs[3]. [1]Montefiore Medical Center, Albert einstein College of Medicine, Bronx, NY; [2]Albert Einstein College of Medicine, New York, NY; [3]Mount Sinai School of Medicine, New York, NY. *(Tracking ID # 190868)*

BACKGROUND: Data regarding the health perception and expectation, experience of patient-physician relationship and the social system experience among asylum seekers in the US or other western countries are scarce. The Bronx Human Rights Clinic has been evaluating torture survivors since 1993. Learning Objectives -To characterize themes about health perceptions and expectation and social system experience in the U.S. among this population - To explore some of their suggestions in the social and health care system to help them receive better services
METHODS: We performed focus groups and semi-structured interviews with asylum seekers and torture survivors. Individual were selected either from incoming or from database of asylum seekers who have already been seen and evaluated for their medical affidavits at the Bronx Human Rights Clinic (BHRC) of Montefiore Medical Center. 5–6 focus groups of 2–3 patients include open-ended questions moderated by researchers, and open discussion is encouraged. We analyzed collected data from notes and audiotapes to characterize major themes of their experiences and expectations.
RESULTS: Clients were mostly from Indian sub-continent and West Africa. In general they complained of inadequate information and awareness about potential and available health and social services. They acknowledged the need for more involvement of the non-governmental and grass root organizations to direct them to services. Community members were identified as the major source of social support without them life conditions would be very difficult. Although they feel welcomed and accepted in the US but in general they have concerns of not being well understood or supported by non-countrymen. Almost all reported very good relationship with doctors and nurses and found them eager to help. But they further elaborated that this might not end up being that helpful as in general their medical problems continue to exist despite huge amount of laboratory work and subsequent bills. Some demonstrated serious pre-occupations with getting bills from hospitals and doctors and elaborated that it interferes with them seek medical care. Due to either previous personal or friend's experience, they were afraid to get arrested and deported due to inability to pay medical bills. Some clients suggested to be part of the decision making to make the informed choice of blood tests, radiology tests, or referrals or to be able to negotiate the cost with doctors as they were accustomed to in their home countries. Some pointed out that relationship between people in general in the US is not "real", and there might be a fear of commitment to friendship due to perceived potential burden or trouble. "Social life is very different from our country in good and bad ways" as they put it, depend on personal experience.
CONCLUSIONS: Torture survivors and asylum seekers have preoccupations with medical expenses, which may interfere with them seeking medical care. Information campaign of potential social and health services for this vulnerable population is warranted. Our preliminary data sheds more light into some challenges of our health system: lack of empowerment of either doctor or patient in a clinical encounter and the cost of health care and their consequences.

PERCEPTIONS OF MEDICATION ERRORS AND ADVERSE DRUG EVENTS IN 2002 AND 2007: HAS REPORTING CULTURE CHANGED?
R.M. Karnani[1]; P. Kaboli[1]. [1]University of Iowa, Iowa City, IA. *(Tracking ID # 190707)*

BACKGROUND: Patient safety was placed in the forefront of medicine, the public, and the government in 1999 after the release of the Institute of Medicine report "To Err is Human". In trying to institute new systems to decrease medication errors (MEs) and adverse drug events (ADEs), it is important to assess providers' perceptions of these events as negative attitudes can produce roadblocks to instituting system re-design. In this study, we attempted to detect differences in attitudes amongst multiple health care professionals toward MEs and ADEs, and whether there has been attitudinal changes over time.
METHODS: We used a 42 question survey with 27 questions assessing attitudes toward MEs/ADEs over three key domains (i.e., knowledge, reporting, institutional culture) using a 5-point Likert scale along with 15 brief open-ended questions to gather further information on personal involvement with an ME/ADE. Surveys were distributed cross-sectionally in 2002 and 2007 to all health care professionals (i.e., nurses, residents, attendings, pharmacists) who cared for patients on a single general internal medicine ward. A chi-squared test was used to detect differences among providers for each question, and a two sample t-test of proportions was used to detect differences over time.
RESULTS: 54% responded to the survey in 2002 (N=99) and 39% responded in 2007 (N=72). Chi-square tests were positive on 8 of 27 questions ($p<.05$) in both samples and spread evenly over all three question domains in 2007 but seen on only two domains in 2002

(knowledge, institutional culture). When the various professions were summed together, statistically significant changes ($p<.05$) were seen in 6 of 27 questions in 2007 compared to 2002 in two distinct domains, reporting and institutional culture. Specifically, agreement with the statement "most serious MEs/ADEs are reported" increased from 64% to 82%, "reports of MEs/ADEs are shared with staff" increased from 16% to 82%, and "my department acts on reported MEs/ADEs to improve patient safety" increased from 30% to 53%. Moreover, only 15% of respondents felt errors were the fault of an individual rather than the system in 2002 and 13% in 2007. Although institutional culture improved on 4 of 9 questions, 22% of respondents did not feel comfortable reporting errors they made and 37% were not comfortable reporting errors colleagues made in 2007. Approximately 84% of respondents felt that all professions had an equal responsibility to report errors, with no change seen from 2002 to 2007.
CONCLUSIONS: The perception of the reporting of MEs/ADEs and the instutitional culture surrounding MEs/ADEs improved over the five-year period at our institution, with only a small variability between the professions. While perceptions are moving in the right direction, the authors recognize that there is much room for improvement. The authors strongly encourage continued efforts toward educating health care professionals about MEs/ADEs and creating systems that make inpatient care safer.

PERFORMANCE CHARACTERISTICS OF SCREENING TESTS FOR TYPE 2 DIABETES IN WOMEN WITH PRIOR GESTATIONAL DIABETES: A SYSTEMATIC REVIEW W.L. Bennett[1]; S. Bolen[1]; L.M. Wilson[1]; E.B. Bass[1]; W.K. Nicholson[1]. [1]Johns Hopkins University, Baltimore, MD. *(Tracking ID # 190191)*

BACKGROUND: Women with prior gestational diabetes (GDM) are at high risk for Type 2 diabetes (T2DM). Currently there is no consensus on which postpartum screening test for T2DM providers should use. We systematically reviewed and synthesized the literature on the performance characteristics and reproducibility of screening tests for T2DM in women with a history of GDM to inform screening guidelines.
METHODS: We searched electronic databases (MEDLINE®, EMBASE®, The Cochrane Central Register of Controlled Trials and the Cumulative Index to Nursing & Allied Health Literature) through January 2007 and hand-searched the table of contents of 13 journals from August 2006 through January 2007. Two investigators independently reviewed titles, abstracts and full articles, performed serial data abstraction, and independently assessed quality for each eligible article. We abstracted data about study population, study design, comparison test and reference standard and comparison test outcomes (i.e. sensitivity, specificity and reproducibility). We calculated standard errors and confidence intervals for sensitivity and specificity using the exact binomial formula.
RESULTS: Out of 14,092 citations, we identified 8 articles with 10 evaluations of a comparison screening test with the 2-hour 75-gram oral glucose tolerance test (OGTT) as the reference standard. Five of the studies screened for T2DM within one year following delivery, two included only Caucasians, and four used a prospective study design. Eight of the 10 evaluations compared the single fasting blood glucose greater than 126 mg/dL to the OGTT. Two studies compared results of different fasting blood glucose threshold values as part of the OGTT. The sensitivity of the fasting blood glucose alone ranged from 46 to 89 percent in three studies using The World Health Organization's 1985 OGTT criteria (fasting blood glucose greater than 140 mg/dL or 2-hour plasma glucose greater than 200 mg/dL) as the reference standard, and from 14 to 100 percent in five studies using The World Health Organization's 1999 OGTT criteria (fasting blood glucose greater than 126 mg/dL or 2-hour plasma glucose greater than 200 mg/dL) as the reference standard. We identified no pattern in the variation of sensitivities, which may be due to the limited number of comparisons, or differences in patient population and timing of screening. For the five comparisons where the specificity of the fasting blood glucose was not fixed at 100 percent by definition of test criteria, the specificity was consistently greater than 90 percent. Only one included study reported reproducibility. Study quality was poor, most notably because of high losses to follow-up (range: 20–82 percent), limiting generalizability and possibly introducing spectrum bias.
CONCLUSIONS: The fasting blood glucose alone was not consistently reported to be a sensitive screening test for T2DM in women with a history of GDM when compared with the 2-hour 75-gram OGTT. Although diagnostic accuracy is an important criterion, additional research is needed to determine which screening test for T2DM is most clinically useful and acceptable by both patients and their providers to increase follow-up and adherence to screening.

PERIOPERATIVE BETA-BLOCKERS AND STATINS AND EFFECTS OF WITHDRAWAL OR INITIATION ON SHORT TERM MORTALITY AFTER VASCULAR SURGERY T.W. Barrett[1]; M. Mori[2]; J.P. O' Malley[3]. [1]Section of General Medicine, Portland VAMC, and Division of General Internal Medicine & Geriatrics, Oregon Health & Science University, Portland, OR; [2]Division of Biostatistics, Department of Public Health & Preventive Medicine, Oregon Health & Science University, Portland, OR; [3]Center for Biostatistics Computing and Informatics in Biology and Medicine, Oregon Health & Science University, Portland, OR. *(Tracking ID # 189878)*

BACKGROUND: The use of perioperative beta-blockers and statins has been associated with improved outcomes after vascular surgery. However, it is not clear when is the best time to start or stop these drugs. We sought to ascertain the associations with one year mortality for the perioperative use of beta-blockers and statins, including effects of perioperative initiation and withdrawal.
METHODS: We conducted a retrospective cohort study of patients presenting for vascular surgery between January 1998 and March 2005. The patients were identified using a regional Department of Veterans Affairs database. The perioperative time period was defined as 30 days before and after surgery. Patients were categorized as continuous users if they had an active prescription for the study drug both before and after surgery; as stoppers if they received the study drug before, but not after surgery; as starters if they did not receive the study drug before surgery, but did receive it after surgery; and as never if they did not receive the study drugs at all. Propensity score methods were used for bias reduction. The effects of perioperative drugs on one year mortality were examined using Mantel-Haenszel analysis stratified by the propensity scores.
RESULTS: 38% (1050/2744) of the patients took beta-blockers continuously, 37% (1016/2744) took statin continuously, 21% (587/2744) took both beta-blockers and statins continuously, and 35% (950/2744) took no study drug. There were 256 beta-blocker starters, and 32 stoppers. There were 74 statin starters and 34 stoppers. There were 41 combination beta-blocker and statin starters and 11 combination stoppers. The association with mortality for continuous beta-blockers was only significant for the comparison to never, propensity adjusted relative risk (aRR) 0.60 (0.47–0.78), $p=0.0001$. In addition, beta-blocker starters compared to never was also associated with decreased mortality, aRR 0.60 (0.40–0.88), $p=0.0066$. The associations for continuous statins with mortality was only significant for the comparison to never, aRR 0.66 (0.49–0.88), $p=0.0041$. The associations for continuous combination beta-blocker and statins was only significant for the comparison to never, aRR 0.46 (0.31–0.69), $p<0.0001$. In addition, combination study drug starters compared to never was associated with decreased mortality, aRR 0.28 (0.07–1.11), $p=0.0394$.
CONCLUSIONS: The continuous use of perioperative beta-blockers and statins compared to non-use was again significantly associated with decreased one year mortality after vascular surgery. The novel finding is that the initiation of beta-blockers or combination beta-blockers and statins within 30 days after surgery compared to never using the drugs was also associated with a reduction in mortality, and was not statistically different than using the drugs continuously. This data differs from prior work in that there was no association of increased mortality with perioperative beta-blocker withdrawal. In addition, there was no affect on associations with mortality for statin withdrawal or combination beta-blocker and statin withdrawal. However, the ability to comment on withdrawal categories was limited by the small number of deaths in these groups, ranging from 1 to 6. There may be a 30 day window of opportunity to initiate beta-blockers and statins after surgery and still have an affect on short term mortality.

PERIOPERATIVE DEPRESSION AND ELDERS' RECOVERY AFTER MAJOR OPEN ABDOMINAL SURGERY V.A. Lawrence[1]; H.P. Hazuda[2]; J.E. Cornell[2]. [1]South Texas Veterans Health Care System and University of Texas Health Science Center at San Antonio, San Antonio, TX; [2]University of Texas Health Science Center at San Antonio, San Antonio, TX. *(Tracking ID # 189653)*

BACKGROUND: Patients ≥65 years old undergo >500,000 major abdominal operations annually yet most studies of perioperative

depression and postoperative outcomes in elders have focused on coronary artery bypass graft and hip fracture repair. There is little evidence regarding depression and recovery after other types of surgery. We examined the relationship between preoperative (preop) and postoperative (postop) depression and elders' recovery after elective major open abdominal surgery.
METHODS: Prospective cohort study of 372 consecutive patients ≥60 years old with assessment of Basic and Instrumental Activities of Daily Living (ADL, IADL) and depressive symptoms (Geriatric Depression Scale [GDS]) preop and at 1, 3, 6, 12, and 24 weeks postop using standardized questionaires. Depressive symptoms were defined as follows: GDS<10, absent; GDS 10–19, mild; GDS ≥20, severe.
RESULTS: Mean age was 69 (±6). Patients were 47% Mexican American (MA), 47% European American (EA), 6% other ethnicity, and 56% men. Mean recovery times were 12 weeks (3 months) in ADL and 24 weeks (6 months) in IADL. Prevalence of preop depression was 34% (126/372) overall; 28% (103/372) had mild depressive symptoms and 6% (23/372) had severe symptoms. Preop depression (GDS≥10) was signficiantly more frequent in women than in men (40% vs 30%, p=0.04) and in EA than in MA (43% vs 25%, p=0.001). There was no difference in prevalence by age category (60–69, 70–79, ≥80). After adjusting for other clinical variables, preop depressive symptoms were not associated with ADL recovery at 3 months but were independently associated with lack of IADL recovery at 6 months (OR 0.91, 95% CI 0.85–0.98, p=0.01) and longer time to IADL recovery (OR 0.95, 95% CI 0.92–0.98, p=0.003). Postop, significantly more patients with preop GDS scores ≥10, compared to those with preop scores <10, had worse scores at all time points (53–78% vs 28–45%, p<0.001 for all). In random effects regression adjusting for preop GDS score, patients not recovered in ADL at 12 weeks had a significantly worse trajectory of GDS scores than did recovered patients, with greater worsening of mean GDS score immediately postop and sustained worse mean score at 12 weeks (p<0.001). Similarly, patients not recovered in IADL at 24 weeks, compared to recovered patients, had greater worsening of mean GDS score immediately postop and sustained worse mean scores at all time points to 24 weeks (p<0.001).
CONCLUSIONS: The prevalence of preop depression was higher among women and European Americans compared to Mexican Americans. The strong independent association between worse preop GDS scores and worse recovery after major open abdominal surgery suggests that interventions to improve preop depressive symptoms may significantly improve recovery. Further, the data suggest that postop depression and recovery may be linked in an escalating cycle whereby each negatively affects the other, so interventions to monitor and treat postoperative depressive symptoms may be especially important to recovery.

PERSISTENT ATRIAL FIBRILLATION AFTER CARDIAC SURGERY S. J. Herzig[1]; E.R. Marcantonio[1]. [1]Beth Israel Deaconess Medical Center, Boston, MA. *(Tracking ID # 190548)*

BACKGROUND: Post-operative atrial fibrillation (postop AF) is a prevalent and morbid condition after cardiac surgery. Current guidelines recommend the use of anti-coagulation in cardiac surgery patients with postop AF that persists beyond 48 hours, though there is little data to guide subsequent management. Frequently, management decisions fall upon primary care physicians who resume care of the patient after hospital discharge. Understanding the risk factors for persistent postop AF may allow a more targeted approach to treatment, decreasing the use of unnecessary anti-coagulants post-discharge, particularly in older patients at higher risk for adverse events. The aim of the present study was to define the prevalence of and risk-factors for persistent postop AF and new anti-coagulant use at hospital discharge in older cardiac surgery patients.
METHODS: We conducted a prospective cohort study of patients aged 60 years and older undergoing coronary artery bypass graft surgery (CABG), combined CABG/valve surgery, or valve surgery alone at 3 academic medical centers from 8/02 to 6/06. Data on predictors and outcomes were assessed by a comprehensive medical record review performed by a senior clinician. Persistent AF was defined as new onset postop AF that had not resolved by the time of hospital discharge. Candidate predictors of persistent AF included demographic factors, comorbidities, pre-operative medications, pre-operative laboratory values, pre-operative echocardiographic findings, type of procedure, operative data, and post-operative complications. Univariate relationships were analyzed with Student's t-tests or Wilcoxon Rank-Sum tests for continuous data, and Fisher's Exact tests for categorical data. Among patients with postop AF, a multivariable logistic regression model was developed for predictors of persistent AF.
RESULTS: Out of 216 patients (mean age 73.7±6.8 years, 23.6% female), 81 (38%) developed new postop AF (95% confidence interval [CI] 31% to 44%), with a peak incidence on post-operative days 2 and 3. In 24 patients, AF persisted at the time of hospital discharge, constituting 30% of patients with AF (95% CI 21% to 40%), and 11% of the total sample (95% CI 8% to 16%). Of patients with postop AF, two variables were found to be significant (p<.05) predictors of persistence until discharge in both univariate and multivariable analyses: Patients with pre-operative white blood cell (wbc) counts > 7.4 K/μL were less likely to develop persistent AF (OR 0.3; 95% CI 0.1 to 0.9), while patients with a higher minimum intra-operative core temperature were more likely to develop persistent AF (OR 1.9 per °C; 95% CI 1.2 to 2.9). In a pre-specified subgroup analysis of 169 patients at one study site where complete medication data were available, 20 of the 67 patients with post-operative atrial fibrillation were discharged on newly prescribed warfarin (30%; 95% CI 20% to 42%).
CONCLUSIONS: AF remains prevalent after cardiac surgery, persisting in a significant proportion of patients who are subsequently discharged on newly prescribed warfarin. We have identified two risk factors that stratify patients' risk for persistent AF – low preoperative wbc count and high minimum intraoperative temperature. Patients with persistent AF require decisions around ongoing anticoagulation management, often involving primary care clinicians. Further characterization of the persistence and/or recurrence of AF after hospital discharge would help to guide decision-making in this population.

PERSISTENTLY ELEVATED HBA1C: POOR QUALITY DOCTORS OR CHALLENGING PATIENTS? M.G. Weiner[1]; S. Field[1]; J.H. Garvin[2]; J.H. Holmes[1]; M. Synnestvedt[1]; J.A. Long[2]. [1]University of Pennsylvania School of Medicine, Philadelphia, PA; [2]Philadelphia VA Medical Center, Philadelphia, PA. *(Tracking ID # 190695)*

BACKGROUND: Quality of care assessment for diabetes favorably ranks providers whose panels have a large proportion of patients with diabetes who achieve a specified threshold of HBA1c. However, this measure does not account for provider effort nor the inherent difficulty in achieving control in certain types of patients. Therefore, creation of a quality ranking that accounts for the clinical characteristics of the panel is essential, but also must recognize the contribution of the provider to poor diabetes control. Analyses to distinguish the influence of patient and provider effects on outcomes are challenging, especially given the non-random assignment of patients to providers. Random effects logistical models that incorporate the percent of a provider panel having a characteristic (group-mean centering), compared with traditional models that use dichotomous variables to reflect the presence of a condition, have been proposed as a way to address the confounding of provider effect on the relationship between a condition and an outcome.
METHODS: In patients with diabetes having at least two HBA1c results, we used AHRQ Clinical Classification Software to characterize the presence of a set of 256 diagnostic categories. We estimated a logistic regression model with forward stepwise selection of the 40 most common clinical conditions in order to define a subset of predictors of poor control. The dependent variable was defined as persistently elevated HBA1c with at least one value >9 mg/dl and none <8 mg/dl. Twenty-two conditions were identified and entered as covariates in both traditional and group-mean centered multi-level logistic regressions with a normally distributed doctor level random effect. Divergence in the regression parameter estimates found by the two approaches suggests a larger component of provider influence on the relationship between the clinical condition and the diabetes control.
RESULTS: We found 11636 patients with diabetes among 252 providers; 638 of these patients met the criteria for poor control. Both analytical approaches identified similar sets of diagnosis categories that had significant effect on the likelihood of poor control. Among the positive predictors of poor control were CHF (Adjusted Odd Ratio 1.6; 95%CI 1.2–2.0), chest pain (1.3 [1.1–1.6]), nausea/vomiting (1.8 [1.5–2.3]) and headache (1.5 [1.2–1.8]). Among the negative predictors of poor control were benign neoplasms (mostly colon polyps) (0.43 [0.34–0.56]), osteoarthrosis (0.55 [0.44–0.68]), hyperlipidemia (0.77 [0.64–0.92]), and thyroid disease (0.79 [0.63–0.99]). Comparison between the

parameter estimates of the 2 methods revealed similarities for most diagnoses and divergence in hyperlipidemia and thyroid disorder.
CONCLUSIONS: A number of common clinical conditions have significant impact, either positive or negative, on the odds of persistently poor control of diabetes. Similarity in the regression estimates for the diagnoses with the two logistic models suggests that the association between the clinical diagnosis and poor control is not biased by physician-related factors. These diagnoses are therefore well-suited to estimate an expected proportion of patients with poor diabetes control in a provider's panel compared with the actual proportion with poor control. This approach can help redefine quality assessment from one that ranks providers in descending order of the proportion having good control, to a ranking of providers according to the proportion doing better than expected.

PERSONAL, MEDICAL, AND HEALTHCARE UTILIZATION DIFFERENCES BETWEEN METROPOLITAN AND NON-METROPOLITAN HOMELESS VETERANS A.J. Gordon[1]; M. Hilton[2]; G.L. Haas[1]; T. Andree[3]; G. Goldstein[1]. [1]VA Pittsburgh Healthcare System, University of Pittsburgh, Pittsburgh, PA; [2]University of Pittsburgh, Pittsburgh, PA; [3]VA Pittsburgh Healthcare System, Pittsburgh, PA. *(Tracking ID # 190429)*

BACKGROUND: Homelessness can be thought of as social morbidity. Many healthcare systems, including the Veterans Health Administration (VHA), uniformly apply interventions to assist homeless persons without considering their geographic location. We wondered whether significant differences occurred between the personal, medical, and healthcare utilization characteristics of homeless veterans living in urban/metropolitan (MET) versus non-metropolitan (non-MET) environments.
METHODS: Data were obtained from a VHA network sub-sample of a 2003 national demographic and clinical history interview survey of currently or recently homeless veterans conducted from October 2001 to September 2003. Interviewees were approached by clinical personnel within VHA facilities and/or by VHA outreach workers. Data included interview survey demographic, military history, living situation, medical history, employment status, and health care utilization history and occasional electronic medical chart data. The MET and non-MET sample was defined by an analysis of city level, censusu bureau data that defined two clear sample clusters: those living in high (MET) and low (non-MET) population densities. Personal and health care utilization variables were compared based on MET or non-MET status by Chi-square tests. We used step-wise logistic regresssion to determine whether health care utilization varied by MET status.
RESULTS: Of 3,595 respondents, 2,159 (60%) were located in MET areas. A majority of the sample were Vietnam (47%), Post-Vietnam (38%) or Persian Gulf (6%) veterans. Proportionally less Persian Gulf (5% vs. 7%) and Pre-Vietnam (8% vs. 11%) homeless veterans were from MET vs. non-MET areas. Age (mean 48 vs. 48 years old), sex (97% vs. 96% male), and marital status (3.9% vs. 5.2%) characteristics were similar between MET vs. non-MET homeless samples. Compared to non-MET homeless, MET homeless were more likely to receive VHA financial support (25% vs. 21%, $p=0.01$), less likely to receive public financial support (27% vs. 31%, $p<0.01$), and less likely to be employed (48% vs. 56%, $p<0.001$). Significant differences ($p<0.001$) of MET vs. non-MET homeless occurred based on minority race (69% vs. 31%) and last domicile (sheltered 44% vs. 52%, doubled-up 20% vs. 17%, unsheltered 19% vs. 11%, institutionalized 12% vs. 14%, and other living arrangements 5% vs. 7%). Compared to non-MET homeless, MET homeless were more likely ($p<0.001$) to be homeless for greater than one year (26% vs. 23%) and homeless for 6–12 months (16% vs. 10%). Furthermore, MET homeless were statistically ($p<0.001$) less likely to have at least 1 medical problem (82% vs. 89%), 1 psychiatric problem (69% vs. 75%), and current alcohol dependency (36% vs. 43%), but more likely to have current drug dependency (35% vs. 30%). Of the 52% of the sample who used VHA care in the last 6 months, 53% were MET and 49% were non-MET homeless ($p=0.01$). Among other variables (non-pre-Vietnam service, current drug dependency, unemployment, institutionaliazation, medical/psychiatric history, and having veteran benefits), MET status predicted self-reported visit in last six month to the VHA (OR:1.3,CI:1.1,1.6).
CONCLUSIONS: Significant personal, medical, and healthcare utilization differences occur between homeless veterans in metropolitan versus non-metropolitin areas and influence healthcare utilization. Interventions to increase access to care and target specific health conditions of the homeless should consider geographical location.

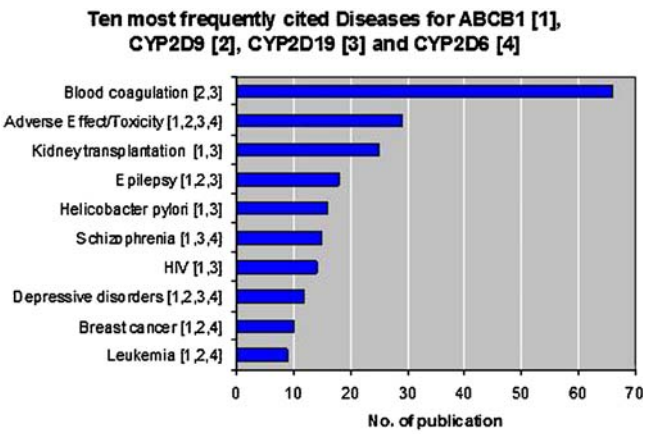
PERSPECTIVES OF FEMALE JUNIOR FACULTY WHO ELECTED TO LEAVE ACADEMIC MEDICINE F.H. Lin[1]; S.M. Wright[1]; D.E. Kern[1]; R. B. Levine[1]; J.A. Carrese[1]. [1]Johns Hopkins University, Baltimore, MD. *(Tracking ID # 190217)*

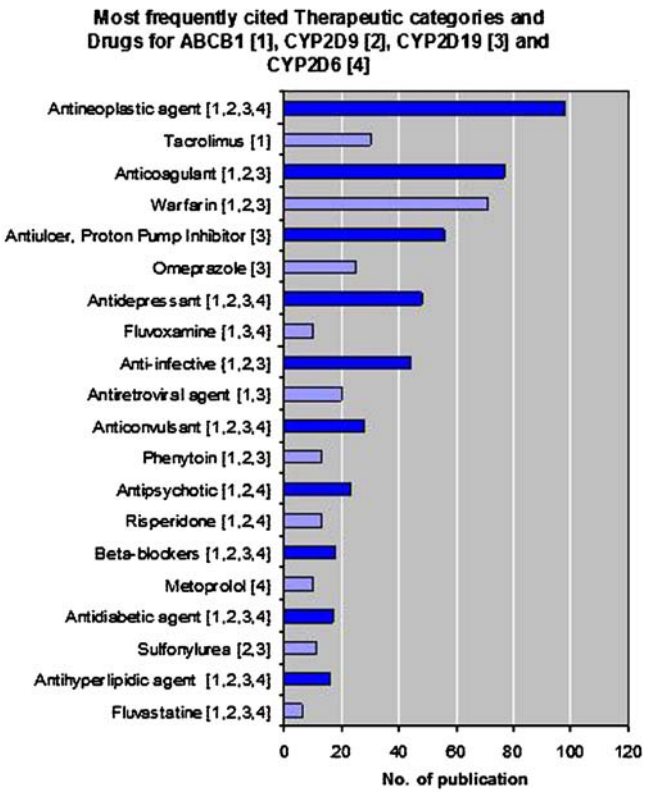
BACKGROUND: While recruitment of female physicians into academic medicine is trouble-free, retention is somewhat more problematic. Women are promoted more slowly than their male counterparts, and many women leave academic medicine before rising to senior ranks and leadership positions. We conducted this qualitative study to understand the experiences and perspectives of female faculty who have left academia.
METHODS: A network sampling strategy was used to identify female faculty members who had left academic medicine before being promoted to the rank of Associate Professor. Sixteen women have consented to participate. Semi-structured, in-depth interviews were conducted using an interview guide to elicit subjects' stories and reasons for leaving academic medicine. Using standard content analysis, 5 investigators independently coded transcripts to develop a coding template. All transcripts were coded by at least 2 investigators using this template. Major thematic categories generated through this process were discussed and agreed upon by study team members.
RESULTS: Nine subjects interviewed to date hail from the following fields: internal medicine (5), pathology (3), obstetrics /gynecology (1). The average number of years that subjects held faculty positions was 2.5 years (range 1–6 years). Five (56%) subjects had been Assistant Professors and 4 (44%) were Instructors. At the time of interview, subjects had been away from academic medicine for an average of 3 years (range 0.5–11 years). Three core themes have emerged from transcript analysis thus far, (i) the lack of congruence between the faculty members' professional priorities and those of the institution, (ii) suboptimal mentoring, and (iii) work-life balance. With respect to the discord in priorities, several subjects acknowledged teaching as their passion while they perceived the institution to care predominantly about research publications and grant funding. Even among subjects who were primarily researchers, they expressed frustrations associated with the grant-writing process and difficulties in competing successfully for monies. Other subjects wanting to devote time to scholarly pursuits were overwhelmed with increasing clinical demands that took time away from research endeavors. A second concern that surfaced repeatedly related to mentorship. Many subjects struggled to identify mentors, while those who had a mentor did not have their needs adequately addressed. Finally, subjects indicated that they were not satisfied with the balance in their lives while in academia, and their desire for more family time played an important role in their decision to leave.
CONCLUSIONS: This study sheds light on the issues related to retaining female physicians in academia. Understanding the forces leading to the decision to leave represents a critical first step before embarking upon interventions aimed at retaining talent. If academic medical centers want to reverse this trend, then committing resources to better support junior female faculty may reap dividends.

PHARMACOGENOMIC EPIDEMIOLOGY: A PREREQUISITE FOR TRANSLATING PHARMACOGENOMICS INTO CLINICAL PRACTICE I. Guessous[1]; M. Khoury[2]; M. Gwinn[2]. [1]Emory University, Rollins School of Public Health, Atlanta, GA; [2]Centers for Disease Control and Prevention, Atlanta, GA. *(Tracking ID # 190270)*

BACKGROUND: Pharmacogenomics (PGx) is a rapidly growing field with an increasing number of published findings. Systematic review and synthesis of published data is a first step in translating PGx research to clinical practice. We analyzed a curated database of published PGx studies in human populations to summarize the contents and describe publication trends.
METHODS: We conducted a systematic review of PGx studies published from 2001 to 2007. Studies were identified by Centers for Disease Control and Prevention research staff who extracted relevant articles from PubMed into the HuGE Published Literature Database (HuGE Pub

Lit) using a combination of computerized and manual processes. HuGE Pub Lit collects published literature on human genome epidemiology, including PGx. We analyzed this database in terms of genes, study design, and publication trends; for the four most cited genes, we also summarized the associated diseases and drugs.
RESULTS: In all, 2,758 PGx articles were indexed from 2001 through mid-July 2007. The annual rate of publication increased more than 15-fold during this period. Observational PGx studies outnumbered clinical trials by a ratio of ten to one (1445 vs. 155). In all, 461 genes were studied, but just four genes together accounted for 18% of all publications: ABCB1 (156), CYP2C9 (125), CYP2D6 (98) and CYP2C19 (105). For these four genes, the most frequently cited therapeutic category was antineoplastic agent, followed by anticoagulant, antiulcer and antidepressant. Warfarin was the most frequently cited drug, followed by tacrolimus and omeprazole.
CONCLUSIONS: The number of PGx publications continues to grow, describing an expanding spectrum of diseases and drugs with potential impact on clinical practice. To help translate PGx research into clinical practice, the published literature in this field should be more systematically tracked and evaluated





PHYSICAL ACTIVITY AMONG PATIENTS SEEKING OBESITY TREATMENT IN PRIMARY CARE M. Conroy[1]; L.M. Bigi[1]; M.A. Mcneil[1]; J. Riley[1]; C. Murphy[1]; K. Mctigue[1]. [1]University of Pittsburgh, Pittsburgh, PA. *(Tracking ID # 190649)*

BACKGROUND: Little is known about the physical activity experiences, preferences, and resources of overweight and obese primary care patients who seek obesity treatment. Such information may be important in both counseling individual patients and designing and implementing obesity treatment programs.
METHODS: The Weight Loss through Living Well (WiLLoW) program is a group-based adaptation of an efficacious lifestyle program fully integrated into routine primary care. Patients paid $100 to participate in a 12-week program; weekly lessons included dietary modification, physical activity, and behavioral strategies. At the first session, participants completed a survey including physical activity experiences, preferences, and resources. All WiLLoW participants who enrolled between 4/2005 and 9/2007 were eligible for inclusion in this study.
RESULTS: 240 patients enrolled in WiLLoW and 211 completed survey items related to physical activity (response rate=88%). Mean age was 49.2 years and 83% were white. At baseline, 25% reported being sedentary (i.e., no moderate physical activity during a usual week); only 47% met national guidelines for >=30 minutes of moderate activity on most days of the week. Many (42%) reported >10 prior attempts to lose weight by diet and/or increasing physical activity. Common past physical activity experiences included: "non-sport" physical activities (e.g., walking or gardening) (83%), gym memberships (71%), exercise classes (64%), and exercise video/DVD (57%). Physical activities done by oneself (82%) were more commonly reported than those done with others in small (2–3 person) (34%) or large (15%) groups. While 73% reported enjoying "non-sport" physical activities, only 52% enjoyed exercising at a gym, 49% enjoyed exercise classes, and 40% enjoyed exercise video/DVD. Likewise, solo activities were preferred to group-based ones (72% vs. 37%). Most patients reported having access to physical activity facilities in or near their homes; 91% reported a safe place to walk near home, and 59% had exercise equipment at home. Gym access was also relatively common (59%). Although most (64%) reported sedentary occupations, 64% reported a safe place to walk near work, and 67% reported having a work environment that allowed physical activity at lunch or on breaks.
CONCLUSIONS: Among primary care patients enrolled in an evidence-based weight loss program, sedentary behavior was common at baseline, despite considerable past physical activity experience and good access to physical activity resources. Awareness that patients often prefer non-sport (e.g., walking) and solo physical activities may be useful for tailoring physical activity advice to the obese primary care population.

PHYSICIAN ATTITUDES TOWARDS HARM REDUCTION IN OFFICE-BASED OPIOID AGONIST THERAPY T. Grosheider[1]; J. Luther[2]; R. Ramgopal[2]; A.J. Gordon[2]. [1]University of Pittsburgh, Pittsburgh, PA; [2]VA Pittsburgh Healthcare System, University of Pittsburgh, Pittsburgh, PA. *(Tracking ID # 190001)*

BACKGROUND: In 2004, credentialed physicians were able to prescribe office-based buprenorphine for opioid agonist therapy (BOAT) for the treatment of patients with opioid dependence. Our goal was to examine the degree to which credentialed physicians were willing to continue to prescribe BOAT in the presence of co-morbid substance use or the absence of complete opioid abstinence.
METHODS: In 2007, we mailed an anonymous survey to all BOAT credentialed physicians listed in a web-based physician locator in Pennsylvania, Ohio, and West Virginia. The survey consisted of two sections: physician/practice information that included inquiry into prescribing patterns with patient use of alcohol and other drugs of abuse and two clinical scenarios (CS). CS1 involved a patient well-controlled on BOAT who had recently begun to use cocaine (or marijuana). CS2 involved a patient well-controlled on BOAT who sometimes used heroin. We inquired whether the physician would continue BOAT if the patient was willing or unwilling to curb use of cocaine or marijuana (CS1) or heroin (CS2). We examined these outcome variables by physician and practice factors by Chi Squared and Fisher's exact tests and backward stepwise logistic regression to examine independent predictors of the responses to the CS.
RESULTS: Of 495 surveys delivered, 224 (45%) were returned. Respondents were mainly generalists (52%) or psychiatrists (36%), without

fellowship training (74%), and had previously prescribed BOAT (90%) mainly in outpatient settings (71%). Respondents would prescribe BOAT to patients with hazardous alcohol drinking (30%) and initiate BOAT for patients willing/unwilling to curb marijuana (36%/10%) or cocaine (64%/13%) use. For CS1, 91%/21% would continue BOAT if the patient was willing/unwilling to limit cocaine use (92%/43% for marijuana). Maintaining BOAT for a patient willing to curb cocaine use was associated ($p<0.05$) with employed practice, willingness to prescribe BOAT to hazardous drinkers and marijuana users, and use of 12 step referrals. Independent predictors to continue BOAT for patients willing to curb cocaine use were those physicians who would continue BOAT for those patients willing to abstain from marijuana (OR: 6.7, 95% CI: 2.2–20.8) and who would refer to 12 step program (OR: 3.2, 95% CI: 1.1–9.3). For CS2, 85%/14% would continue BOAT if the patient was willing/unwilling to limit occasional heroin use. Maintaining BOAT for a patient willing to curb heroin use was associated with type of training, history of prescribing BOAT, type of practice (employed and private), willingness to prescribe BOAT to hazardous drinkers, 12 step referral pattern, and history of conflict with peers regarding BOAT. An independent predictor of physician continuation of BOAT for patients willing to curb heroin use was physician willingness to prescribe BOAT to whose willing to abstain from cocaine (OR: 12.2, 95% CI: 5.0–30).
CONCLUSIONS: Many BOAT credentialed physicians would prescribe BOAT to patients with ongoing co-morbid substance use and opioid misuse. Physician and practice characteristics influence BOAT prescribing practices.

PHYSICIAN BARRIERS TO IMPLEMENTING ROUTINE HIV TESTING IN PRIMARY CARE SETTINGS: A QUALITATIVE ANALYSIS P.G. Bashook[1]; M.I. Edison[1]; L.E. Sullivan[2]; M. Bass[1]; G. Berkenblit[3]; J. Cofrancesco[3]; V. Stone[4]; B. Turner[5]; J.M. Sosman[6]. [1]University of Illinois, Chicago, IL; [2]Yale University, New Haven, CT; [3]Johns Hopkins University, Baltimore, MD; [4]Harvard Medical School, Boston, MA; [5]University of Pennsylvania, Philadelphia, PA; [6]University of Wisconsin School of Medicine and Public Health, Madison, WI. *(Tracking ID # 189892)*

BACKGROUND: Recently revised recommendations from the Centers for Disease Control and Prevention (CDC) call for routine HIV screening, on an opt-out basis, for all persons aged 13–64 years in all health care settings. With more than two-thirds of U.S. adults cared for by a primary care physician, there is a need to understand the barriers to implementation of these recommendations as viewed from the perspective of the general internist.
METHODS: We recruited four focus groups, each comprised of five to eight experienced general internists, from pre-registered attendees at the 2007 national conference of the Society of General Internal Medicine. Purposeful sampling was used to ensure both demographic and practice setting diversity. Trained educational psychologists using a structured interview protocol facilitated the focus groups. The focus group discussions were taped, transcribed and systematically analyzed using qualitative methodology to identify major themes and implementation opportunities as well as barriers.
RESULTS: Focus group findings are based upon statements from 28 physicians actively engaged in clinical care. Participant responses centered on five key themes: (1) guideline justification, (2) clinical settings, (3) state and local regulations, (4) financial barriers, and (5) education needs. Participants recognized that routine testing could potentially reduce the stigma of HIV/AIDS, and increase the identification and treatment of HIV-infected individuals. Participants generally accepted the justification for universal HIV screening, but reported that the challenge to implement the CDC recommendations is clinical setting-specific and not amenable to a general approach. Participants described specific combinations of clinic setting factors that can influence implementation such as rural vs. urban community, ethnic mix of the clinic, and HIV risk and incidence within the community. All participants perceived informed consent requirements imposed by state and local statutes/regulations as significant obstacles. Additional barriers repeatedly mentioned were: reimbursement for increased HIV testing, staff training needs, revision of counseling testing and care protocols, and timely availability of follow-up care. Participants recommended creating setting-specific tool kits that contain: 1) scripts for dialogue between physicians and patients, 2) institutional protocols with current information for their setting, 3) education and promotion materials to inform clinicians, patients, and the general public regarding the value of routine testing, and 4) practical strategies with examples and best practice approaches for facilitating routine HIV testing.
CONCLUSIONS: Despite a general acceptance of the justification for universal HIV screening in internal medicine primary care settings, this study identified multiple barriers to the implementation of the CDC guidelines. Critical guidance is required, on a setting-specific basis, with regard to obtaining consent, providing adequate financial reimbursement, and helping clinicians to understand how to talk to patients about HIV testing. These priority areas are targets for the development of effective education interventions and technical assistance to facilitate HIV screening in primary care settings.

PHYSICIAN CHAMPIONS INFLUENCE THE EFFECTIVENESS OF INTERVENTIONS TO IMPROVE ANTIBIOTIC PRESCRIBING QUALITY E.M. Aagaard[1]; R. Gonzales[2]; C.A. Camargo Jr[3]; R. Auten[4]; S.K. Levin[2]; J. Maselli[2]; J.P. Metlay[5]. [1]University of Colorado, Aurora, CO; [2]University of California, San Francisco, San Francisco, CA; [3]Massachusetts General Hospital, Boston, MA; [4]VA Medical Center, Philadelphia, PA; [5]University of Pennsylvania, VA Medical Center, Philadelphia, PA. *(Tracking ID # 190325)*

BACKGROUND: The Improving Antibiotic use in Acute Care Treatment (IMPAACT) study was a cluster randomized trial of a quality improvement (QI) intervention to reduce inappropriate antibiotic prescribing for acute respiratory tract infections (ARIs) in emergency department (ED) settings. Overall, the intervention resulted in a modest reduction in antibiotic prescribing but response to the intervention varied substantially between sites. The goal of this study was to identify potential organizational factors that might have modified the effect size of the QI intervention at the individual hospitals (Organizational Effect Modifiers [OEMs]).
METHODS: We performed a mixed qualitative and quantitative study at seven IMPAACT intervention study sites across the US. Focus groups of nurses and ED staff and semi-structured interviews of physician champions, nurse managers and quality improvement officers were performed at each site. Transcripts were reviewed for potential OEMs by the study team. Effectiveness of the physician champion, institutional emphasis on patient satisfaction ratings, and institutional culture of quality improvement were identified as key potential OEMs. Two investigators independently read the transcripts for each site and rated the presence of each of the OEMs using a 5-point Likert scale. The relationship between the OEMs and the effectiveness of the QI intervention was evaluated in light of the overall implementation at each site.
RESULTS: The perceived effectiveness of the physician champion was directly associated with the degree of implementation and ultimate effectiveness of the QI intervention. A strong emphasis on patient satisfaction was somewhat associated with greater intervention effectiveness. The type of quality improvement culture (top down or bottom up) was not associated with the effectiveness of the intervention.
CONCLUSIONS: An effective physician champion is vital to the success of QI projects aimed at changing physician behavior. Organizational factors appear to modify the effectiveness of QI interventions and should be addressed during program implementation.

PHYSICIAN CULTURAL COMPETENCE, PATIENT SELF-MANAGEMENT, AND CLINICAL OUTCOMES AMONG PERSONS LIVING WITH HIV/AIDS S. Saha[1]; P.T. Korthuis[2]; J.A. Cohn[3]; V. Sharp[4]; R.D. Moore[5]; M.C. Beach[5]. [1]Portland VA Medical Center, Portland, OR; [2]Oregon Health & Science University, Portland, OR; [3]Wayne State University, Detroit, MI; [4]Saint Luke's and Roosevelt Hospitals, New York, NY; [5]Johns Hopkins University, Baltimore, MD. *(Tracking ID # 190042)*

BACKGROUND: Cultural competence training for physicians has been proposed as a mechanism to address racial disparities in the quality of health care. Whether physician cultural competence is associated, however, with higher-quality care for minority patients remains unclear.
METHODS: We surveyed primary care providers at 4 geographically diverse HIV clinics as part of the Enhancing Communication and HIV Outcomes (ECHO) study. The survey included 27 new items (6-point Likert scale) measuring cultural competence among physicians, based

on a systematic review of published conceptual models. We included in the final cultural competence scale those items for which responses among surveyed providers included at least 5 of the 6 response choices. In post-visit interviews with a sample of each provider's patients, we assessed self-efficacy with taking medications (6-item scale) and antiretroviral (ARV) medication adherence (no missed doses in prior 3 days). We abstracted viral load data from medical records. We applied logistic regression using generalized estimating equations to examine the association of cultural competence with medication self-efficacy (highest score vs. less than highest), ARV adherence, and viral suppression (<75 copies/ml), controlling for site and patient and provider characteristics, and accounting for clustering of patients by provider. We divided cultural competence scores into tertiles based on their distribution; because results were similar for middle and high tertiles, we collapsed these groups. Analyses for adherence were limited to patients on ARV therapy, and for viral suppression to patients either on or eligible (CD4 count <350) for ARV therapy.
RESULTS: The study sample included 45 providers and 437 patients. Providers were predominantly white (69%) and Asian (24%), with 7% African American; 44% were women. Patients were predominantly African American (58%), with 25% white, 14% Latino, and 3% "other"; 34% were women. The final cultural competence scale consisted of 20 items (alpha 0.76); the mean score was 4.67 (SD.51, possible range 1–6). Associations of provider cultural competence with each outcome variable are shown in the Table, among all patients and among the nonwhite subgroup.

Table. Adjusted* OR (95% CI) for association of provider cultural competence (CC) with patient self-care and outcomes.

Provider CC Tertile	Medication Self-Efficacy		Adherence		Viral Suppression	
	All (n=416)	Nonwhite (n=321)	All (n=326)	Nonwhite (n=248)	All (n=358)	Nonwhite (n=276)
Low (n=15)	–	–	–	–	–	–
Middle/ High (n=30)	1.28 (.84–2.0)	1.88 (1.1–3.1)	1.88 (1.0–3.4)	2.85 (1.5–5.6)	1.21 (74–2.0)	1.82 (1.0–3.3)

*Adjusted for study site; patient age, gender, education, marital status, employment, substance abuse, self-rated quality of life, depression, health literacy, and social support, and provider race, age, gender, and profession (MD vs. non-MD).

CONCLUSIONS: Providers' self-rated cultural competence was independently associated with greater patient self-efficacy, adherence, and clinical outcomes among minority patients with HIV/AIDS. These findings validate our measure of cultural competence and lend support to the notion that enhancing cultural competence among providers may improve care for minority patients and reduce racial disparities in health care quality and outcomes.

PHYSICIAN PERCEPTIONS OF SELF-MANAGEMENT SUPPORT PROGRAMS AMONG VULNERABLE PATIENTS WITH DIABETES
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BACKGROUND: Patient self-management support (SMS) is a critical component of chronic disease care, and practice staff endorsement of SMS is essential to successful integration of the Chronic Care Model into primary care. Little is known about primary care physicians' perspectives on SMS programs implemented in their clinics.
METHODS: Survey of physicians whose patients participated in a 3-arm practical clinical trial of language concordant SMS interventions among ethnically diverse, low income diabetes patients in a multi-clinic, integrated safety net system. Patients were randomized to (a) usual care (UC), (b) weekly automated telephone self-management support with nurse care management (ATSM), or (c) monthly group medical visits with physician and health educator facilitation (GMV), each as adjuncts to care. At one year, we assessed physicians' reports of perceived barriers to care, ability of the SMS programs to overcome those barriers, degree of patient activation, and quality of care, all at the patient level. We also assessed physicians' beliefs regarding adoption of SMS strategies more generally. We compared ATSM, GMV and UC using logistic and linear regression models accounting for within-physician patient clustering.
RESULTS: We received responses from 87 of 113 (77%) physicians who cared for 245 of the 330 (74%) enrolled patients (mean, 2.8 patients per physician). Survey respondents had a mean of 7.8 years of postgraduate clinical experience. Common barriers to chronic care cited by physicians were difficulty accessing self-management support resources in the community; insufficient time; and their patients' limited health literacy and English proficiency. On average, intervention group physicians reported that ATSM helped overcome such barriers for 69% of patients and GMV for 56%. Compared to UC, patients exposed to either SMS program were perceived by their physicians as more likely to be activated to create and achieve goals for chronic care (standardized effect size, ATSM vs. UC, +0.41, p=0.01; GMV vs. UC, +0.31, p=0.05). Physicians rated quality of care as higher among patients exposed to ATSM compared to usual care (OR 3.6, p=0.003), and compared to GMV (OR 2.2, p=0.06); quality of care for GMV was not significantly greater than UC (OR 1.6, p=0.2). The majority of physicians felt these SMS programs should be expanded to more patients with diabetes (88% for both ATSM and GMV) and other chronic diseases (98%).
CONCLUSIONS: The SMS programs implemented in this urban, safety net health system appear to be highly valued by primary care physicians with respect to achieving critical components of the Chronic Care Model. Physicians caring for vulnerable populations perceived that a technology-facilitated SMS model was particularly effective for their patients and practice settings, suggesting that such programs should be disseminated and implemented more widely.

PHYSICIAN TIME PRESSURE AND QUALITY OF DIABETES CARE AMONG VETERANS
M.D. Schwartz[1]; J. Leung[1]; J. Aperi[1]; C. Crockett[1]. [1]VA New York Harbor Healthcare System, New York, NY. *(Tracking ID # 189858)*

BACKGROUND: Physician distress and time pressure in primary care practice is prevalent and increasing, but its association with quality of care is not well understood. We sought to assess this relationship in a cross-sectional study at the Department of Veterans Affairs New York Harbor Healthcare System (VA NYHHS).
METHODS: Primary Care (PC) physicians at the New York and Brooklyn campuses of the VA NYHHS were invited to complete a web-based survey adapted from the questionnaire used in the Minimizing Errors Maximizing Outcomes (MEMO) Study. The questionnaire measured job satisfaction, stress, burnout, time pressure (ratio of time needed to time allotted to provide high quality care in PC encounters), practice atmosphere (calm through chaotic), control of the work environment, and likelihood of making future medical errors. Physicians' survey responses were linked to their VA performance measures: meeting national VA targets for control of glycemia (Hemoglobin A1C<9%), blood pressure (BP<140/90), and lipids (LDL<100), and performance of foot exams, all for their patients with diabetes or hypertension. VA NYHHS physician responses were compared with those from 420 non-VA PC physicians from the MEMO Study.
RESULTS: 29 Primary Care physicians participated (78% response rate), 55% male, mean age 47 years, and mean of 11 years at VA. Compared with MEMO Study physicians, VA NYHHS physicians reported higher job satisfaction (72% vs. 66%, p<0.01), similar levels of high stress (45% vs. 49%), and less burnout (14% vs. 27%, p<0.001). Although more VA NYHHS physicians reported inadequate time for routine visits (62% vs. 50%, p<0.01) and fewer reported at least moderate control over their workplace (0% vs. 22%, p<0.001), they were less likely to describe their workplace atmosphere as chaotic (24% vs. 48%, p<0.001) or to predict that they would make errors on 9 common PC management issues in the next month (mean 1.5 vs. 3.0, p<0.001). VA NYHHS physicians reporting greater time pressure for clinic visits were less likely to have performed diabetic foot exams when indicated, 71% vs. 100%, (p=0.03, 95% CI for 29% difference 4%, 53%). Correlation between time pressure and performance of foot exams was −0.54, p=0.003. No significant associations were seen between other measures of physician distress and control of Hemoglobin A1C, BP, or LDL.
CONCLUSIONS: Compared with non-VA Primary Care physicians, VA NYHHS Primary Care physicians reported greater job satisfaction, less burnout, and less workplace chaos, despite feeling similar levels of stress, greater time pressure, and less workplace control. Among routine

measures of clinical performance in diabetes care, only the foot exam was linked with physicians' experience of time pressure. The foot exam is more under the physician's direct influence than are the measures of physiologic disease control. VA's electronic medical record and quality management strategies may have mitigated the potential negative impact of physician distress on patient outcomes. The sustainability of physician careers in settings with high workload and low control (the balance of which relates to experience of stress) remains to be studied.

PHYSICIANS' USAGE OF KEY FUNCTIONS IN ELECTRONIC HEALTH RECORDS IN 2005 AND 2007: A STATEWIDE SURVEY
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BACKGROUND: While much attention has focused on increasing the number of physicians who have adopted electronic health records (EHRs), few studies have examined how physicians are using these systems. Previous studies have not consistently shown improved quality of care in practices with EHRs; these analyses suggest that just having EHRs is insufficient and that physicians must use key EHR functions, such as alerts and reminders, to reap the benefits of improved quality and safety. The extent to which physicians are increasing their use of EHR functions once they have implemented an EHR remains unknown.
METHODS: In 2007, we carried out a follow-up of 1145 randomly selected physicians in Massachusetts who completed a survey in 2005 regarding adoption and usage of EHRs. The questionnaires, mailed in 2005 and 2007, assessed availability and use of EHR functions, predictors of use, and the relationship between EHR use and physicians' perceptions of medical practice.
RESULTS: A total of 902 physicians responded to the survey (79% response rate). Overall, 62% (562/902) of respondants in 2007 had EHRs, compared to 45% in 2005. Availability of EHR functions was generally similar in 2005 and 2007, with the notable exception of electronic prescribing, which increased from 45% in 2005 to 70% in 2007 ($p = 0.05$). Although the availability of key functions did not increase dramatically, there were statistically significant (all $p < 0.001$) increases in the usage of these functions, particularly laboratory order entry (52% in 2005 vs 64% in 2007), radiology test results (74% vs 81%), radiology order entry (48% vs 69%), electronic visit notes (71% vs 89%), alerts and reminders (31% vs 40%), electronic medication lists (67% vs 79%), electronic problem list (58% vs 72%), electronic prescribing (45% vs 67%), and electronic referrals (43% vs 50%). Some functions were more commonly available for new EHR implementers (EHR adoption since 2005) compared with those using EHR since before 2005 (e.g. laboratory tests [92% vs 86%] and radiology order entry [62% vs 54%]), while others were less available among new implementers (e.g. reminders for care activities [43% vs 56%], electronic medication lists [76% vs 81%] and electronic prescribing [55% vs 70%]).
CONCLUSIONS: Despite continued growth of EHR adoption, the presence of key functions in EHRs appears to be relatively unchanged from 2005 to 2007. Nevertheless, there seem to be increases in the proportions of physicians who use these features regularly, particularly for functions such as electronic prescribing. With the exception of alerts and reminders, at least half of the physicians report they use each of the key EHR functions most or all of the time when available. Physicians with newly implemented EHRs did not automatically have more functions in the system than earlier adopters, nor did they necessarily use the functions more. As EHR adoption rates begin to approach universal acceptance, future efforts and studies should focus on understanding the barriers to regular use of available key functions in the EHR.

PILOT PROGRAM SHOWS CASE MANAGEMENT IMPROVES OUTCOMES AMONG HIGH-RISK HISPANIC BOARDER POPULATION TREATED AT A CALIFORNIA COMMUNITY HEALTH CENTER.
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BACKGROUND: Heart failure is a chronic and progressive disease that affects 2.2% of the United States total population and is the most common Medicare DRG for hospitalizations. As many as 20% of patients die within 6 months of an index hospitalization and 50% will be readmitted within 6 months. Finally, heart failure exerts a strong, negative impact on patients' functional capacity and leads to decreased quality of life. Multiple studies have shown that case management is effective at decreasing heart failure readmission, length of stay and improving quality of life among the general, insured population. Data regarding the effect of case management on ethnic minorities or uninsured populations are lacking. Only two studies to date have targeted large groups of, mostly insured, Hispanic patients with mixed results and leaves doubt as to whether traditional case management strategies will be effective among Hispanic patients or uninsured populations.
METHODS: Randomized, blinded, interventional design of post-discharge case management with telephone case follow-up among medically underserved, primarily Hispanic, populations. Outcome measures include hospital re-admission, ER visits, change in heart failure specific health knowledge and SF-36 quality of life scores.
RESULTS: Demographic, heart failure knowledge, SF-36 QOL scores and resource utilization were similar at baseline. Post-intervention resource utilization decreased for both groups without a statistically significant improvement in the intervention group. At the end of the 3-month study, only 32% of patients had been re-admitted to the hospital and 15% had presented in the emergency room. In addition, there were fewer patients with multiple admissions during the follow-up period. All patients increased their health knowledge an average of 16% during the intervention. Global SF-36 quality-of-life scores increased in both groups during the 3-month intervention. Telephone case management offered no additional benefit over the initial post-discharge case management among these outcome measures.
CONCLUSIONS: Multidisciplinary case management is an effective strategy for improving clinical outcomes among high-risk, medically underserved, Hispanic patients. Telephone case follow-up, however, does not add significant improvement in outcomes among this patient population and these resources can be better utilized elsewhere.

PLACEBO PRESCRIBING AMONG US PHYSICIANS: RESULTS OF A NATIONAL SURVEY
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BACKGROUND: The use of placebo treatments in clinical practice is ethically controversial. To date there has been little empirical evidence regarding physicians views of placebos in clinical practice. The objective of this study was to measure the attitudes and behaviors of US physicians with specialties of internal medicine and rheumatology toward placebo prescribing behaviors.
METHODS: We sent a questionnaire to 1200 practicing US internists and rheumatologists by mail. We defined placebo prescribing as recommending a treatment whose benefits are believed to derive from positive patient expectations and not from the physiologic mechanism of the treatment itself. We measured physicians' behaviors and attitudes concerning placebo prescribing using a set of items that in sum captured their attitudes and self-reported behaviors in a non-judgmental fashion. We asked about their likelihood of recommend a sugar pill proven superior to a no-treatment control for treatment of fibromyalgia using a hypothetical scenario; how frequently they had recommended a treatment believing its primary benefit derives from positive expectation; and their ethical judgments about such behavior. Then after defining "placebo treatment", we asked them what they recommended as placebo treatments, and how they typically communicate with patients about the practice. Only the last two questions used a functional definition of "placebo treatment" – "a treatment whose benefits derive from positive patient expectations and not from the physiologic mechanism of the treatment itself." We used descriptive statistics to examine physician characteristics as well as frequencies of reported behaviors and attitudes. We used multivariate logistic regression to determine if any participant characteristics were independently associated with regularly prescribing placebo treatments. For this analysis prescribing placebos at least 2–3 times per month was used as our dependent variable.
RESULTS: A total of 679 out of 1200 physicians (57%) responded to our survey. A majority of respondents (58%) said they would be very likely or

moderately likely to recommend a dextrose tablet for fibromyalgia in response to the hypthetical case. Similarly 46% reported actually recommending a therapy primarily to promote patient expectations at least 2–3 times per month. Most physicians (61%) believed the practice to be at least permissible. Large proportions reported using physical therapy (43%), over the counter analgesics (41%), and vitamins (38%) as placebo treatments within the last year. A small but notable proportion of physicians reported using antibiotics (13%) and sedatives (13%) as placebo treatments during the same period. Furthermore, most physicians who use placebo treatments said they usually describe them to patients as "a medicine not typically used for your condition but may benefit you" (68%); only rarely did they describe them as placebos (5%). In logistic regression analyses, no physician characteristics were independently associated with placebo prescribing behavior.
CONCLUSIONS: Prescribing placebo treatments appears to be common among internists and rheumatologists we surveyed. Physicians may not be fully transparent with their patients about their use of these treatments. These data inform persistent normative questions about the proper role of such behavior in contemporary medical practice.

PLANS TO STOP CANCER SCREENING TESTS: RESULTS FROM A NATIONALLY REPRESENTATIVE SURVEY C. Lewis[1]; M.P. Couper[2]; C. A. Levin[3]; M. Pignone[1]; B.J. Zikmund-Fisher[2]. [1]University of North Carolina at Chapel Hill, Chapel Hill, NC; [2]University of Michigan, Ann Arbor, MI; [3]Foundation for Informed Medical Decision Making, Boston, MA. *(Tracking ID # 189260)*

BACKGROUND: Current guidelines suggest stopping cancer screening in individuals with limited life expectancy. We sought to estimate what proportion of adults plan to stop cancer screening tests for colorectal, prostate, and breast cancer as they age and to explore factors associated with these screening decisions.
METHODS: Analyses are based on the DECISIONS survey, a nationally-representative random digit dial telephone survey that interviewed 3010 U.S. adults age 40 and older (achieving a 86.5% cooperation rate and a 51.6% AAPOR RR4 response rate). Respondents were interviewed about multiple common medical decisions including decisions about screening for breast, colon, and prostate cancer. Respondents who reported having been screened for any of these cancers within the last two years or having discussed these tests with a health care provider were eligible and randomly assigned to cancer specific modules that asked whether they had plans to stop getting screening tests at a certain age, characteristics of patient-provider discussions on this topic, and respondents' risk beliefs. This paper focuses on those respondents age 50 and older who answered any of the cancer screening modules.
RESULTS: A total of 1435 individuals responded to one of the three cancer modules (556 breast, 283 prostate and 615 colorectal). Based on weighted estimates, 10.2% (95% C.I. 8.3%, 12.1%) overall reported plans to stop screening, 12.2% (5% C.I. 8.9%, 15.5%) for breast, 6.8% (95% C.I. 3.3%, 10.2%) for prostate, and 10.2% (95% C.I. 7,3%, 13.0%) for colon cancer. The proportion planning to stop differed by age and cancer type. For those age 70, 6.5% (95% C.I. 2.1%, 11.0%), 0% and 13% (95% C.I. 7.1%, 18.8%) reported plans to stop breast, prostate, and colon respectively, compared to 13.9% (95% C.I. 9.8%, 18.8%), 8.3% (95% C.I. 4.1%, 12.4%) and 9.4% (95% C.I. 6%, 12.6%) for those age 50–69. Gender, race, and having health insurance were not associated with having plans to stop screening for the three cancers individually, but the numbers were small. When we combined the three cancers, African-American race ($p=.04$) and the perception of being at increased risk of getting the particular cancer ($p<.001$) was negatively associated with plans to stop. Age, gender, insurance status, education, and self-reported health status had no association with plans to stop screening for the three cancers. When we examined whether aspects of discussions with health care providers were associated with plans for stopping cancer screening, we found that a discussion of the pros and cons or whether the provider or respondent first raised the idea of screening were not associated with plans to stop. However, respondents' report that they made the final decision about screening, as opposed to the provider or a joint decision, was strongly associated with plans to stop ($p<.0001$).
CONCLUSIONS: Plans to stop screening were uncommon for all three types of cancers. When the three cancers were combined, those who reported a more active role in decision making were more likely to report plans to stop, and those who perceived themselves at greater risk for cancer or were African-American were less likely to stop. Other factors, including age, were not associated with plans to stop. Further study is required to better understand how patients perceive the benefits and downsides of screening in the context of limited life expectancy.

POOR HEALTH CARE BEHAVIORS AMONG OVERWEIGHT INDIVIDUALS: OPPORTUNITIES FOR PHYSICIAN INTERVENTION S.M. Pokras[1]; D. Klingman[1]; K. Annunziata[2]; S. Gupta[2]; J. Chapnick[2]; J. Tierce[1]. [1]IMS Health, Falls Church, VA; [2]Consumer Health Sciences, Princeton, NJ. *(Tracking ID # 189407)*

BACKGROUND: Although two-thirds of US adults are overweight, many do not address the issue of weight loss in an effective manner. With increasing prevalence of adult and childhood obesity, attention to the problem from both the patient and physician perspective is essential.
METHODS: We analyzed data from the 2006 US National Health and Wellness Survey, a cross-sectional Internet-based survey conducted annually by Consumer Health Sciences International (Princeton, NJ). The sample of adult panelists is drawn from the Lightspeed Consumer Panel. When properly weighted, the sample is designed to be representative of the entire US adult population in terms of key sociodemographic characteristics. As part of the standard survey, panelists reported on their height and weight, demographic characteristics, health behaviors, current health conditions and health care resource use. Panelists were classified as overweight if their body mass index (BMI) was greater than or equal to 25. Comparisons between groups were conducted using the Chi-square test with a significance level of $p<0.05$.
RESULTS: Two-thirds (144M) of the US adult population reported being overweight in 2006. Of these, 61.8% reported trying to lose weight. Compared to those not trying to lose weight, those trying were significantly more likely to be female, younger, more educated, and visit the doctor more often. They were also more likely to have cardiovascular comorbidities, asthma, arthritis, depression, diabetes, and a family history of obesity or diabetes. The main motivators for losing weight in this population were to improve general health (64.0%), improve appearance (24.1%), and prevent heart disease or stroke (9.4%). Of the population trying to lose weight, 30.3% did not exercise at all in the past month. Apart from exercise, methods used by those trying to lose weight were mainly diet foods or supplements (25.3%), weight management programs (11.0%), and OTC or herbal products (8.9%); less than 2% used prescription medications. About 63.8% of this population was using none of the above methods to lose weight. The majority of overweight individuals trying to lose weight (84.8%) had visited their provider at least once during the past 6 months. However, less than half (44.1%) spoke to their doctor about losing weight. Those who spoke to their doctor about weight loss were significantly more likely to be female, older, retired, white, more educated, and insured, and to visit their doctor more frequently. They were also more likely to have comorbid conditions as described above, and also a family history of obesity or diabetes.
CONCLUSIONS: These results confirm and extend findings from other studies that a large segment of the US population is overweight. The majority of overweight individuals reported trying to lose weight in an effort to improve their general health, especially if they had comorbid conditions. However, many reported not exercising or using less than ideal methods. And more significantly, less than half were consulting with their physician to help gain control of their weight. Since most individuals reported visiting their physician at least once in the past 6 months, there is an opportunity for physicians to take a more active role in helping patients address the issue of weight loss in order to reverse the increasing trend of obesity in the US.

POSITIVE PREDICTIVE VALUE OF AHRQ PATIENT SAFETY INDICATORS IN A NATIONAL SAMPLE OF HOSPITALS P.S. Romano[1]; G. Utter[1]; R.H. White[1]; P.A. Zrelak[1]; D.J. Tancredi[1]; R. Baron[1]; L. Jones[2]; L. Puzniak[2]; J. Geppert[3]. [1]University of California Davis, Sacramento, CA; [2]Battelle Center of Public Health Research and Evaluation, St. Louis, MO; [3]Battelle Memorial Institute, Elk Grove, CA. *(Tracking ID # 190927)*

BACKGROUND: The AHRQ Patient Safety Indicators (PSI) have become a widely used tool for identifying potential safety-related events in acute care hospitals, using ICD-9-CM coded administrative data. Little is

known about the criterion validity of these indicators across multiple hospitals.
METHODS: The PSI Validation Pilot Project was designed to gather evidence on the criterion validity of the PSIs (based on medical record review), to improve guidance about how to interpret PSI rates, to evaluate potential specification changes, and to pilot a system for conducting validation studies on an ongoing basis. In response to a national call for volunteers, 47 hospitals from 29 states agreed to abstract up to 30 records from 2005–06 using standard tools and guidelines. PSI rates at these 47 hospitals were quite similar to mean PSI rates in the Nationwide Inpatient Sample. Ongoing support was provided through training webinars, written documents, electronic discussions, and central feedback. Phase 1 focused on five PSIs specified below; phase 2 will address five additional PSIs. Positive predictive value (PPV) was defined as the crude percentage of PSI-flagged cases that were confirmed by detailed record review. False positive cases were classified as either miscoded diagnoses or correctly coded diagnoses that predated admission.
RESULTS: For "acccidental puncture and laceration" (N=230 at 43 hospitals), PPV was 88% (7% miscoded, 5% predated admission) and 69% of confirmed events required a reparative procedure. For "iatrogenic pneumothorax" (N=190 at 38 hospitals), PPV was 80–90% (2% miscoded, 8% predated admission) and 66% of confirmed events were treated with tube thoracostomy. For "postoperative DVT/PE" (N=166 at 37 hospitals), PPV was 68–84% (16% predated admission), but 22% of true positives involved arm or neck veins and 4% involved superficial leg veins. For "postoperative sepsis" (N=137 at 33 hospitals), PPV was 49–67% (16% miscoded, 17% predated admission). For "selected infections due to medical care" (N=194 at 37 hospitals), PPV was 61% (22% miscoded, 17% present at admission) and 78% of confirmed events were catheter-related. Additional data on the consequences of these events will be presented.
CONCLUSIONS: The PPV of five AHRQ PSIs in a nonrandom but representative sample of US hospitals varies from 49% to 90%, depending on the specific PSI and on how denominator exclusions are handled. Incorporating "present at admission" data would substantially improve most of these PPVs. In the interim, some PSIs may be more useful for quality assessment and research purposes than others. A mechanism for supporting ongoing validation work has been pilot-tested, and will be applied to estimate sensitivity in future work.

POSITIVE PROVIDER REGARD FOR PATIENTS IS ASSOCIATED WITH BETTER OUTCOMES FOR AFRICAN AMERICAN BUT NOT WHITE HIV-INFECTED PATIENTS M.C. Beach[1]; S. Saha[2]; T. Korthuis[2]; V. Sharp[3]; J.A. Cohn[4]; S. Eggly[4]; A.P. Sankar[4]; R.D. Moore[1]. [1]Johns Hopkins University, Baltimore, MD; [2]Oregon Health and Science University, Portland, OR; [3]Saint Luke's and Roosevelt Hospitals, New York, NY; [4]Wayne State University, Detroit, MI. *(Tracking ID # 190159)*

BACKGROUND: Patients of providers who like and respect them have been shown to have more positive healthcare experiences. The purpose of our study was to assess the association between provider regard and outcomes among HIV-infected patients.
METHODS: We enrolled 45 HIV providers and 342 Non-Hispanic African American and white HIV-infected patients in the Enhancing Communication and HIV Outcomes (ECHO) Study at 4 HIV care sites in Baltimore, New York City, Detroit, and Portland. Following a routine patient-provider encounter, providers rated their attitudes towards that particular patient using a 7-item newly-developed positive regard instrument. Patient outcomes were assessed by patient interview (ratings of provider's communication style, overall satisfaction with the visit, medication self-efficacy, and adherence to antiretroviral (ARV) medications) and medical record review (HIV RNA levels). We used logistic regression to assess associations between provider regard and patient outcomes adjusting for site and clustering on provider using generalized estimating equations.
RESULTS: Patients were African American (n=237) and white (n=105). Providers generally reported high regard for patients (mean 4.0, SD 0.7, range 1–5) and the scale had high internal consistency (Cronbach's alpha 0.90). Provider regard for patients did not differ by patient race (mean regard 3.9, SD 0.7 in whites; mean 4.0, SD 0.7 in African Americans). The table shows adjusted associations between provider regard for patients and patient outcomes. Provider regard was associated with all outcomes for African-American but not for white patients.
CONCLUSIONS: African American patients may be better able to detect, or providers more openly express, differences in attitudes and behaviors and these differences are associated with improved outcomes. Although further research should explore the reasons for these findings, our results indicate that provider regard is important in the care of HIV-infected African-American patients. ^ Provider regard scale divided into tertiles (low, medium, and high regard) with low as reference category; A = African American; W = White; * = significant p<0.05

Adjusted Associations between Provider Regard and Patient Outcomes^

Patient Outcomes	Patient Race	Provider Regard for Patient	
		Medium	High
>Median Ratings of Communication	A	2.21 (1.15,04.27) *	2.71 (1.38, 5.34)*
	W	1.41 (0.59, 3.31)	0.91 (0.35,2.42)
Highest Satisfaction	A	1.94 (1.02, 3.68)*	2.80 (1.35, 5.79)*
	W	0.99 (0.39, 2.50)	1.54 (0.52, 4.57)
Highest Medication Self-Efficacy	A	2.29 (1.08, 4.85)*	3.14 (1.48, 6.68)*
	W	1.21 (0.41, 3.57)	1.11 (0.43, 2.87)
Missed any ARV doses past 3 days	A	0.65 (0.28, 1.53)	0.35 (0.14, 0.88)*
	W	1.71 (0.28, 10.5)	1.63 (0.23, 11.7)
HIV RNA <75 copies/uL	A	2.41 (1.15, 5.06)*	2.53 (1.14, 5.58)*
	W	0.19 (0.06, 0.67)*	0.58 (0.14, 2.37)

POSTOPERATIVE COMPLICATIONS IN THE SERIOUSLY MENTALLY ILL: A SYSTEMATIC REVIEW OF THE LITERATURE V. Lawrence[1]; L. Copeland[1]; J. Zeber[1]; M. Pugh[1]; E. Mortensen[1]; M. Restrepo[1]. [1]South Texas Veterans Health Care System and University of Texas Health Science Center at San Antonio, San Antonio, TX. *(Tracking ID # 190508)*

BACKGROUND: Evidence suggests that patients with schizophrenia or other serious mental illness may have higher rates of postoperative complications and death. We performed a systematic review of the literature regarding postoperative (postop) complications in patients with schizophrenia or bipolar, post-traumatic stress (PTSD), or major depressive disorders (MDD).
METHODS: Systematic search of Medline, 1966-August 2007. Eligible studies were those of any design with at least 10 patients diagnosed with a serious mental illness and reporting perioperative clinical medical, surgical, or psychiatric complications. We excluded studies of psychiatric conditions occurring after or as a result of surgery (e.g., PTSD after abortion, depression after cardiac or transplant surgery).
RESULTS: The search identified 1,367 potentially relevant publications. Of 337 studies of patients with schizophrenia, only 10 were eligible (abdominal, orthopedic, mixed operations). Of these, 9 studies had ≤101 patients (N=12 and 14 for 2 case series, 55–85 for 3 cohort studies, and 46–101 for 4 randomized trials [RCTs]). One large retrospective study found higher rates of postop respiratory failure (OR 2.1, 95% CI 1.4–3.1), deep venous thrombosis or pulmonary embolism (OR 2.0, 95% CI 1.2–3.3), and sepsis (OR 2.3, 95% CI 1.5–3.5) among 466 patients with schizophrenia compared to 338,257 patients without schizophrenia. These studies, overall, suggest that patients with schizophrenia, compared to those without serious mental illness, may have higher pain thresholds and higher rates of postop complications. Further, the cohort study of 55 veterans undergoing appendectomy suggested that patients with schizophrenia may present at later than typical stage of disease: there were 36 (65%) perforated and 9 (16%) gangrenous appendices; mortality was 4% compared to 1.8% overall for postop mortality in the VA at the time. Of the remaining 1,030 publications, only 2 were eligible; patients with MDD undergoing orthopedic surgery had higher rates of postop confusion and delirium compared to controls. In 2 RCTs, patients with schizophrenia (N=101) or MDD (N=80) had more postop confusion or delirium when psychiatric medications were discontinued preoperatively (31% vs 14%, p=0.05 and 30% vs 13%, p=0.05). We found no eligible studies of patients with bipolar or post-traumatic stress disorders.

CONCLUSIONS: Despite a burgeoning literature over the last 20 years regarding perioperative risk management, little is known about perioperative risk among patients with serious mental illness. The little data available suggest that these patients may have higher risk than patients without serious mental illness. The National Surgical Quality Improvement Programs (VA and private sector) are designed to assess postoperative morbidity and mortality but do not currently collect data regarding preoperative psychiatric diagnoses and so cannot be used to study operative risk in these patients. Future research should assess surgical risk among those with serious mental illness with sufficiently large samples and well-defined clinical outcomes.

POTENTIAL JURORS' REACTIONS TO A PSA MALPRACTICE CASE
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BACKGROUND: National guidelines recommend a shared decision-making process before a physician orders a prostate-specific antigen (PSA) test to screen for prostate cancer. However, physicians may fear a malpractice suit if they follow the guidelines, a patient declines PSA testing, subsequently develops advanced cancer, and regrets the decision not to have been screened.
METHODS: We conducted six focus groups with a total of 47 potential jurors recruited through an ad in a Boston-area newspaper. Focus groups were presented with up to three scenarios in a hypothetical malpractice case involving an allegation of failure by a primary care physician to order a PSA test for the plaintiff, a patient who later presented with incurable prostate cancer. After each scenario, participants voted whether the physician defendant had met the standard of care; and if they had not, whether harm had resulted.
RESULTS: Mean age of the 47 focus group participants was 50 (range 20–70); 22 (47%) were women, 22 (47%) were white, 22 (47%) were African American, 13 (28%) had a HS education or less, 19 (40%) had some college, and 15 (32%) had a college degree. The first three groups were initially presented a scenario where there was no note in the record about a PSA discussion, though the physician testified such discussions were routine. Only 4/23 (17%) of participants voted the defendant had met the standard of care, and 14/19 (74%) who voted no also voted harm had resulted. All six focus groups were presented a scenario where there was a note in the record indicating the pros and cons of PSA testing were discussed, and the plaintiff declined. 34/47 (72%) of participants voted the defendant had met the standard of care, and 11/13 (85%) who voted no also voted harm had resulted. Finally, all six focus groups viewed a video-based decision aid on the pros and cons of PSA testing, and were presented a scenario where the plaintiff watched the decision aid, and then declined testing. 44/47 (94%) of participants voted the defendant had met the standard of care, and 2/3 (67%) who did not also voted harm had been caused. The probability that potential jurors voted the defendant physician met the standard of care was significantly higher in the scenario where a discussion was documented than the scenario with no note (P=.007, McNemar test), and significantly higher in the decision aid scenario than the scenario where a discussion was documented (P=.004, McNemar test). Confirmatory analyses accounting for clustering effects yielded similar results.
CONCLUSIONS: Better documentation that a patient made an informed decision to decline a PSA test appears to provide higher medical-legal protection for physicians following national guidelines, with the greatest protection conferred by the use of a decision aid.

POTENTIALLY UNINTENDED DISCONTINUATION OF CHRONIC MEDICATIONS AFTER HOSPITAL ADMISSION
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BACKGROUND: Transitions between health care settings represent vulnerable periods when patients may be at risk for medical error. Discharge from hospital to community care is a time when potentially unintended discontinuation of chronic medications may occur. Intensive care unit (ICU) stays may connote an additional risk due to the extra transitions and the focus on acute care.
METHODS: We performed a retrospective, population-based, cohort study using linked administrative records from Ontario, Canada from 1997–2006. We studied all residents aged 66 years and over with 1 year of continuous use of 5 separate medication groups. They were: (1) HMG co-A reductase inhibitors (statins); (2) antiplatelets/anticoagulants (clopidogrel, warfarin); (3) L-thyroxine; (4) non-prn inhalers (anticholinergic, beta-agonist or steroid); and (5) acid-suppressing drugs (H2 blockers and proton pump inhibitors). The control analysis examined patients on beta-blocker ophthalmic drops. Three groups of patients were studied: one group that had a hospitalization, one that also had an ICU admission, and one that had no hospital admission. Administrative records were used to assess for the outcome of failure to renew the prescription after hospital discharge accounting for the receipt of the prescription before admission, hospital length of stay, and allowing a grace period. Patients who developed complications or contraindications to the medications or who were hospitalized or died prior to the anticipated completion of their most recent prescription were excluded from the analysis. Adjusted logistic regression analyses compared the hospital and ICU admission groups to those not hospitalized. These accounted for patient age, sex, income status, comorbidity, number of prescription medications, primary care and internist visits prior to and following hospitalization.
RESULTS: Overall there were 176,389 patients admitted to hospital; of these, 14,538 were also admitted to the ICU. There were 237,295 patients studied who were not hospitalized. There were 158,052 patients who were prescribed statins, 43,930 who were prescribed antiplatelets/anticoagulants, 109,656 prescribed L-thyroxine, 14,065 prescribed non-prn inhalers, and 87,981 prescribed acid-suppressing drugs. Adjusted analyses found that only patients admitted to hospital and previously prescribed antiplatelets/anticoagulants had a higher risk of drug discontinuation.(Table) Patients prescribed L-thyroxine, inhalers, and acid suppressing drugs had a lower risk of drug discontinuation after hospital admission. Those prescribed statins, L-thyroxine, and acid suppressing drugs also had a lower risk of drug discontinuation with ICU admission.
CONCLUSIONS: Surprisingly, hospital and ICU admission either had no effect on – or was protective against – potentially unintended post-discharge discontinuation for most chronic medications tested. Hospital admission increased the risk of potentially unintended chronic medication discontinuation only for patients prescribed antiplatelet/anticoagulants.

Adjusted odds of drug discontinuation following hospital discharge compared to community controls

Drug Group	Hospital Admission	ICU Admission
Statins	1.00 (0.98, 1.03)	0.70 (0.66, 0.74)
Antiplatelet/anticoagulant	1.15 (1.09, 1.20)	1.05 (0.93, 1.17)
L-thyroxine	0.91 (0.88, 0.94)	0.76 (0.70, 0.84)
Non-prn inhalers	0.74 (0.68, 0.81)	0.84 (0.68, 1.05)
Acid-suppressors	0.96 (0.93, 0.99)	0.88 (0.80, 0.96)
Beta-blocker ophthalmic drops	0.92 (0.70, 1.21)	1.3 (0.64, 2.63)

PREDICTING BLOOD PRESSURE CONTROL: IS RACE, OR FACTORS ASSOCIATED WITH RACE, MORE IMPORTANT?
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BACKGROUND: Studies have persistently demonstrated that African Americans with hypertension have worse blood pressure (BP) control even after controlling for important comorbidities such as diabetes and renal disease. The reason for this disparity in outcomes is not well-understood but contributes significantly to excess cardiovascular morbidity in African Americans. However, prior studies of BP control have often only examined a narrow range of potential etiologic factors. Thus, we examined whether or to what extent the impact of race remains after taking a comprehensive set of factors into account.

METHODS: We recruited 870 white and black (57%) patients with a diagnosis of hypertension and a prescription for antihypertensive medication in the primary care practices of an urban, academically affiliated medical center. We abstracted clinical information from the medical record (comorbid conditions, body mass index) and interviewed patients to obtain information regarding sociodemographics (age, education, income, health literacy), health beliefs (concerns about and necessity of medications, seriousness of high BP and its impact on future health), experiences with one's provider and the health care system (perceived cultural competency, perceptions of discrimination in receiving health care, and amount of counseling regarding high BP and medications), and medication adherence. BP control was modeled as a function of these covariates through a nested random effects logistic regression with the variables chosen through a stepwise selection procedure. The random effects accounted for two levels of clustering; patients within providers, and providers within clinics.
RESULTS: The unadjusted results indicated a significant effect of race on BP control (64.8% of whites with controlled BP vs. 53.3% of blacks, $p < .001$), and the effect of race on BP control persisted after adjustment for comorbid conditions, age, and obesity (OR=1.43, $p<.01$). After including the full range of factors in the model, higher income (OR=1.39, $p<.03$) and a greater belief in the necessity of BP medications (OR=1.34, $p=.02$) were associated with greater odds of having controlled BP. Patients with diagnoses of diabetes (OR= 0.52, $p<.001$) or renal insufficiency (OR= 0.31, $p<.001$) were less likely to have controlled BP, as were those reporting more physician counseling (OR=.87, $p<.001$). Race did not remain a significant predictor of BP control after accounting for these other factors.
CONCLUSIONS: The previously observed association between race and BP control was not supported by our data, after we included a wide variety of factors which covary with race. Thus, the association of race with BP control may in fact be a function of those other variables. Because beliefs about the necessity of BP medication are potentially modifiable factors, future interventions oriented toward modifying them should be explored, in order to reach the ultimate goal of reducing racial disparities in blood pressure outcomes.

PREDICTING OUTCOME OF ACUTE UPPER GASTROINTESTINAL HEMORRHAGE (UGIH) WITHOUT ENDOSCOPY USING ROCKALL, BLATCHFORD, OR COMBINED RISK SCORE APPROACH J.T. Go[1]; A. D. Auerbach[2]; J.L. Schnipper[3]; T.B. Wetterneck[4]; D. Meltzer[5]; D. Gonzalez[6]; P. Kaboli[1]. [1]Iowa City VA Medical Center, Iowa City, IA; [2]University of California, San Francisco, CA; [3]Harvard University, Cambridge, MA; [4]University of Wisconsin-Madison, Madison, WI; [5]University of Chicago, Chicago, NM; [6]University of New Mexico, Albuquerque, NM. *(Tracking ID # 190746)*

BACKGROUND: Urgent endoscopy is optimal in the management of acute UGIH to detect high-risk lesions amenable to endoscopic therapy as well as low-risk lesions in stable patients, leading to early discharge, reduced costs and/or avoided admission. However, when endoscopy is not available, pre-endoscopic risk stratifying scoring systems can still be used to triage low risk patients to outpatient endoscopy. The Rockall Score (Rockall) uses 3 clinical variables (age, hemodynamics, and comorbidities) while the modified Blatchford Risk Score (mBRS) has 6 clinical or laboratory variables (hemoglobin, systolic blood pressure, heart rate, melena, hepatic disease, and heart failure). The objective of our study was to compare how the Rockall, the mBRS, and a combination approach to identify low risk acute UGIH patients in predicting clinically important outcomes (i.e., mortality, recurrent bleeding, need for blood transfusion, and need for endoscopic therapy or surgery to control bleeding).
METHODS: This is a retrospective observational study of 371 consecutive patients admitted for acute UGIH to 6 academic medical centers. The Rockall and mBRS scoring systems have been previously validated. Outcomes included inpatient death, 30-day readmission, and in-hospital complications related to UGIH. Resource utilization was assessed by hospital LOS and costs. Data were obtained from chart abstraction and administrative files.
RESULTS: 371 patients were identified, 61% were male and mean age was 59 years. Pre-endoscopy, 12% were identified as low risk by Rockall (N=46), 15% by mBRS (N=56), and 5% by combined approach (N=17). The three groups identified as low risk were compared based on outcomes listed in Table 1. Overall, the low-risk Rockall predicted 21 complications and the mBRS predicted 13. When using both pre-endoscopy scoring systems, only 1 experienced death or any complication with no readmission within 30 days.
CONCLUSIONS: Although both pre-endoscopy risk scores have been validated, they have been validated for different outcomes (Rockall for rebleeding and mortality while mBRS for the need for clinical intervention). By combining the two, subjects have a very low risk of an adverse clinical outcome and can potentially be triaged directly home and scheduled for outpatient endoscopy and/or clinical follow-up. This approach should be studied further in a prospective trial to change physician behavior to consider sending low-risk UGIH patients home instead of routine admission.

Table 1. Low-risk Rockall, mBRS, and combined approach in UGIH patients

	Rockall N=46	mBRS N=56	Combined Rockall/mBRS N=17
Inpatient mortality	0 (0%)	2 (3.6%)	0 (0%)
Recurrent bleeding	2 (4.3%)	3 (5.4%)	1 (5.9%)
Blood transfusion	19 (41.3%)	10 (17.9%)	1 (5.9%)
Endoscopic therapy to control bleeding	8 (17.4%)	3 (5.4%)	1 (5.9%)
Surgery to control bleeding	0 (0%)	0 (0%)	0 (0%)
ICU transfer + worsened comorbidities	1 (2.2%)	7 (12.5%)	0 (0%)
Combined mortality + any complication	21 (45.7%)	13 (23.2%)	1 (5.9%)
30-day readmission	0 (0%)	2 (3.6%)	0 (0%)
Mean hospital LOS, days	3.78	4.79	3.88
Mean hospital costs, $	7,531.35	8,473.55	4,873.37

PREDICTIVENESS OF CHILDBEARING INTENTION IN THE CENTRAL PENNSYLVANIA WOMEN'S HEALTH STUDY (CEPAWHS) C.H. Chuang[1]; A. Dyer[1]; C.S. Weisman[2]. [1]Penn State College of Medicine, Hershey, PA; [2]Pennsylvania State University, Hershey, PA. *(Tracking ID # 190355)*

BACKGROUND: Standard definitions of pregnancy intention have relied on retrospective reports of intent by women after birth. Little prospective data is available on future childbearing intentions of non-pregnant women. The objective of this study is to investigate whether childbearing intention in non-pregnant women is predictive of (1) effective contraceptive use and (2) future pregnancy.
METHODS: The Central Pennsylvania Women's Health Study (CePAWHS) includes a longitudinal cohort of reproductive age women (18–45 years) derived from a random digit dialing telephone survey. Women were interviewed at baseline and again 2 years later. Measures included childbearing intention, contraceptive use, and interval pregnancies. This study includes the 889 women with reproductive capacity (hysterectomy, tubal ligation or infertility were excluded) who were not pregnant at baseline. Multivariable analyses assessed the association of childbearing intention at baseline with use of more effective contraceptive methods (hormonal method, sterilized partner, IUD) and interval pregnancy. Contraceptive analysis was limited to women not desiring pregnancy in the next year. We included covariates shown to be related to intention or contraceptive use (sociodemographics, pregnancy history, health conditions, and health care utilization).
RESULTS: The women included in this analysis were mostly White (92%), married/living with a partner (77%), with at least one previous pregnancy (71%). Most women desired no future pregnancies (54%), while 9% desired pregnancy in the next year and 37% desired pregnancy some other time in the future. Among women not desiring pregnancy in the next year, 71% reported using birth control, with 56% using more effective contraceptive methods and 44% using more effective contraceptive methods at both time points. Women desiring future pregnancy, not married, and seeing a generalist only were less likely to be using more effective contraceptive methods at baseline. Use of more effective contraceptive methods at both time points was more likely among the youngest women (18–24 vs. 35–34, adjusted OR 2.12, 95% CI 1.09–4.11) and less likely among women desiring future pregnancy (compared with desiring no future pregnancies, adjusted OR 0.54, 95% CI 0.33–0.89), not married (adjusted OR 0.49, 95% CI

0.31–0.79), becoming pregnant in the 2-year follow-up interval (adjusted OR 0.29, 95% CI 0.15–0.53), seeing a generalist only (compared with having a gynecologist with or without a generalist, adjusted OR 0.60, 95% CI 0.40–0.92), and hypertensive women (adjusted OR 0.57, 95% CI 0.33–0.99). In the 2-year follow-up interval 137 women became pregnant. Desiring pregnancy in the next year (adjusted OR 26.36, 95% CI 12.38–56.12) and desiring pregnancy some other time in the future (adjusted OR 4.01, 95% CI 2.18–7.40) were highly predictive of pregnancy occurring in the 2-year interval, as were younger age, Black race, being married, previous pregnancy, and not being obese.
CONCLUSIONS: This study prospectively characterizes childbearing intentions among non-pregnant women. Childbearing intention was associated with contraceptive use and pregnancy occurrence, suggesting that intention is predictive at the population level, but not necessarily at the individual level. Further work on how women develop intentions for childbearing and how those intentions affect pregnancy avoidance and pregnancy planning behaviors will be the subject of future investigation.

PREDICTORS FOR TREATMENT OF WOMEN DIAGNOSED WITH OSTEOPOROSIS OR OSTEOPENIA E.S. Meadows[1]; B.D. Mitchell[1]; S. Bolge[2]; N.F. Col[3]; J.A. Johnston[1]. [1]Eli Lilly and Company, Indianapolis, IN; [2]Consumer Health Sciences, Montgomery Township, NJ; [3]Maine Medical Center, Portland, ME. *(Tracking ID # 190561)*

BACKGROUND: Despite the availability of effective treatments, few women with low bone mass receive medications to prevent new fractures. We sought to understand the factors that predict receipt or non-receipt of osteoporosis treatment.
METHODS: Subjects included women (at least 40 years) who self-reported a physician diagnosis of osteoporosis or osteopenia in the Internet-based 2007 National Health and Wellness Survey. The prescription treatment group (Rx) had received treatment for osteoporosis, including either bisphosphonates, raloxifene, calcitonin, estrogen (+/- progestin), or teriparatide (a parathyroid hormone analog). The control group (No Rx) included women diagnosed with osteoporosis or osteopenia but without prescription treatment. Logistic regression was used to predict Rx using 34 patient characteristics as covariates. A primary focus was to assess how well the risk factors identified in the World Health Organization's new fracture risk assessment algorithm predicted treatment.
RESULTS: There were 20,720 female respondents age 40+ and 3,276 (16%) reported a history of osteoporosis (11%) or osteopenia (5%). Of these 1,800 (55%) were currently receiving Rx for osteoporosis. Women with osteoporosis, compared to those with osteopenia, were twice as likely to receive treatment. For the other variables included in the model, the following increased the odds of receiving treatment for osteoporosis: receiving a bone mineral density test, higher SF-12 physical summary score, being postmenopausal, higher current prescription count, having Medicaid, spending a higher percentage of monthly income on all Rx treatments, visiting a rheumatologist or gynecologist, and having 1 or 2 outpatient visits in the past 6 months (compared to 0 outpatient visits). The following additional model variables decreased the odds of receiving treatment for osteoporosis: income <$35,000/ year (compared to $100,000+), greater comorbid burden, osteoarthritis, and anxiety.
CONCLUSIONS: Some risk factors for fracture (e.g. multiple prior fractures, family history, low BMI) increase the odds of a patient receiving osteoporosis treatment. Other risk factors (e.g. age, glucocorticoid use, smoking) are not associated with receiving treatment. Low income, poor overall health status and having specific comorbitities such osteoarthritis and anxiety appear to decrease the likelihood of receiving treatment.

World Health Organization Fracture Risk Assessment Predictors

Characteristic	Rx	No Rx	Odds Ratio (95% Confidence Interval)
Age (mean years)	65.2	63.3	1.00 (0.99, 1.02)
One prior fracture	16%	15%	1.02 (0.83, 1.27)
Multiple prior fractures	17%	11%	1.50* (1.19, 1.89)
Glucocorticoid use	6%	6%	0.83 (0.60, 1.17)
Body mass index (mean)	27.5	28.7	0.98* (0.97, 0.99)
Currently smoke	12%	16%	0.85 (0.70, 1.04)
Family history of osteoporosis	52%	49%	1.21* (1.04, 1.41)

PREDICTORS OF COMPREHENSION OF CONSENT AMONG ENGLISH AND SPANISH SPEAKING COLPOSCOPY PATIENTS J.N. Tatum[1]; S. Shaykevich[2]; S. Lipsitz[2]; L. Lehmann[3]. [1]Harvard University, Boston, MA; [2]Brigham and Women's Hospital, Boston, MA; [3]Harvard University, Newton, MA. *(Tracking ID # 190478)*

BACKGROUND: The quality of informed consent has been assessed among research participants, but equal attention has not been given to assessing the quality of informed consent among patients undergoing clinical procedures. Valid informed consent necessitates understanding of the risks, benefits, and alternatives to a procedure. Patients with limited English proficiency may be at increased risk for having diminished understanding of clinical procedures.
METHODS: Between June and August 2007, English and Spanish-speaking patients undergoing colposcopy at two Boston hospitals were surveyed to assess their understanding of the purpose, risks and benefits of the procedure. Patient demographic information was collected.
RESULTS: 183 women consented to participate in the study, and we obtained complete data on 111 English-speaking women and 38 Spanish-speaking women. English-speakers were more likely to have a higher education, greater household income, and private insurance. Overall, patients correctly answered an average of 7.91 (± 2.16) questions out of 11 on the colposcopy survey. English-speaking women answered more questions correctly than Spanish-speaking women (8.50±1.92 versus 6.21±1.93; P<0.001). However, after using linear regression to adjust for confounding variables including age, years in the United States, education, and insurance, we found that language was not significantly associated with greater understanding (P=0.46). Rather, education was a predictor of increased comprehension of informed consent (P<0.001).
CONCLUSIONS: On average, women correctly answered only 72% of the questions, demonstrating that most women undergoing colposcopy do not completely understand the procedure. Education, not language, predicted patients' understanding of colposcopy. These results demonstrate the need for greater attention to patients' educational background to ensure adequte understanding of clinical information.

PREDICTORS OF DISCLOSURE OF HOSPITAL ADVERSE EVENTS AND ITS IMPACT ON PATIENT'S QUALITY RATINGS. L. Lopez[1]; A.P. Cohen[2]; E.C. Schneider[2]; S.N. Weingart[3]; A.M. Epstein[2]; J. Weissman[1]. [1]Massachusetts General Hospital, Boston, MA; [2]Harvard School of Public Health, Boston, MA; [3]Dana-Farber Cancer Institute, Boston, MA. *(Tracking ID # 190700)*

BACKGROUND: Some clinicians may fear that disclosing adverse events (AEs) to patients will result in malpractice claims and undermine patients' perceptions of healthcare quality. However, little is known about hospital and patient characteristics associated with disclosure of hospital adverse events and the effect of disclosure on patients' ratings of the quality of care during the hospitalization. We hypothesized that greater disclosure would be associated with higher ratings of quality of care.
METHODS: A two-stage probability sample of adult medical and surgical acute care patients in Massachusetts hospitals between April 1 and October 1, 2003, were interviewed by telephone to identify the occurrence of adverse events. Respondents who indicated that they had suffered an AE were asked first whether the event was disclosed or more specifically 1)whether the patient was told of the AE by hospital personnel or 2) whether the hospital made a special effort to help the patient handle the effects of the event. Respondents who indicated that disclosure occurred, were then asked if anyone from the hospital explained why the event occurred, and if the patient felt that things could be done differently in the future. All patients were also asked to rate their perception of the attention and quality of the care they received. The unit of analysis was the AE, and analyses accounted for clustering at the patient level. Binary logistic regression models were used to identify predictors of disclosure and ordinal logistic regression was used to identify factors associated with patient ratings of quality.
RESULTS: Overall, 603 patients reported 845 AEs. 39.9% of adverse events were disclosed. 62% of preventable events were disclosed. AEs that increased length of stay (OR 1.82, [1.13–2.93]) or that affected male patients (OR 1.53, [1.03–2.26]) were more likely to be disclosed while preventable events were less likely to be disclosed (OR 0.65, [0.46–0.93]). In adjusted analyses, patients were more likely to rate quality of

care higher when the patient received an explanation of the cause of the AE (OR 1.96, [1.27–3.01]) and if the patient felt able to protect himself from AEs (OR 2.01, [1.21–3.35]). Quality ratings were lower among Latinos (OR 0.37, [0.14–0.95]) compared to Whites, when the patient endorsed the feeling that things could be done differently in the future (OR 0.61, [0.41–0.91]) among patients with significant discomfort (OR 0.62, [0.45–0.87]) and among those who continued to experience the effect of the AE (OR 0.61, [0.41–0.92]). AEs associated with tests and procedures (OR 0.48, [0.24–0.97]) and medicines given during the hospitalization (OR 0.46, [0.27–0.79]) were also associated with a lower quality rating.
CONCLUSIONS: Disclosure of adverse events by medical personnel remains uncommon relative to the frequency of adverse events, especially for preventable events. Disclosure of adverse events and an explanation of the cause of the events are both associated with patients rating their care more highly. Hospital personnel should encourage disclosure of adverse events to patients.

PREDICTORS OF FAVORABLE ALCOHOL CONSUMPTION PATTERNS IN HIV-INFECTED PATIENTS WITH ALCOHOL PROBLEMS N. Bertholet[1]; D. Cheng[1]; J.H. Samet[1]; R. Saitz[1]. [1]Boston University, Boston, MA. *(Tracking ID # 189934)*

BACKGROUND: Alcohol use is common in HIV-infected patients and drinking risky amounts has negative clinical consequences. Understanding patterns of consumption and predictors of favorable patterns could inform efforts to mitigate its harmful use in this population.
METHODS: We analyzed two prospective cohorts, HIV-LIVE (Longitudinal Interrelationships of Viruses and Ethanol) and HIV-ALC (Alcohol Longitudinal Cohort) of HIV-infected patients with current or past alcohol problems enrolled between 1997 and 2003 with follow-up every 6 months. Subjects were eligible if they had 2 or more positive CAGE questionnaire responses or a lifetime diagnosis of alcohol abuse or dependence. This analysis included subjects who attended an initial interview and at least 2 follow-up visits; 30-day consumption was assessed at each visit. They were classified according to their pattern of use over time with respect to NIAAA drinking limits (>14 drinks/wk or >4 drinks/occasion for men, >7 drinks/wk or >3 drinks/occasion for women and men aged >65 years). Favorable drinking pattern was defined as no at-risk drinking amounts at each study visit or decreased drinking over time (from at-risk to not at-risk). All other patterns were defined as unfavorable (i.e. consistently at-risk drinking amounts or any observed increased drinking over safe limits over time). Logistic regression models were used to determine predictors of a favorable pattern.
RESULTS: Of 595 subjects, 423 completed at least 2 follow-up visits and comprised the study sample. The mean age in the sample was 41.5, 76% were male and 70% had a lifetime diagnosis of alcohol dependence. Of the sample 49% had a favorable pattern with 8% decreasing consumption over time and 41% consistently drinking below at-risk limits at every assessment (of the 41% consistently below limits, most (70%) were abstinent at each assessment). Of the 51% with an unfavorable pattern, 5% drank at-risk amounts at each assessment, 1% increased and 46% both decreased and increased consumption over limits. While statistically significant in unadjusted models, the effects of older age (adjusted odds ratio [AOR] 1.01 (95%CI:0.97–1.05) per 1 year increase), attending AA meeting (past 6 months) [AOR 1.83(95% CI:0.95–3.5)], and using marijuana (past year) [AOR 0.59 (95%CI:0.31 – 1.14)] were not associated with a favorable pattern in adjusted models. Being female was associated with a favorable pattern [AOR 2.13 (95% CI:1.07- 4.23)]. Ethnicity, physical and mental health related quality of life, heroin use and cocaine use, and homelessness were not significant (p>=.05) in unadjusted or adjusted models.
CONCLUSIONS: Half of HIV-infected patients with alcohol problems had favorable drinking patterns over time, but half did not. Women may have more favorable patterns, but there were no other significant predictors of drinking patterns over time. Although larger studies might identify individual predictors, these results suggest that in order to identify persistent at-risk drinking among HIV-infected patients with a history of alcohol problems, repeated assessments of alcohol consumption for all such patients is necessary during their longitudinal care. Alcohol use does change and thus its use among HIV-infected persons should be viewed as a "state" rather than a "trait".

PREDICTORS OF HOSPITAL READMISSION AFTER ACUTE PULMONARY EMBOLISM D. Aujesky[1]; M.K. Mor[2]; M. Geng[2]; M.J. Fine[2]; S.A. Ibrahim[2]. [1]University of Lausanne, Lausanne,; [2]VA Pittsburgh Health Care System and the University of Pittsburgh, Pittsburgh, PA. *(Tracking ID # 189993)*

BACKGROUND: Risk factors for short-term mortality after pulmonary embolism (PE) have been examined in many studies. However, which factors are associated with early readmission following PE is less known. We sought to identify causes and predictors of readmission within 30 days following presentation for acute PE.
METHODS: Our sample consisted of patient discharges with a primary diagnosis of PE from 186 acute care hospitals in Pennsylvania between 01/01/2000 and 11/30/2002. We used discrete survival analysis to study the association between readmission within 30 days of presentation for acute PE and demographic factors, comorbid diseases, vital signs, laboratory variables, receipt of thrombolytic therapy, and hospital characteristics (region, teaching status, and number of beds). Backwards-stepwise selection was used to identify significant predictors of readmission (p<.05).
RESULTS: Among 14,426 discharges with PE, 2064 (14.3%) patients were readmitted within 30 days of presentation for PE. Recurrent venous thromboembolism (453 [22%]) and major bleeding (104 [5%]) were common causes of readmission. In multivariable analysis, black patients (odds ratio [OR] 1.19, 95% confidence interval [CI]: 1.03–1.39), those with Medicaid (OR 1.51, 95% CI: 1.28–1.78), those who were discharged home with supplemental care (OR 1.38, 95% CI: 1.25–1.51), and those who left the hospital against medical advice (OR 2.69, 95% CI: 1.71–4.24) were more likely to be readmitted. Similarly, the odds of readmission were higher among patients with cancer (OR 1.71, 95% CI: 1.55–1.89), heart failure (OR 1.22, 95% CI: 1.09–1.38), and chronic lung diseases (OR 1.31, 95% CI: 1.18–1.46). Patients from North Central (OR 0.72, 95% CI: 0.57–0.92) and South Central Pennsylvania hospitals (OR 0.74, 95% CI: 0.61–0.89) were less likely to be readmitted compared to those from other regions of the state.
CONCLUSIONS: In this state-wide sample, we found several patient and hospital factors that were independently associated with readmission after acute PE. A substantial proportion of patients was readmitted because of recurrent venous thromboembolism or major bleeding, potentially indicating a suboptimal anticoagulation-related quality of care. Further studies are needed to explore whether differential readmission rates are related to differences in quality of care.

PREDICTORS OF MEDICATION ADHERENCE AND FINGERSTICK MONITORING AMONG INNER-CITY DIABETICS: THE ROLE OF HEALTH BELIEFS AND SELF-EFFICACY D.M. Mann[1]; D. Ponieman[1]; M. Vilchez[1]; H. Leventhal[2]; E.A. Halm[1]. [1]Mount Sinai School of Medicine, New York, NY; [2]Rutgers University, New Brunswick, NJ. *(Tracking ID # 190203)*

BACKGROUND: Despite the critical role of drug therapy and chronic disease management in diabetes, high rates of poor adherence have been well documented. The purpose of this study was to identify health beliefs associated with poor medication adherence and regular blood glucose fingerstick monitoring in inner-city minority diabetics.
METHODS: A cohort of diabetics was assembled from an urban general internal medicine clinic in Harlem, NY. Patients were interviewed in English or Spanish about: disease beliefs (Brief-Illness Perception Questionnaire [Brief-IPQ]), medication beliefs, regimen complexity, diabetes knowledge, depression (PHQ-9), physical activity, self-management, blood glucose self-monitoring (fingerstick monitoring) and medication adherence (Morisky scale). Logistic regression identified univariate and multivariate predictors of poor medication adherence (Morisky>1) and regular fingerstick monitoring (once/day).
RESULTS: The patients (n=151) were: mean age 57 years, 68% female, 51% with < high school education, 89% with <$30,000 annual income, 64% US born, 65% native English speaking, 57% Hispanic, 66% Black, and 90% with government provided health insurance. The sample medical history included: 80% hypertension, 61% high cholesterol, 17% history of a heart attack, 7% congestive heart failure, 43% depression, and 23% anxiety. Patients had diabetes for a mean of 13 years with an average HgA1C of 7.6. One-in-four were poor adherers (28%). Over half (56%) believed high sugar started at 200 mg/dL, 12% believed they have diabetes only when their sugar was high, and 23% thought they didn't

need medicines when sugars were normal. More than a third (36%) weren't sure they would always have diabetes, 29% reported that diabetes interfered with their social life all of the time, 34% reported no confidence in their ability to control their diabetes, and 40% were very worried about diabetes medication side-effects. Univariate predictors of poor adherence included (p<.05 for all): disease beliefs (consequences, personal control, identity from Brief-IPQ), belief that you only have diabetes when sugar is high, and diabetes interferes with social life, medication beliefs (don't need medicines when sugar normal/low, concerns about side-effects/addiction, difficulty taking medicines), low confidence for controlling diabetes, and depressive symptoms. Univariate predictors of poor adherence with fingerstick monitoring included: concerns about drug side-effects, low confidence in ability to control diabetes and difficulty taking medicines. In multivariate analyses, predictors of poor medication adherence were: believing you only have diabetes when sugars are high (OR=7.4; CI 2–27.2), lack of confidence in controlling diabetes (2.8; 1.1–7.1), the belief that you do not need meds when sugar is normal (3.5, 0.9–13.7), feeling medicines are hard to take (14.0; 4.4–44.6), and worrying about side-effects (3.3; 1.3–8.7). Lack of confidence in the ability to control their diabetes was the only multivariate predictor of insufficient fingerstick monitoring behavior.
CONCLUSIONS: Disease and medication beliefs inconsistent with a chronic disease model of diabetes were significant predictors of poor medication adherence. Low confidence in the ability to control diabetes was a strong predictor of poor medication adherence and fingerstick monitoring adherence. Interventions to improve adherence need to target these suboptimal health beliefs and bolster self-efficacy for controlling diabetes.

PREDICTORS OF PROSTATE CANCER STAGE AT PRESENTATION USING OPTIMAL DISCRIMINANT ANALYSIS A.M. Arozullah[1]; H.S. Gordon[1]; P.R. Yarnold[2]; R. Soltysik[1]; M. Ferreira[2]; M.S. Wolf[2]; R.E. Molokie[1]; N. Bhoopalam[3]; C.L. Bennett[2]. [1]Jesse Brown VA Medical Center and University of Illinois at Chicago, Chicago, IL; [2]Northwestern University, Chicago, IL; [3]Hines VA Medical Center and Loyola University, Chicago, IL. *(Tracking ID # 190581)*

BACKGROUND: Prostate cancer is a leading cause of cancer-associated mortality among all men in the United States. Previous studies have found that African-American males have higher mortality rates for prostate cancer as compared to Caucasians. Nearly half of this racial disparity in mortality can be explained by the disproportionately higher incidence of advanced stage prostate cancer among African-Americans. Therefore, exploring factors that may contribute to advanced stage at presentation may provide targets for interventions to address racial disparity in prostate cancer mortality. The purpose of this study was to determine socio-demographic, health behavior, and health status contributions to the rate of advanced stage prostate cancer.
METHODS: Patients diagnosed with prostate cancer within the prior six months were enrolled at Jesse Brown and Hines Veterans Affairs Medical Centers through the outpatient oncology and general medicine clinics. Individuals with dementia, blindness or severely impaired vision, deafness or uncorrectable hearing problems, and/or being too ill to participate were excluded. Each patient was interviewed to assess socio-demographics, health literacy, social support, health status, employment history, health risk behavior, prior cancer screening, health service access and utilization, trust, and satisfaction. Cancer stage at presentation was determined by medical and pathology record reviews. We used optimal discriminant analysis to minimize misclassification and to assess the relationship between potential predictors and cancer stage at presentation (stage 4 versus stages 1–3). To determine the independent relationship among predictors we used multivariate classification tree analysis with multivariate optimal discriminant analysis.
RESULTS: We enrolled 389 patients, of whom 6.9% presented with stage 4 prostate cancers. There were no significant racial differences in the rate of stage 4 presentation. Factors associated with stage 4 presentation included lower self-reported health responsibility (10.5% vs. 3.2%, p<.017), fair or poor health status (13.7% vs. 4.8%, p<.012), lower self-efficacy (18.7% vs. 5.4%, p<.046), and lower exercise (11.8% vs. 4.2%, p<.019). Multivariate optimal discriminant analysis determined predictors of stage 4 presentation. Among patients without a primary care provider, lower self-efficacy and cancer detection outside of routine screening were associated with stage 4 at presentation. Among patients with a primary care provider, those with lower self-reported exercise habits and higher health literacy were significantly more likely to present with stage 4 disease. Race was not a significant predictor of stage 4 presentation in multivariate analysis.
CONCLUSIONS: Co-morbid conditions and health status, rather than socio-demographics, appear to be associated with prostate cancer stage at presentation. Specifically, higher Charlson score and worse self-reported health status predicted stage 4 presentation. Focusing efforts to improve prostate cancer screening among patients with co-morbid conditions and worse health status may reduce the rate of stage 4 prostate cancers.

PRE-EXISTING DIABETES AND EFFECTS ON MORTALITY IN PATIENTS DIAGNOSED WITH CANCER B.B. Barone[1]; J. Yeh[1]; K.S. Peairs[1]; C.F. Snyder[1]; K.B. Stein[1]; R.L. Derr[1]; A.C. Wolff[1]; F.L. Brancati[1]. [1]Johns Hopkins University, Baltimore, MD. *(Tracking ID # 190125)*

BACKGROUND: Although diabetes is a well established risk factor for mortality in the general population, its effects in patients with cancer are uncertain. Therefore, we conducted a systematic review and meta-analysis of the effects of pre-existing diabetes mellitus on all-cause mortality in patients with a new diagnosis of cancer.
METHODS: We searched MEDLINE and EMBASE from inception to August 2007. Studies were included if they met all of the following criteria: 1) reported all-cause mortality or overall survival in cancer patients with and without diabetes mellitus, 2) had >3 months of follow-up, 3) adjusted for age and cancer stage at diagnosis, and 4) reported both a risk estimate and a precision measure (i.e.. p-value, 95%CI, or standard error). Titles, abstracts, and articles were reviewed independently by two authors. Conflicts were settled by consensus or third review. Abstracted data included presence or absence of diabetes mellitus at baseline, duration of follow-up, all-cause mortality and survival, adjustment variables, and study quality. Potential sources of heterogeneity between studies were assessed using Q statistics. Publication bias was evaluated using both the Begg's funnel plot and the Egger plot. Pooled hazard ratio (HR) was calculated using the DerSimonian-Laird method for a random-effects model due to a high degree of between-study heterogeneity (Q=64.451 on 16 df, p<0.001).
RESULTS: Out of 6943 titles and 213 articles reviewed, we identified 16 studies that satisfied our inclusion criteria. After pooling, the total sample size was 122,906 patients with cancer, 12% of whom had pre-existing diabetes. Three studies included all types of cancer, 4 studies evaluated colorectal cancer, 3 studies evaluated each endometrial and hepatocellular cancer, 2 studies evaluated breast cancer, and a single study evaluated pancreatic cancer. Median follow-up time was 3.2 years. Cancer patients with comorbid diabetes had greater all-cause mortality compared to normoglycemic cancer patients with a pooled HR=1.41 (95%CI 1.30 to 1.52; p<0.001). Funnel plots did not identify significant publication bias and quality was moderate-to-high.
CONCLUSIONS: In cancer patients, pre-existing diabetes mellitus is associated with a 41% increase in all-cause mortality. Diabetes deserves greater attention in cancer patients. Future research should investigate physiologic pathways to mortality risk and determine whether improvements in diabetes care can reduce mortality.

PRELIMINARY RESULTS FROM A STUDY OF TELEPHONE CARE COORDINATION FOR SMOKING CESSATION S.E. Sherman[1]; S. Cummins[2]; J. Finney[3]; P. Kalra[4]; W. Kuschner[5]; L. York[6]; S. Zhu[2]. [1]VA New York Harbor Healthcare System, New York, NY; [2]UCSD, La Jolla, CA; [3]Stanford University, Menlo Park, CA; [4]VA Palo Alto Healthcare System, Palo Alto, CA; [5]Stanford University, Stanford, CA; [6]VA Greater Los Angeles Healthcare System, Sepulveda, CA. *(Tracking ID # 190911)*

BACKGROUND: Telephone counseling is effective but seldom used within health care. Patients rarely follow through with referrals to telephone programs. We evaluated the effectiveness of four approaches to telephone care coordination for smoking cessation.
METHODS: These data are preliminary results from 12 Los Angeles sites participating in TeleQuit, a 60-site Veterans Health Administration (VA) group randomized trial of telephone care coordination. Providers were responsible for initial brief smoking cessation counseling and for

referring smokers to TeleQuit through two additional clicks in the electronic medical record. All patients enrolling in TeleQuit received medications and self-help materials. We randomly assigned referral weeks to different approaches to patient contact–either proactive (we called the patient) or reactive (we mailed materials and waited for the patient to call). In addition, we randomly assigned sites to either multi-session counseling from the California Smokers' Helpline (quitline) or self-help materials only. At 12–18 months, we called all referred patients to assess self-reported smoking status.
RESULTS: Over 8-months, we received 1,326 referrals. Follow-up was pending for 154 subjects, 153 had moved and 44 died prior to evaluation. Of the remaining subjects, we were able to evaluate 706 (63%). Compared to reactive contact, proactive contact patients were more likely to enroll in the program (68% vs. 27%, OR 5.5, 95% CI 3.9–7.7). Among patients assigned to the quitline, abstinence rates were higher for patients enrolled in TeleQuit than for those not enrolled (27% vs. 15%, OR 2.1, 95% CI 1.2–3.5). Among patients assigned to self-help, TeleQuit enrollment status made no difference (19% vs. 23%, OR 0.8, 95% CI 0.4–1.4). At evaluation, 153 subjects were abstinent (22%), and abstinence rates were comparable across groups–proactive self-help, 19%; proactive quitline, 23%; reactive self-help, 24%; reactive quitline, 21%.
CONCLUSIONS: Proactive contact dramatically increases participation in cessation services. Long-term abstinence rates were excellent in all four groups, although this preliminary analysis did not have the power to compare abstinence rates between group. Telephone care coordination is a very promising approach to help smokers quit.

PREVALENCE AND SCREENING METHODS FOR DEPRESSION IN CHRONIC HEART FAILURE PATIENTS IN THE HISPANIC POPULATION
M.S. Mcdonnell[1]; A. Macabasco- O' Connell[2]; S. Meymandi[2]; T. Finnegan[3]. [1]University of California, Los Angeles, Woodland Hills, CA; [2]University of California, Los Angeles - San Fernando Valley Program, Sylmar, CA; [3]University of California, Los Angeles - San Fernando Valley Program, Sylmar,. *(Tracking ID # 190398)*

BACKGROUND: There is a well documented association between chronic heart failure and depression, and ample evidence to indicate that patients with both illnesses have a much poorer prognosis than those possessing either alone. Yet, this relationship has yet to be explored within the Hispanic community. Given the current and future anticipated growth of this segment of the American population, it is a topic likely to have a growing impact on our healthcare system. The identification of effective screening tools would likely improve outcomes and decrease the economic burden these diseases pose.
METHODS: 91 patients were enrolled through the Olive View-UCLA Medical Center Clinical Management Disease Management Program (DMP), with the objective of improving the monitoring and treatment of chronic heart failure. Each patient underwent a thorough initial screening evaluation, which included among other parameters: baseline ejection fraction, NYHA functional class, Framingham 10-yr risk of cardiovascular events, and The Kansas City Cardiomyopathy Questionnaire (KCCQ), which is designed to address both symptoms and quality of life issues related to heart failure. In addition, all patients were asked two depression screening questions. If the patient responded yes to either, they were asked to complete the patient health questionnaire (PHQ9), which is a validated depression screening tool.
RESULTS: 47 patients were identified as Hispanic (52%), and 60% (n= 28) answered yes to one or both of the depression screening questions. According to the scoring criteria of the PHQ9, 18% of the Hispanic group possessed symptoms but may not require treatment for depression, 39% possessed symptoms that would likely benefit from treatment, and 43% warranted treatment (compared to the non-Hispanic subset with an prevalence of 6%, 61%, and 33% respectively). The overall prevalence of depression in the non-Hispanic group was 41% (n=18). In both groups, there was no correlation found between depression and ejection fraction, NYHA functional class, or the Framingham 10-yr risk of cardiovascular events. A significant correlation was found (p=0.002) between depression and the KCCQ (in both the Hispanic and non-Hispanic groups). Hispanics with the most severe depression tended to be younger (mean age of 50 vs. 57 in non-depressed Hispanics) as well as more educated (mean 10.11 years vs. 8.77 in the non-depressed).
CONCLUSIONS: Depression is common in Hispanics who suffer from heart failure, with 60% approaching the upper limit of reportable prevalence in the non-Hispanic population. Given the recent growth of the Hispanic community, the economic burden these diseases impose upon the healthcare system, and the poor prognosis that accompanies this dual diagnosis, better outcomes may result from incorporating depression screening and management into the standard treatment protocol of chronic heart failure.

PREVALENCE OF ALCOHOL MISUSE IN PATIENTS UNDERGOING COMMON SURGERIES IN VA
L.A. Beste[1]; H. Sun[1]; C. Maynard[1]; M.J. Bishop[2]; W. Henderson[3]; T. Schifftner[3]; G. Hughes[2]; J. Todd-Sternberg[1]; D.R. Kivlahan[2]; E. Hawkins[1]; A. Harris[4]; A. Debenedetti[1]; K. Bradley[1]. [1]Health Services Research and Development Center of Excellence, VA Puget Sound Health Care System, Seattle, WA; [2]University of Washington, Seattle, WA; [3]National Surgical Quality Improvement Program, VA Fitzimmons, Aurora, CO; [4]VA Palo Alto, Palo Alto, CA. *(Tracking ID # 190304)*

BACKGROUND: Alcohol misuse by surgical patients, particularly severe alcohol misuse (>4 drinks daily), is associated with a 2–4 fold increased risk of post-operative complications. Randomized controlled trials have shown that 30 days of pre-operative alcohol abstinence can decrease post-operative complications in patients with severe alcohol misuse. However, little is known about the prevalence of alcohol misuse or severe alcohol misuse among surgical patients in the US. We examined the prevalence of alcohol misuse and severe alcohol misuse in men and women undergoing the most common major surgeries in the Veterans Affairs (VA) health care system.
METHODS: This cross-sectional study included 10,644 men and 630 women who underwent major surgeries eligible for review by VA's National Surgical Quality Improvement Program (NSQIP) in 2004–2006. Alcohol misuse was assessed with the validated AUDIT-C alcohol screening questionnaire in the year prior to surgery. AUDIT-C was completed as part of the VA Survey of Health Experiences of Patients (SHEP), which is sent each month to a random sample of outpatients with a recent appointment (response rate >70%). AUDIT-C scores range from 0–12 and scores $\geq$4 in men or $\geq$3 in women are considered positive screens for alcohol misuse. AUDIT-C scores of 8–12, associated with drinking >4 drinks daily, is considered a positive screen for severe alcohol misuse. In men, the prevalence of positive screens for alcohol misuse and severe alcohol misuse were evaluated across 30 common surgeries (n=8,103) and surgeries for head and neck cancers (n=118).
RESULTS: Male surgery patients were generally older (mean age 64.1 vs. 53.4 years) and more likely to be married (64.5% vs. 48%) than female patients. Nevertheless, the prevalence of alcohol misuse was higher in men than women (23.8% vs 15.9%), and the difference was even greater for severe alcohol misuse (6.1% vs 2.0%). Over 3 out of 10 male patients undergoing vascular bypass surgery, open AAA repair, and open lung surgery screened positive for alcohol misuse (35.1%, 34.2%, and 30.7% respectively), and about a third of these screened positive for severe alcohol misuse (prevalence of 10.6%, 11.4%, and 10.7% respectively). The prevalence of alcohol misuse and severe alcohol misuse was particularly high among male patients undergoing oropharyngeal tumor resection (39.7% and 19.0%), laryngeal tumor resection (30.4% and 8.7%), and neck dissection (40.5% and 21.6%).
CONCLUSIONS: Many surgical patients drink at levels associated with preventable post-operative complications, particularly those undergoing vascular, pulmonary, and head and neck procedures. The rate of severe alcohol misuse is three times higher in men compared to women. Pre-operative alcohol screening would provide general internists an opportunity to address alcohol misuse before surgery, and to identify patients at risk for alcohol-related post-operative complications.

PREVALENCE OF ANXIETY IN PATIENTS WITH CHRONIC NON-MALIGNANT PAIN IN A GENERAL INTERNAL MEDICINE PRACTICE
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BACKGROUND: Chronic pain is frequently accompanied by depression, but the prevalence of anxiety disorders has been less well studied in primary care patients with chronic pain. Observational data suggest that mental illness and psychosocial factors are more powerful predictors of adverse health outcomes than the intensity or duration

of pain, and that management of psychiatric co-morbidity is integral to improving pain outcomes. We undertook to measure the prevalence of anxiety symptoms in a population of patients with chronic pain enrolled in a chronic pain disease management program within an academic internal medicine practice.
METHODS: All patients in the general internal medicine pain service were eligible to participate. Patients were enrolled at regular follow-up visits and completed the GAD-7, a previously validated case finding instrument for anxiety disorders, the PHQ-9 for depression, and the Brief Pain Inventory. A GAD-7 score of 8 or above was taken to indicate the presence of significant anxiety symptoms, and a PHQ-9 score of 10 or above was taken to indicate the presence of major depression. Descriptive statistics were performed.
RESULTS: One hundred and twenty patients were enrolled from August 28, 2007 to November 21, 2007. Three additional patients were approached but declined to participate. The mean age was 56.9 years, 33% were male, 82% were white, and 17% were African-American. Pain generators included axial skeletal pain in 58 (48%) patients, including 47 (39%) with lumbar pain, appendicular joint pain in 22(18%), with knee pain in 11 (9%), diffuse neuropathic pain in 10 (8%), and diffuse pain syndromes (fibromyalgia, CRPS) in 6 (5%). Other pain generators accounted for 24 (20%) patients. The average GAD-7 score was 9.4 and 55% had anxiety. 37% of patients had both anxiety and depression, and 24% had either anxiety or depression, meaning that 61% of patients had active mood symptoms. An additional 13% of all patients had a GAD-7 <8 and were being treated for anxiety. Of those being treated for anxiety, 78% were receiving an SSRI/SNRI, 63% of those were also receiving buspirone. 8% of patients being treated for anxiety received buspirone alone, and 24% received a benzodiazepine, alone or in combination. The prevalence of major depression was 44%. An additional 22% of all patients had a PHQ-9 <10 at time of study and were under treatment for depression. Of those being treated for depression, 87% were receiving an SSRI/SNRI. Of those with anxiety, only 48% were being treated prior to GAD-7 administration, while 77% of those with major depression were under treatment. There was a strong correlation between GAD-7 and PHQ-9 scores, r=.75, and a weaker correlation between PHQ-9 and average pain scores, r=.38 and GAD-7 and average pain scores, r=.22.
CONCLUSIONS: In this cross-sectional study, anxiety and depression were common. Comprehensive interventions for patients with chronic pain should account for both conditions, and both should be assessed and treated as part of multi-modal therapy for chronic pain.

PREVALENCE OF CARDIOVASCULAR RISK FACTORS AND ACCULTURATION IN VIETNAMESE AMERICANS L.H. Le[1]; H. Nguyen[2]; A. Ozonoff[3]; L. Henault[4]; J. Crosson[5]; E.M. Hylek[6]. [1]Department of Medicine, Hospital Medicine Section, Dartmouth Medical School, Dartmouth Hitchcock Medical Center, White River Junction, VT; [2]Boston University School of Medicine, Boston, MA; [3]Department of Biostatistics, Boston University School of Public Health, Boston, MA; [4]Department of Medicine, Section of General Internal Medicine, Boston University School of Medicine, Boston, MA; [5]Department of Medicine, Section of General Internal Medicine, Boston University School of Medicine, Boston Medical Center, Dorchester, MA; [6]Department of Medicine, Section of General Internal Medicine, Boston University School of Medicine, Boston Medical Center, Boston, MA. *(Tracking ID # 190526)*

BACKGROUND: Vietnamese individuals have a higher prevalence of HTN and smoking. In addition, resettlement in the U.S. exposes them to the pressures of adopting a "Westernized" lifestyle, presumably more sedentary and less healthy. Their higher baseline risk coupled with Western acculturation may place Vietnamese Americans at unacceptably high risk for cardiovascular (CV) disease. There is a paucity of data on the prevalence of CV risk factors among Vietnamese Americans and their perceived changes in health status and health behaviors since moving to the U.S.
METHODS: Vietnamese patients 35 years or older with a primary care visit between January 1, 2004 through January 1, 2006 were eligible to participate. Consented patients were interviewed by telephone in Vietnamese about their health status, diet, exercise as well as quality of life in the U.S. compared to Vietnam. Calls were placed at varied times of day to maximize participation. Prevalence of CV risk factors (coronary artery disease, HTN, hypercholesterolemia, and diabetes) was determined by chart review of consented patients.
RESULTS: Of 159 patients reachable by phone, 141 (89%) agreed to participate. The mean age was 51 years and 64% were female. Length of residence in the U.S. varied: 47% had lived here between 5 and 10 years, 14.8% between 11 and 15 years, and 22% longer than 15 years. The mean age of emigration was 41. The majority of patients had government subsidized health care coverage (51.8% Medicaid, 20.6% Free Care, 6.4% Medicare). Overall, 54.6% of patients think their health is worse now compared to Vietnam: 73.8% gained weight since arrival, 63% are less active, 48.9% watch more TV, 73% walk less, 53% exercise less, and 58% find living here more stressful. Sources of stress most often cited were high cost of living, jobs, and family issues. Once in the U.S., only 19% eat a Vietnamese diet entirely, 76.6% eat more Vietnamese food than "American food", and only 2.8% eat a Westernized diet. Overall, 41.8% reported eating less in the U.S. Physician encounters in Vietnam were fewer (79% only saw doctors when ill, 13% never saw a doctor) than in the U.S. ***(95% see a doctor at least once a year). Only 9.8% of patients who reported ever being seen by a doctor in Vietnam had a diagnosis of HTN, 8.2% had hypercholesterolemia, and no one was diagnosed with diabetes. The prevalence of HTN and diabetes among our study participants in comparison to white and black adults living in Boston is shown in the Table (Boston Public Health Commission-2005). Most patients (86.5%) think it is easier to stay healthy in the U.S., citing better access to health care, medicines, food, and overall better living conditions.***
CONCLUSIONS: Vietnamese Americans report worse health, more stress, less physical activity, and more weight gain in the U.S. compared to Vietnam. Despite the weight gain, about half think they consume less food here. Once resettled in the U.S., Vietnamese are at higher risk for developing cardiovascular disease, evident by the higher prevalence of hypertension, diabetes, and hypercholesterolemia. Since the majority of Vietnamese Americans are able to access the health care system, there are tremendous opportunities for patient education as well as interventions targeting this vulnerable population upon their arrival in the U.S.

Comparison of CV Risk Amongst White, Black, and Vietnamese Americans

CV Risk Factors	White	Black	Vietnamese
HTN	17.3%	29.8%	35%
Diabetes	5.0%	12.7%	14%
Hypercholesterolemia	–	–	51%

PREVALENCE OF NINE COMMON MEDICAL DECISIONS IN THE UNITED STATES: RESULTS FROM THE DECISIONS SURVEY B.J. Zikmund-Fisher[1]; M.P. Couper[2]; E. Singer[2]; C.A. Levin[3]; F.J. Fowler[3]; S. Ziniel[2]; P.A. Ubel[1]; A. Fagerlin[1]. [1]Ann Arbor VAMC & University of Michigan, Ann Arbor, MI; [2]University of Michigan, Ann Arbor, MI; [3]Foundation for Informed Medical Decision Making, Boston, MA. *(Tracking ID # 189475)*

BACKGROUND: While many studies have catalogued the prevalence of medical tests, procedures, and medication usage, no national data exist to permit comparative analysis of how frequently patients consider, discuss, and subsequently make the medical decisions related to these actions. The National Survey of Medical Decisions (the DECISIONS survey) is the first to systematically assess the prevalence of multiple common medical decisions using a consistent survey methodology and nationally representative sample.
METHODS: We conducted a computer assisted random digit dial telephone interview survey of a nationally representative sample of English-speaking U.S. adults age 40 and older regarding medical decisions. A medical decision was defined as the patient having initiated medications, been screened, or had surgery within the past two years or having discussed these actions with a health care provider during the same interval. Interview questions focused on nine common decisions regarding: a) initiation of prescription medications for hypertension, hypercholesterolemia, or depression, b) screening tests for colorectal, breast, or prostate cancer, and c) surgeries for knee or hip replacement, cataracts, or lower back pain. We estimated how frequently U.S. adults make each of these decisions, how frequently each type of decision resulted in patient action, and whether demographic and health care access variables were associated with the number of decisions faced.

RESULTS: Based on 3010 completed interviews (which corresponded to an 86.5% cooperation rate and a 51.6% AAPOR RR4 response rate), 82.2% (95% CI: 80.4%, 83.8%) of the target population made at least one decision in the preceding 2 years, and 56.0% (95% CI: 53.9%, 58.2%) made two or more. Examining the three categories of decisions, 71.9% (95% CI: 69.8%, 73.8%) of respondents discussed at least one cancer screening test, 42.9% (95% CI: 40.8%, 45.1%) considered initiating at least one of the medications, and 16.3% (95% CI: 14.8%, 17.8%) discussed one or more of the surgical interventions in the past two years. We observed significant variation in the proportion of decisions that resulted in an action being completed during the same 2-year interval. This ratio varied both across types of decisions (medications vs. screening vs. surgery: F=174.66, p<0.001), but also within each decision category. For example, discussions about high blood pressure medications were significantly more likely to result in medication initiation than discussions of either cholesterol or depression medications (76% vs. 55% vs. 48%: F=39.05, p<0.001). Respondents reported making more decisions if they had a primary care provider (IRR=2.07; p<0.001) or had poorer health status (IRR=1.06, p <0.001) and fewer decisions if they had lower educational attainment (IRR=0.91, p=0.006), were male (IRR=0.86, p<0.001), or were under age 50 (IRR=0.74, p<0.001).
CONCLUSIONS: Medical decisions that have significant life-saving, quality of life, and cost implications are a pervasive part of life for most U.S. adults over age 40. Yet the DECISIONS survey results underestimate the full extent of patient engagement in medical decision making efforts, since this study did not measure many other decisions, such as those related to the management of diabetes, cardiovascular procedures, or cancer treatments. The true extent of patient decision making must be both broader and more intensive than these estimates.

PREVALENCE OF VITAMIN D DEFICIENCY IN ADULTS WITH SICKLE CELL DISEASE M. Goodman[1]; N.L. Artz[2]; I.A. Chen[1]. [1]Eastern Virginia Medical School, Norfolk, VA; [2]University of Chicago, Chicago, IL. *(Tracking ID # 190061)*

BACKGROUND: Vitamin D deficiency is common (~30%) in the general adult population, and has been linked to musculoskeletal pathology including risk for fracture and widespread pain. It is largely believed that pain in sickle cell disease is a result of bone or joint infarctions; however, it is plausible that part of this chronic musculoskeletal pain and disability is due to vitamin D deficiency. While chronic musculoskeletal pain in sickle cell disease is treated palliatively, vitamin D deficiency may represent a reversible etiology and target for preventive therapy. We sought to determine the prevalence of vitamin D deficiency in adults with sickle cell disease.
METHODS: We measured 25-hydroxvitamin D levels in all adults with sickle cell disease presenting to two university-based, sickle cell disease management programs. We excluded patients with creatinine above 1.6 or sickle cell trait. Linear regression was performed to evaluate any possible predictors of vitamin D level.
RESULTS: Overall, 142 patients were evaluated (84 patients from Eastern Virginia Medical School(EVMS), 58 patients from University of Chicago(UC)). Patients were predominantly female (59%), with a mean age of 33 (16–63). Overall, 67% of patients had SS disease, and the rest had SC disease (17%), or sickle-thalassemia (16%). Hydroxyurea use was present in 38%. Mean vitamin D levels were 9.0 ng/ml and 12.8 ng/ml at EVMS and UC respectively (desirable being >30 ng/ml). Using recommended thresholds, we classified patients as severely deficient (<10 ng/ml), insufficient (<16 ng/ml), and suboptimal (<30 ng/ml). Almost all patients (139/142, or 98%) had suboptimal levels, and a majority of patients (85/142, or 60%) were classified as severely deficient (<10 ng/ml). There was no relationship of vitamin D level to age, sex, hydroxyurea use, renal function, type of sickle cell disease, study site, or date of lab draw in multivariate analysis.
CONCLUSIONS: Vitamin D deficiency is nearly ubiquitous in our patient population, with a majority of patients qualifying for severe deficiency (<10 ng/ml). These levels are diagnostic of nutritional deficiency, rickets, or osteomalacia. Factors leading to this increased risk might include inadequate dietary intake, African American race and the associated increase in epidermal melanin,and limited sunlight exposure (i.e. due to limited physical activity from chronic pain or concerns for dehydration). Although further studies are needed to evaluate the clinical effects of treating vitamin D deficiency, clinicians caring for patients with sickle cell disease should be aware of and screen for this important clinical state.

PREVIOUS INTERPERSONAL EXPERIENCES WITH MEDICAL CARE AND TRUST IN THE MEDICAL PROFESSION AMONG ADULTS WITH SICKLE CELL DISEASE C. Haywood[1]; S. Lanzkron[1]; N. Ratanawongsa[1]; S.M. Bediako[2]; L. Lattimer[1]; N.R. Powe[1]; M.C. Beach[1]. [1]Johns Hopkins University, Baltimore, MD; [2]University of Maryland Baltimore County, Baltimore, MD. *(Tracking ID # 189890)*

BACKGROUND: Trust in medical professionals has been associated with positive clinical outcomes. Negative past interpersonal experiences with medical care have been associated with lower patient trust. Adults with sickle cell disease (SCD) frequently report negative interpersonal experiences, but no studies have systematically examined trust among these patients. Our aim was to assess the association of the previous interpersonal experiences of adults with SCD with their trust in the medical profession.
METHODS: We conducted a cross-sectional study of adults with SCD recruited from a large urban hospital practice. We assessed our primary independent variable, previous interpersonal experiences, using two measures: (1) the 4-item general provider communication measure from the Consumer Assessment of Healthcare Providers and Systems survey (over the past 12 months, the extent to which healthcare providers listen carefully, explain things clearly, show respect, and spend enough time); and (2) one previously-validated item asking if respondents have ever had difficulty persuading medical staff about the intensity of their SCD pain. We assessed our main outcome, trust, using the Wake Forest Trust in the Medical Profession scale, which assesses patient agreement with 5 statements (doctors care more about what is convenient for them, doctors are thorough, you trust doctors' treatment decisions, doctors would never mislead, you trust doctors completely). We measured patient demographic, clinical, and attitudinal characteristics to identify and control for potential confounders. Scores on the trust and provider communication measures were transformed to 0–100 scales, with lower scores indicating lower trust and worse provider communication. For further analyses, we created a 3-level categorical variable based on the lower (worst communication), middle, and upper tertiles of the provider communication scores. We examined the association between previous interpersonal experiences and trust using t-tests, anovas, and multiple linear regression in bivariate and multivariate models.
RESULTS: Among 95 adults with SCD with median age of 31 years, most were female (59%), had SS disease (64%), had more than a high school education (52%), and had < 3 hospital visits/year (53%). The provider communication and trust measures demonstrated good internal consistency (Cronbach's alpha 0.90 and 0.80, respectively). The mean (SD) trust score was 53 (21.4) on a 0–100 scale. Most (65%) patients reported ever having difficulty persuading medical staff about their pain. In unadjusted analyses, trust increased with increasing provider communication rating (41 vs. 53 vs. 67, p<0.0001), and persons reporting having difficulty persuading medical staff about their pain had lower levels of trust than those reporting no such difficulty (47.2 vs. 64.7; p<0.0001). In multivariate models controlling for difficulty persuading staff about pain, increasing provider communication ratings remained associated with higher levels of trust (45 vs. 55 vs. 63, p<0.05). No association remained in the adjusted models between difficulty persuading staff about pain and trust.
CONCLUSIONS: Adult patients with SCD who have had lower quality interpersonal experiences in healthcare settings have lower trust in the medical profession. Whether negative past interpersonal experiences and poorer trust lead to worse clinical outcomes in this population is worthy of future study.

PRICED OUT OF THE SAFETY NET? DECLINING ACCESS TO HEALTH CARE AMONG BIRMINGHAM'S HOMELESS, 1995–2005 S.G. Kertesz[1]; S.W. Hwang[2]; F.J. Ritchey[3]; M. Lagory[3]. [1]Birmingham VAMC, U. Alabama at Birmingham, Birmingham, AL; [2]University of Toronto, Toronto, Ontario; [3]University of Alabama at Birmingham, Birmingham, AL. *(Tracking ID # 189674)*

BACKGROUND: In light of parallel federal policy initiatives targeting community health centers and homelessness, we examined changes in

access to health care among homeless persons in Birmingham, Alabama. We compared 2 representative community surveys (1995 & 2005) to examine whether the percentage unable to obtain care had changed, and whether individual characteristics or community factors could account for observed changes.
METHODS: Birmingham's homeless population was surveyed regarding health service experiences in 1995 (n=161) and 2005 (n=161). Contemporaneous citywide homeless counts guided sampling to assure proportionate representation of the population by race, gender and location. The outcome variable, Unmet Need for Care, was based on affirmation of having required health care while homeless but being unable to obtain it. Potential predictors of Unmet Need were devised in categories of Predisposing (age, race, incarceration and homeless history), Enabling (competing priorities, insurance, employment), and Need (physical symptom count, chronic medical or mental conditions, drinking and drug problems). In multivariable logistic regression applied to the combined sample (n=322), a term for Year (1995 vs 2005) served as a proxy for time-related changes in the local health care environment. We compared declared reasons for deferral of care in 1995 versus 2005, and interpreted these findings through discussion with providers and consumers.
RESULTS: From 1995 to 2005, the percentage of homeless people in Birmingham reporting an Unmet Need for Care rose from 32% in 1995 to 54% in 2005. Changes in Birmingham's homeless population parallelled national trends in rising median age (37 vs 42, p<.0001) and greater prevalence of diagnosed chronic medical illness (34% vs. 47%, p=.01). In adjusted analyses the only statistically independent predictors of Unmet Need were Year, Competing Priorities, and Physical Symptom Count (see Table). Being homeless in 2005 doubled the odds of an Unmet Need for Care, relative to 1995. Among persons with an Unmet Need (n=52 in 1995, 87 in 2005), rising percentages cited monetary/insurance (42% vs 67%, p=.005) and transportation (19% vs 41%) barriers in 1995 vs 2005. In community discussions, we noted increasingly stringent identification and referral requirements for receipt of free care and a decline in mobile outreach.
CONCLUSIONS: For homeless persons in Birmingham, changes in the local health care environment appear to have increased barriers to accessing healthcare over the past 10 years. In light of national data showing that safety net resources have not kept pace with the rise in demand for safety net services, similar challenges may affect homeless persons in other communities.

Predictors of Unmet Need for Care (N=322)

Characteristic	Adjusted Odds Ratio (95% CI)	P
Year (2005 vs 1995)	2.34 (1.37–4.00)	<.001
Phys Symptoms (+1, 0–23)	1.13 (1.05–1.21)	<.001
Competing Needs (+ 1, 0–8)	1.25 (1.11–1.41)	<.001
All other variables		p>.10

PRIMARY CARE PROVIDERS DESIRED ROLE AND COMFORT LEVEL IN MANAGING PATIENTS WITH CHRONIC KIDNEY DISEASE R.F. Charles[1]; N.R. Powe[1]; M.U. Troll[1]; L.E. Boulware[1]. [1]Johns Hopkins University, Baltimore, MD. *(Tracking ID # 190609)*

BACKGROUND: Although clinical practice guidelines recommend primary care physicians (PCPs) provide most care for patients with progressive chronic kidney disease (CKD) followed by collaborative care with nephrologists when CKD becomes severe, PCPs desired role and level of comfort with managing CKD has not been evaluated.
METHODS: In a 2005 national cross-sectional study of U.S. PCPs, we evaluated PCPs desired role and level of comfort in managing CKD. We randomly assigned PCPs to read one of four scenarios featuring a hypothetical patient with hypertension and progressing CKD. Scenarios varied on patient race (African American or White) and the presence or absence of diabetes. In a questionnaire, we asked PCPs to identify the glomerular filtration rate (GFR) at which they believed a PCP should refer the hypothetical patient to a nephrologist and their preferences regarding the intensity (continue to provide patient's care with nephrologist guidance or relinquish care to a nephrologist), and type (confirmation and help with evaluating patients' cause of kidney disease, nutrition, medications, predialysis care, and electrolyte replacement) of nephrologist guidance the PCP should receive. We also asked PCPs whether they had sufficient clinical and administrative resources to provide CKD care. We assessed comfort with managing CKD as present if PCPs did not recommend referral until kidney function was severe (GFR 30 ml/min/1.73 m2), as prescribed by the Kidney Disease Quality and Outcome Initiative practice guidelines. In multivariable models, we identified physician (specialty, practice setting, years in practice, percent clinical duties, and perceptions regarding clinical and administrative resources) and patient (race, presence of diabetes) characteristics independently associated with greater versus less comfort with CKD management.
RESULTS: Among the 178 PCPs (89 family physicians and 89 internists) 54% were assigned an African American patient and 58% a patient with diabetes. Most practiced greater than 10 years (53%), were in non-academic settings (82%), and had greater than 80% clinical time (85%). A minority felt they had sufficient administrative and clinical resources (46%). Most (85%) recommended referral to a nephrologist before patients developed severe kidney dysfunction (mean estimated GFR at referral: 57 ml/min/1.73 m2; interquartile range (IQR): 22–100). Most (85%) felt a PCP should continue to care for the hypothetical patient care after referral with nephrologist guidance and preferred the PCP receive assistance on confirming appropriateness of their clinical evaluation (96%), prescribed medications (94%) and nutritional advice (79%). PCPs in academic practices referred patients later than PCPs in non-academic practices (mean GFR (IQR) 48.2 ml/min/1.73 m2 (40–50) versus 58.2 ml/min/1.73 m2 (45–75), p=0.02). After adjustment, comfort was more common among physicians with (versus without) sufficient clinical and administrative resources (OR (95% CI): 2.5[1.01–5.26]).
CONCLUSIONS: Few PCPs feel comfortable waiting until CKD becomes severe before referring patients to nephrologists. Comfort is related to clinical practice setting and physicians' perceived needs for clinical and administrative support. Efforts to provide physicians with educational, clinical and administrative resources to support their care for patients with CKD could enhance their comfort and improve the quality of care for patients with CKD.

PRIMARY CARE SERVICES FOR SURVIVORS OF TORTURE: A QUALITATIVE STUDY OF PROVIDER ATTITUDES. G.A. Jae[1]; A. Rasmussen[2]; A.S. Keller[2]. [1]Mount Sinai Hospital, New York, NY; [2]New York University, New York, NY. *(Tracking ID # 190774)*

BACKGROUND: While specific client-centered needs of survivors of torture have been recognized in the medical literature, suboptimal utilization of primary health care services persists in this population. This study attempts to identify the medical service needs and potential healthcare systems-level barriers encountered by this population, as perceived by staff in a comprehensive care system for refugee survivors of torture.
METHODS: Qualitative study design was employed, and data was collected using semi-structured interviews. Key informants were recruited from a single center providing specialized multidisciplinary care for survivors of torture living in an urban setting. Interviews were audiotaped, transcribed, and subjected to thematic analysis.
RESULTS: Staff members who provided primary care services were eligible to participate. Thematic saturation was attained with 11 interview participants, who included physicians, administrative staff, legal and social service providers, and translators. Interview themes included providers' perception of clients' primary care needs, appropriateness of resource allocation (e.g., staffing and skills training), integration of medical services with psychological, legal, educational, and social services, and predictors of service utilization. Thematic analysis identified a staff perception that clients were generally younger and physically healthier than "typical" internal medicine patients, but by contrast experienced significantly greater psychological distress. Providers also perceived high rates of acceptance of medical and psychological interventions among clients, including medications, diagnostic testing, and specialist referrals. Elicited themes also addressed questions of insufficient resource allocation, such as physician staffing, particularly as they pertained to tensions between the provision of direct care services and the generation of forensic documentation for clients' legal proceedings. Barriers to access to care were largely identified as systemic rather than specific to particular client characteristics.

CONCLUSIONS: While refugee survivors of torture have been characterized in the medical literature for their specialized medical and psychological health care needs, our study identified system based barriers to health care utilization more closely linked to the availability of referral services, rather than particular client characteristics. Our findings challenge the common perception that clients' cultural background and other characteristics tend to preclude compliance with medical and psychological interventions. Future studies should carefully evaluate these systems barriers to deliver effective healthcare for these unique population.

PRIMARY CARE UTILIZATION BY VETERANS WITH MENTAL ILLNESS
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BACKGROUND: Psychiatric illness has been associated with increased morbidity and mortality from chronic medical conditions. The question of whether patients with psychiatric disorders have decreased access to primary care medical services remains unanswered.
METHODS: Data from all patients who used VA health services nationally in fiscal year 2000 (n=3,647,334); and the subset of veterans who participated in the 1999 Large Health Survey of Veteran Enrollees (LHS) (n=559,985) were linked to VA administrative data in order to identify veterans who received primary care services. After adjusting for sociodemographic and clinical characteristics, including medical comorbidity, logistic regression was used to evaluate whether specific psychiatric diagnoses were associated with an increased or decreased likelihood of any primary care visit.
RESULTS: In the multivariate analyses, patients with either a diagnosis of schizophrenia or a drug use disorder were 31–39% less likely to have had any primary care visit during the year of the study (odds ratios [OR, 95%CI] = 0.61 (0.60, 0.62) and 0.69 (0.68, 0.70) respectively) than other veterans. Multivariate analyses of number of visits among patients who had at least one primary care visit paralleled those of receipt of any visit.
CONCLUSIONS: This study suggests that patients diagnosed with schizophrenia or drug use disorders have decreased access to primary care services and receive fewer services than patients without these disorders. Interventions are needed to facilitate access of patients with serious mental illness to primary care services.

PRIMARY MEDICATION ADHERENCE IN PATIENTS RECEIVING ELECTRONIC PRESCRIPTIONS
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BACKGROUND: Patient non-adherence to prescribed drugs has been identified as a frequent problem. Without reliable measures of prescriptions written, however, true adherence rates cannot be accurately calculated. Electronic prescribing (e-prescribing) creates a record of all medications prescribed and, when combined with records of filled prescriptions, allows for the calculation of primary adherence rates.
METHODS: We obtained data on filled prescription claims from two insurance companies (Blue Cross Blue Shield of Massachusetts and Tufts Health Plan) and e-prescriptions written from one e-prescribing company (Zix Corporation) covering 12 months (April 2004 to March 2005). Data were provided with encrypted patient and physician identifiers, allowing us to link records across the datasets while maintaining confidentiality. We matched e-prescriptions written to prescriptions eventually filled by using patient ID and medication name and requiring that the prescription be filled on or after the date of e-prescribing. We calculated the rates at which prescriptions were filled during the study period and compared these rates across characteristics of prescriptions, physicians, and patients.
RESULTS: There were 200,139 e-prescriptions written during the study period. 152,134 (76.0%) of these prescriptions were eventually filled, indicating a primary non-adherence rate of 24.0%. Rates varied by major drug classes, with 79.1% adherence for lipid-lowering medications, 79.6% for antihypertensives, 77.3% for antidiabetics, 80.6% for asthma medications, 79.8% for antimicrobials, and 64.4% for pain medications. Rates of adherence were over 80% for prescriptions written by physicians in primary care specialties (internal medicine, pediatrics, family practice) and under 50% for prescriptions written by physicians in other specialties. Adherence rates were notably higher for pediatric patients than for all older groups and slightly higher for male patients than for female patients.
CONCLUSIONS: Primary medication non-adherence is common: almost one-quarter of e-prescriptions were not filled. Adherence rates were relatively similar across major medication classes – the lower adherence rate for pain medications may reflect the use of these medications for "as needed" indications or may be due to selection bias, since controlled medications require paper prescriptions. Prescriptions for children and prescriptions written by physicians in primary care specialties were filled at a strikingly higher rate compared to other groups. Our population is drawn from early adopters of e-prescribing, so the physicians and patients may be atypical, limiting the generalizability of these findings. Since we do not have data on the number of prescriptions written for patients who did not get e-prescriptions, we cannot extrapolate these findings to more general populations. Nonetheless, our ability to link e-prescribing data to filled claims allows us to measure primary non-adherence, which was not possible previously. As more physicians adopt e-prescribing, the methods we describe here can be used to understand the predictors of non-adherence and develop interventions encouraging patients to fill their prescriptions.

PROFESSIONAL CAREGIVERS PERCEPTIONS OF FALL RISK COMMUNICATION AND INTERVENTIONS TO PREVENT FALLS IN ACUTE CARE HOSPITALS
K. Mccolgan[1]; P. Dykes[2]; D. Carroll[3]; A.C. Hurley[1]; S.R. Lipsitz[1]; A. Benoit[2]; R. Tsurikova[1]; B. Middleton[1]. [1]Brigham and Women's Hospital, Boston, MA; [2]Partners HealthCare System, Inc, Wellesley, MA; [3]Massachusetts General Hospital, Boston, MA. *(Tracking ID # 190192)*

BACKGROUND: Patient falls in acute care settings are common occurrences, and the incidence of patient falls is employed as a standard metric of the quality of nursing care in hospitals. Most of the research conducted to date has focused on fall risk assessment, but less work has been done to link assessment to effective communication and targeted interventions. The purpose of this qualitative descriptive study was to investigate professional caregivers' perceptions of procedures and systems currently available and employed to prevent patients from falling and to identify perceived barriers and facilitators to fall prevention in hospitals.
METHODS: Four audio-taped focus group interviews were held with a total of 40 professionals in four acute care hospitals to collect qualitative data on perceptions of current fall prevention methods. Participants were identified by nursing leadership, recruited by flyers and e-mail, and provided informed consent. Interviews were transcribed verbatim, reviewed for transcription accuracy, masking of identifying characteristics and converted into NVivo for coding and analysis. Basic content analysis methods were used to interpret descriptive data and two-person consensus approach was employed for analysis. Participants included 23 staff nurses, 1 nurse practitioner, 3 physical therapists, 4 occupational therapists, 4 physicians, and 5 pharmacists. Participants were mostly female (90%) and white (92.5%) with an average age of 38 years and an average of 9.4 years experience at their respective hospitals.
RESULTS: All professionals reported using fall risk assessment scales, such as the Morse Fall Scale, "timed up and go test", and physical exams to detect mental status changes, gait disturbances and muscle weakness. In addition to formal evaluations, the majority of daily fall risk assessment was done through observation and subjective judgments. Participants reported that assessments should "become more objective" in order to be more comprehensible and usable across disciplines. The most common fall prevention interventions reported were fall risk signs and bracelets, environmental manipulation, and bed alarms. These interventions were limited by the fact that they were not tailored to individual patients' determinants of risk and specific needs. In addition, quality of assessment documentation varied greatly across disciplines and often within individual disciplines; e.g. "dependent on [how] the particular nurse filled [the assessment] out". Documentation of assessments and plans for intervention were not uniform, practical for all disciplines, or readily accessible at the point of care. Non-nurse

participants reported that they often did not have access to relevant information about fall risk and intervention plans unless nurses were available for verbal consultation. Participants identified the generic nature of the plan of care, the "siloized" patient record (both electronic and paper) and reliance on synchronous verbal exchange as barriers to fall risk communication and effectiveness of interventions.
CONCLUSIONS: By identifying current facilitators and barriers to fall risk communication and intervention, we aim to improve upon existing practices and create a more effective, multidisciplinary approach to preventing falls in hospitals. In order to effectively decrease occurrences of falls, interventions must be closely linked to risk assessment, tailored to individual patients' needs, and communicated effectively among various disciplines.

PROMOTE HEALTH FOR SENIORS: A COMPUTER-BASED HEALTH SCREENING AND EDUCATION KIOSK FOR OLDER ADULTS WITH DIABETES D.W. Scott[1]; K.V. Rhodes[2]; M.H. Chin[3]. [1]Southern Illinois University, Springfield, IL; [2]University of Pennsylvania, Philadelphia, PA; [3]University of Chicago, Chicago, IL. *(Tracking ID # 190484)*

BACKGROUND: Promote Health for Seniors (PHS) is a computer-based kiosk designed to screen for health-related issues relevant to seniors with diabetes and provide health education materials. We hypothesized: 1) seniors would be able to use PHS in the clinic and 2) use of this tool would lead to increased detection of common geriatric health issues. We also examined effects on patient-doctor communication and the acceptability of PHS to patients. This is the first study of its kind in older adults in the clinical setting.
METHODS: Seniors with diabetes were recruited from a primary-care geriatrics clinic located in South Chicago. Exclusion critirea were a MMSE <25 or low vision. Screening questions were based on the best available evidence or were developed by expert consensus. Prior to their appointment and after giving informed consent, subjects were directed to the PHS computer kiosk. After completion of the PHS encounter, they proceeded to their appointment. A structured interview was conducted after the physician visit; a follow-up phone interview was also conducted. Chart review was used to determine whether the health related issues identified by PHS had been previously documented. Inter-rater agreement was 88% overall, with a kappa =0.75.
RESULTS: 117 patients were eligible and contacted and 80 patients completed informed consent. The mean age was 75 years; 86% percent were African American; 76% were female; 34% had not completed high school; 45% completed college or more; 45% rated their health as poor; 67% had never or rarely used a computer; average time to completion was 14 minutes. Large numbers of participants screened positive for one or more of the queried health issues, and many of these health issues had not been previously documented. 64% responded that the PHS influenced them to start a health-related conversation with their doctor. Over 80% endorsed the acceptability and educational value of PHS.
CONCLUSIONS: This pilot study provides preliminary evidence for the following: 1) seniors with limited past computer experience can use PHS in the clinical setting, 2) the use of the PHS Computer Kiosk led to the increased detection of common health-related problems in seniors with diabetes in a geriatrics clinic and 3) use of PHS immediately prior to the physician visit may increase patient-physician communication around the health issues addressed by this system.

PHS: MAIN RESULTS (n=80)

Health Issue	Screened Positive by Computer	Not Previously Documented in Chart (% of screened pos.)
Advance Directives Needed	49 (61%)	34 (69%)
Chronic Pain	42 (53%)	24 (57%)
Urinary Incontinence	27 (34%)	18 (67%)
Falls	25 (31%)	12 (48%)
Depression	21 (26%)	7 (33%)
"Memory Problems"	17 (21%)	12 (71%)
Sexual Function	12 (15%)	0
Abuse/Neglect	11 (14%)	11 (100%)
Problem Drinking	1 (1%)	0

PROMOTING EFFECTIVE PRIMARY CARE PRACTICE: RESULTS FROM AN IN-DEPTH SURVEY OF GRADUATES OF A PRIMARY CARE RESIDENCY PROGRAM C. Gillespie[1]; R. Laponis[2]; N.R. Shah[1]; S. Zabar[1]; M. Anderson[1]; A.L. Kalet[1]; M. Lipkin[1]. [1]New York University, New York, NY; [2]University of California, Davis, Sacramento, CA. *(Tracking ID # 190717)*

BACKGROUND: Residency programs face tremendous challenges in preparing physicians for practice in the current complex health care environment. This study reports on the impact of one primary care residency program's efforts to teach and promote core primary care values and principles (humanism, importance of care for the underserved) in concert with an emphasis on skill development (communication and interpersonal skills, psychosocial medicine, evidence-based medicine) in its graduates over the 20 year history of the program.
METHODS: Impact was assessed through an in-depth, comprehensive survey of the 125 graduates of the program. Response rate was 86% (105 of 122 reachable graduates). Open-ended questions elicited respondents' experiences of the residency program and their perceptions of its impact, both immediate and long-term. Rating scales were used to assess graduates' evaluation of particular program elements, and their degree of job satisfaction and burn-out. Open-ended responses were coded to identify core, shared themes.
RESULTS: Reflecting the characteristics of program graduates, a slight majority of respondents were women (63%) and white (65% White; 28% Asian; 4% African American). Average age was 38.6 (SD 8.9) years. Almost all graduates went on to do work in primary care (87%; 90/105) and/or with the underserved (90%; 94/105). Residency impact was best described by the following emergent themes: values and principles (the program as a "soul-nourishing and sanity-restoring" community; its emphasis on a psychosocial orientation "expanded our view of medicine, our role in society, and the world at large"); responsibility ("a sense of intense ownership and responsibility for my patients that I don't often see among folks who trained elsewhere"); exposure to diversity ("being able to powerfully connect with people who were radically different from me on so many levels") and role models ("I had role models in terms of patient care and influencing society at large and they seemed to do it with a balance between professional and personal growth and development"); and skills developed ("The training in rapidly developing a therapeutic relationship with patients was possibly the most valuable training I received"; "My approach to medicine is patient-centered, evidence-based. My residency has everything to do with it"). Over 70% reported strongly enjoying their work and only 15% reported symptoms of being burnt out. Graduates directly connected their residency experiences with their daily practice and overall career satisfaction: "I use the knowledge and insight I gained about interpersonal skills, personality issues and psychiatric problems daily in clinical practice. They have made my work with patients more productive and richer and have helped me work with conflict and 'difficult' patients more effectively. They have probably helped me to avoid symptoms of burnout as I recognize my own frustration and can often step back from it, analyze what is happening, and take a new approach."
CONCLUSIONS: A residency program that fosters humanistic values and skills for leadership, education, and scholarship in care for the underserved using intensive learning blocks based in a learner-centered, task-oriented model appears to impart the values and principles, responsibilities, experiences, and skills needed to practice effectively in the challenging world of primary care.

PROSPECTIVE COHORT STUDY OF A POST-HOSPITAL DISCHARGE INTERVENTION IN CHRONICALLY ILL MEDICAID PATIENTS D.L. Kansagara[1]; R.S. Ramsay[2]; D. Labby[2]; S. Bricker[3]; S. Saha[1]. [1]Portland Veterans Affairs Medical Center, Portland, OR; [2]CareOregon, Portland, OR; [3]Texas Health and Human Services Commission, Austin, TX. *(Tracking ID # 190645)*

BACKGROUND: Recent studies suggest the inpatient to outpatient transition of care is a complicated and vulnerable period for patients with chronic illness. Interventions in which nurse case managers facilitate the transition of care by providing self-management education, medical resources, and care coordination have reduced recurrent hospitalizations and emergency room (ER) visits in geriatric HMO populations, but such interventions are resource intensive and may

be difficult to implement in Medicaid populations. In this prospective cohort pilot study, we sought to determine the feasibility and utility of a simple "brief touch" post-discharge telephone contact intervention in reducing hospital readmissions.
METHODS: Our study cohort consisted of members of a large Medicaid managed care organization over age 35 and with one or more chronic illnesses. Potential intervention patients were consecutively identified from the discharge records of five area hospitals between January and August of 2007. Trained medical assistants performed a brief telephone needs assessment within one week of discharge in which issues requiring near-term resolution, such as follow-up appointments, pharmacy access, transportation needs, and medical equipment needs, were identified and addressed immediately. Patients with more complicated care needs were identified according to a six-domain care needs framework and enrolled in more intensive case management. Control patients, discharged from one of four control area hospitals between January and August 2007, were identified through an administrative database and received usual care. We used a logistic regression model to evaluate the primary outcome of hospital readmission within 60 days of discharge from index hospitalization.
RESULTS: There were 97 intervention and 130 control patients. Intervention patients were slightly younger and a higher proportion were Caucasian. Sex and insurance eligibility category were similar between the two groups. The mean adjusted clinical groups (ACG) score – a measure of prior utilization and comorbidity burden - was significantly higher in the intervention than the control group (.49 vs.39, $p<0.01$). When assessed individually, ACG score and history of respiratory comorbidity were the covariates most closely associated with recurrent hospitalization, while neither age, race, nor discharge hospital was associated with odds of recurrent hospitalization. Fewer intervention patients compared to controls experienced a recurrent hospitalization within 60 days (23.7% vs 29.2%; unadjusted odds.75, 95% CI.41–1.37) The final logistic regression model - adjusted for age, race, ACG score, and respiratory comorbidity - found a nearly 40% lower odds of recurrent hospitalization in the intervention group compared to controls, though this relationship was not statistically significant (OR .61, 95% CI .30–1.21).
CONCLUSIONS: Our small prospective cohort study suggests a simple, "brief-touch" post-discharge telephone call is feasible, easily implemented, and may help reduce near-term hospital readmissions in a chronically ill Medicaid population. Larger randomized trials should evaluate the utility of a post-discharge care program in vulnerable populations with chronic illness.

PROVIDER COMMUNICATION CITED AS BARRIER TO ANTIVIRAL THERAPY FOR HEPATITIS C-INFECTED METHADONE USING PATIENTS S. Zickmund[1]; C. Tirado[2]; S. Campbell[3]; R. Weinrieb[4]. [1]University of Pittsburgh, Pittsburgh, PA; [2]University of Texas Southwestern, Dallas, TX; [3]University of Pennsylvania, Philadelphia, PA; [4]VA Philadelphia Medical Center, Philadelphia, PA. *(Tracking ID # 190782)*

BACKGROUND: With the increasing success of therapy for chronic hepatitis C, guidelines suggest individualized decisions that no longer exclude patients in Methadone Maintenance Treatment programs (MMT). Yet, current data suggest that enrollment into antiviral therapy remains low. We conducted an observational study designed to discover barriers to antiviral treatment for MMT. To accomplish this we used an MMT cohort from a randomized clinical trial that had been confirmed as candidates by the Gastroenterology Clinic and offered antiviral treatment.
METHODS: Our observational study recruited HCV-infected patients from the MMT clinic within the Veterans Administration Philadelphia Medical Center. All participants were part of a larger study designed to examine symptoms during antiviral treatment with and without anti-depressants (citalopram). Patients in this observational study provided demographic information and completed a semi-structured telephone interview on perceived barriers to initiating antiviral therapy. Using the Editing approach developed by Crabtree and Miller, a specific codebook was developed based on an initial iterative approach. Two blinded coders analyzed the audiotaped interviews using Atlas.ti software program.
RESULTS: Thirty MMT patients were initially enrolled into the parent randomized clinical trial. Twenty-three (77%) of those patients withdrew from the clinical trial before initiating antiviral treatment. For our observational study, 24 of the 30 patients could be reached, with 19 agreeing to participate. Fourteen in our observational study had withdrawn from the parent clinical trial and 5 had completed the antiviral trial. The total sample was 100% male, 47% married, 53% disabled/unemployed, and 32% African American. We coded for reasons to avoid treatment, with 56 reasons being cited by participants. First, personal barriers comprised 14% of the total and focused on substance use and social problems. Second, health choices comprised 30% and focused on avoiding the side effects of treatment. Finally, provider barriers comprised 54% of the total and focused on providers not stressing the importance of treatment, as well as their not providing sufficient medical information about the patients' need for treatment.
CONCLUSIONS: Our observational study shows that health care providers can function as a major barrier to antiviral therapy. Additional studies are needed to determine the attitude of health care providers toward treatment of hepatitis C and to develop interventions designed to improve patient enrollment.

PROVIDERS' PERCEPTIONS OF RELATIONSHIPS AND PROFESSIONAL ROLES WHEN CARING FOR PATIENTS WHO LEAVE THE HOSPITAL AGAINST MEDICAL ADVICE D.M. Windish[1]; N. Ratanawongsa[2]. [1]Yale University, New Haven, CT; [2]Johns Hopkins University, Baltimore, MD. *(Tracking ID # 189368)*

BACKGROUND: Patients who leave hospitals against medical advice (AMA) may be at increased risk for adverse health outcomes. Patients' desire to leave may not be clearly understood by providers. This study explores providers' experiences with and attitudes toward patients who leave AMA.
METHODS: We conducted interviews with university-based internal medicine residents and practicing internal medicine clinicians caring for patients at a community hospital from July 2006 to August 2007. We approached 34 providers within 3 days of discharging a patient AMA. The semi-structured interview elicited respondents' perceptions and feelings toward their patient as well as the care they provided. Using an editing analysis style, investigators independently coded transcripts, agreeing on the coding template and its application.
RESULTS: All 34 providers (100%) participated. Providers averaged 32.6 years of age, and 22 (61%) were men, 26 (74%) were housestaff from 3 residency programs, 8 (23%) were attending physicians, and 1 (3%) was a physician assistant. Four themes emerged: 1) patients' lack of insight about their medical conditions; 2) suboptimal communication, mistrust, and conflict; 3) providers' attempts to empathize with patients' concerns; and 4) providers' professional roles and obligations towards patients who leave AMA. Most providers (63%) felt that patients' decisions demonstrated a lack of insight, as one resident described: "I do not think that he had any real understanding of how sick he was. In his mind, what he was saying was true. He felt better, and there was no reason for him to stay there." The decision to leave AMA represented a culmination of miscommunication between providers and patients: "[The patient] actively disagreed when you suggested that anything else might be wrong." Some providers responded to these situations by empathizing with the patients' concerns: "I try to sit down, talk to them, and understand what their frustrations are to get to the core of why they want to leave AMA." Finally, these experiences led providers to reflect on their professional responsibilities towards their patients. One attending described the dilemma of balancing patient autonomy vs. concern for the patient's health: "It was a difficult, troubling situation because I acknowledge and believe in the importance of giving people determination over their own decision making." When asked what providers would do differently because of this experience, 21 participants (62%) mentioned ways to improve communication: "I would make more of an effort to help patients understand their condition, the implications of their condition, and the prognosis, and then allow them to make a decision on whether or not to leave the hospital." However, most providers (65%) also voiced a belief that did all they could for their patients, with 29% of providers expressing a sense of futility when convincing patients to stay: "Despite all of our efforts, there is no way to ensure 100% of the people are going to stay in the hospital."
CONCLUSIONS: Our study revealed that patients who leave AMA influence providers' perceptions of their patients' insight, quality of the patient-provider communication, empathy for patients, and professional roles and obligations. Future research should investigate educational interventions to optimize patient-centered communication and support providers in their decisional conflicts when these challenging patient-provider discussions occur.

PSYCHOLOGICAL STRESS AND THE METABOLIC SYNDROME IN PATIENTS WITH CORONARY HEART DISEASE: FINDINGS FROM THE HEART AND SOUL STUY B.E. Cohen[1]; P. Panguluri[1]; B. Na[1]; M.A. Whooley[1]. [1]University of California, San Francisco/ SF VA Medical Center, San Francisco, CA. *(Tracking ID # 189332)*

BACKGROUND: Psychological stress is a risk factor for the development of both diabetes mellitus and cardiovascular disease, but the reasons for these associations are unknown. We sought to determine whether psychological stress is associated with a greater prevalence of the metabolic syndrome in patients with coronary heart disease, and the extent to which such an association may be explained by socioeconomic and behavioral factors.
METHODS: To investigate the association between psychological stress and the metabolic syndrome, we conducted a cross-sectional study of 1024 outpatients with stable coronary heart disease. We administered 5 validated, standardized measures to evaluate depressive and anxiety symptoms, hostility, anger expression, and optimism-pessimism. The presence or absence of the metabolic syndrome was determined using the criteria outlined by the National Cholesterol Education Program, Adult Treatment Panel III. We used nested logistic multivariable regression models to examine the association between psychological stress scores and the metabolic syndrome, with serial adjustment for demographic variables (age, sex, race/ethnicity), socioeconomic status (income, education), potential behavioral mediators (physical activity, smoking, alcohol use, and body mass index), and potential biological mediators (fibrinogen, TNF-alpha, log IL-6, log C-reactive protein, and atypical antipsychotic use).
RESULTS: Greater depressive symptoms, anger expression, hostility, anxiety, and pessimism scores were all associated with an increased prevalence of the metabolic syndrome (Table). Adjustment for differences in socioeconomic status (Model 2) and health behaviors (Model 3) appeared to entirely explain this association. However, further adjustment for inflammatory markers and other biological mediators had little impact on these results.
CONCLUSIONS: Psychological distress was significantly associated with an increased prevalence of the metabolic syndrome. This association was largely explained by differences in socioeconomic status and health behaviors. Our results suggest that addressing socioeconomic disparities and targeting modifiable health behaviors in patients with psychological risk factors could reduce the burden of metabolic syndrome.

Association between measures of psychological stress and the metabolic syndrome (results are displayed as beta coefficients per standard deviation of psychological variable)

	Unadjusted	Model 1	Model 2	Model 3
Depression	0.031, p=0.007	0.023, p=0.06	0.016, p=0.19	0.003, p=0.84
Anger	0.038, p=0.05	0.031, p=0.11	0.033, p=0.10	0.026, p=0.24
Hostility	0.054, p=0.05	0.060, p=0.04	0.033, p=0.27	−0.014, p=0.69
Anxiety	0.029, p=0.07	0.012, p=0.48	0.009, p=0.62	0.014, p=0.47
Pessimism	0.049, p=0.002	0.044, p=0.007	0.031, p=0.07	0.005, p=0.81

QUALITY OF DIABETES CARE AT A STUDENT-RUN COMMUNITY HEALTH CLINIC: HOW DOES FREE CLINIC CARE COMPARE TO PUBLICLY AND PRIVATELY INSURED POPULATIONS? K.L. Ryskina[1]; Y.S. Meah[1]; M. Wong[1]; C. Mcclung[1]; A. Chow[1]; E.L. Smith[1]; P. Vasquez[1]; J. Lee[2]; D.C. Thomas[1]. [1]Mount Sinai School of Medicine, New York, NY; [2]St. Luke's Roosevelt Hospital, New York, NY. *(Tracking ID # 189359)*

BACKGROUND: Improved glucose control and preventive screening can greatly reduce the morbidity and mortality associated with diabetes. These approaches are especially challenging in community health clinics that care for highly vulnerable populations such as the uninsured. The East Harlem Health Outreach Partnership (EHHOP) is a medical student run, attending-supervised community health clinic that offers primary care to the uninsured of East Harlem, NYC. The aim of this study was to evaluate the quality of diabetes care at the EHHOP clinic.
METHODS: EHHOP clinic charts were reviewed to identify patients with diabetes. Diabetes management was assessed using indicators commonly used to evaluate Medicaid and commercial health plans as well as accepted practice guidelines. Data were abstracted using a standardized form developed for this study. Patients who visited the clinic only once were excluded.
RESULTS: Twenty-five patients with diabetes were included: 40% were female, 80% were Hispanic and 12% were Black. Mean age was 49± 12 years (range: 30–79). Co-morbid conditions included hypertension (48%), hyperlipidemia (48%), and depression (12%). Nearly half of patients had other serious co-morbid conditions (48%) and 16% had a history of alcohol or drug abuse. Diabetes care indicator rates together with comparative state and national averages are presented in the table below.
CONCLUSIONS: Despite inherent challenges in providing optimal care to the uninsured, diabetes care at this student-run health clinic was comparable or better than state and national averages in many areas. However, significant opportunities for improvement in diabetes management persist in all care settings. We plan to address our study findings by disseminating guidelines for optimal diabetic management among medical student volunteers and implementing practice improvements that facilitate a chronic care model for diabetes management.

Diabetes Care at EHHOP Community Clinic vs. Comparative Data

	EHHOP Clinic	New York Medicaid	National Medicaid	National Commercial Health Plans	New York Commercial Managed Care Plans
HbA1c monitoring	96%	85%	78.0%	87.5%	88%
HbA1c level: Poor>9.0	56%	37%	48.7%	29.6%	28%
HbA1c level: Good<7.0	32%	n/a	30.2%	41.8%	n/a
Lipid panel monitoring	76%	92%	71.1%	83.4%	94%
LDL-C <100 mg/dL	36%	38%	30.6%	43.0%	44%
Nephropathy monitoring	80%	56%	74.6%	79.7%	59%
Blood pressure <130/80	56%	n/a	30.4%	29.9%	n/a
Retinopathy screen	92%	56%	51.4%	54.7%	55%
Foot exams	88%	73.4%	n/a	n/a	73.4%
Aspirin prophylaxis	56%	48%	n/a	n/a	48%

QUALITY OF FEEDBACK TO STUDENTS DURING MEDICINE CLERKSHIPS: THE IMPACT OF GENDER K.T. Johnston[1]; J.D. Orlander[2]; A. Spires[3]; B. Manning[3]; W.Y. Hershman[4]. [1]Boston University Medical Center, Franklin, MA; [2]West Roxbury Veterans Affairs Administration Hospital, Boston, MA; [3]Boston University Medical Center, Boston, MA; [4]Boston University, Boston, MA. *(Tracking ID # 189832)*

BACKGROUND: Feedback on clinical performance is critical to medical student skill development. The effect, if any, of gender on feedback in medical education is not known. Using data collected during an intervention to improve formative feedback, we sought to quantitatively and qualitatively assess whether a medical student's gender, the observing physican's gender, or their gender concordance affected the content or quality of written, structured feedback given to students on clinical internal medicine rotations.
METHODS: We implemented an intervention with structured observation of clinical skills (SOCS) cards used to formatively assess medical students. One set of cards listed the elements of an ideal patient history. The other set outlined the physical examination. The reverse side of each card provided space to document observed behaviors done well and behaviors that could be improved. Several examples of each were offered

as guidance. Physicians were given instruction on the initiative and its goal of improving feedback quality. Students were encouraged to ask physicians observing them to complete the cards as an additional feedback opportunity during clinical rotations. Cards were submitted for review to assess the quality of feedback offered. All written comments were coded by two investigators. Categorical themes were explored through the constant comparisons method and reviewed through an iterative approach. Written comments were classified in several ways including identification of specific behaviors done well and advice for improvement. Categorical data were examined through bivariate analyses to examine differences in written feedback according to gender.
RESULTS: 40 students submitted 172 cards: 108 (63%) from female students, 60 (47%) from male students; 45 (26%) were completed by female observers and 80 (47%) by male observers. Academic rank of physician observers included 70 (41%) residents and 99 (57%) attending-level physicians. No significant differences in specificity of written feedback were found by gender of the physician-evaluator. Female students were less likely to receive written advice (75% vs. 90% of male students, p= 0.02). Students were less likely to have written comments advising any improvement when gender was concordant (75% vs. 90% when discordant, p=0.03). When improvements were called for by a gender-concordant observer, cards were less likely to specify the type of improvement needed as either technical, such as "practice percussion," (64% vs. 82%, p=0.02) or interpersonal skills, such as "improve rapport," (4% vs. 18%, p=0.01).
CONCLUSIONS: This is the first study to examine gender differences in written feedback provided to students through multiple, brief, structured observations of clinical skills and specifically our institution's SOCS card intervention. In our initial sample, female students were less likely to receive recommendations for skill improvement. When comments were documented in gender concordant pairs, fewer recommendations for advice were found. It is unclear how gender may mediate the effect of recommending advice and guiding formative assessment. Female students were more often in a discordant pair potentially biasing the results in this small sample. Further data need to be collected to determine confidence in the gender affect on the quality of feedback and if true, may impact guidance and training of evaluators.

QUALITY OF STUDIES SUBMITTED TO THE 2008 JGIM MEDICAL EDUCATION SUPPLEMENT D.A. Reed[1]; T.J. Beckman[1]; S. Wright[2]; R. Levine[2]; D.E. Kern[2]; D.A. Cook[1]. [1]Mayo Foundation for Medical Education and Research, Rochester, MN; [2]Johns Hopkins University, Baltimore, MD. *(Tracking ID # 190881)*

BACKGROUND: Deficiencies in the quality of medical education research are widely acknowledged. We aim to describe the quality of studies submitted to the 2008 Journal of General Internal Medicine (JGIM) medical education supplement and to compare the quality of accepted and rejected studies.
METHODS: We conducted a cross sectional study of the quality of original, quantitative research studies submitted for publication in JGIM's 2008 medical education supplement. The Medical Education Research Study Quality Instrument (MERSQI) was used to assess study quality. The MERSQI contains 10 items and uses an ordinal scale ranging from 5 to 18. We have previously demonstrated content validity, internal structure, interrater and intrarater reliability, and criterion validity evidence for MERSQI scores. Submitted studies were blinded and then independently scored by investigators not involved with JGIM editorial decisions. We used logistic regression to examine associations between MERSQI scores and publication decisions.
RESULTS: A total of 130 studies were submitted to the 2008 JGIM medical education supplement. Thirty-one studies were excluded (16 qualitative, 14 not original research, 1 author declined to include manuscript) leaving 99 studies for analysis. The mean (SD) MERSQI score of studies was 9.6 (2.6), range 5–15.5. Eighty-six percent of studies used single group cross-sectional or pre-post designs. Most studies (56%) reported satisfaction or opinion outcomes while a minority reported knowledge or skills (32%), behavior (7%), or patient related outcomes (5%). Just 36% of studies reported validity evidence for evaluation instruments and only 21% were multi-institutional. Interrater reliability of MERSQI scores was excellent (intraclass correlation coefficient 0.96, 95%CI 0.95–0.97). Higher MERSQI scores were associated with initial editorial decisions to send manuscripts for peer review vs. reject without review (OR 1.31, 95%CI 1.07–1.61) and to invite revisions after review vs. reject after review (OR 1.28, 95%CI 1.05–1.57). Among 67 manuscripts for which final publication decisions were available, MERSQI scores predicted final acceptance vs. rejection (OR 1.41, 95%CI 1.03–1.95).
CONCLUSIONS: The majority of articles submitted to the 2008 JGIM medical education supplement were single institution studies using cross-sectional designs and reporting satisfaction or opinion outcomes. Our results provide predictive validity evidence for MERSQI scores and a measure of the quality of medical education research, which education researchers and journal editors may use to gauge the quality of submitted and published education scholarship.

QUANTIFYING QUALITY IN INTERN INPATIENT PROGRESS NOTES —NOT SO EASY H. Whelan[1]; K. Hochman[1]; M.D. Schwartz[2]; M.J. Radford[2]. [1]NYU, New York, NY; [2]New York University, New York, NY. *(Tracking ID # 190835)*

BACKGROUND: In the majority of internal medicine residency programs, intern progress notes are the mainstay of written inpatient communication regarding patient care and clinical reasoning. Despite the crucial role these notes play, there is no agreement on what constitutes appropriate content, nor is there a means of assessing the adequacy of these notes in promoting safe, high quality patient care. As a first step in developing a means to evaluate notes in a standardized way, we created a scoring tool for inpatient progress notes and applied this tool to residents' notes.
METHODS: We chose to focus on three common inpatient diagnoses: congestive heart failure, gastrointestinal bleed and pneumonia. Three internal medicine faculty developed the scoring tools in an iterative fashion based on what they believed constituted appropriate content for a progress note in the aforementioned diagnoses. These standards were then compared to actual progress notes to further refine the scoring tools. Ten de-identified inpatient progress notes were randomly chosen for each diagnosis, and four raters independently scored them. Notes were scored in the following manner. First, global scores were given for overall quality, legibility, completeness and clinical reasoning. A combined summary score using all the global scores was then calculated. Individual items in the note were scored in a dichotomous fashion, as either present or not. Items such as differential diagnoses and workups were scored in a scaled manner. Inter-rater agreement and reliability was then calculated using a Pearson's correlation coefficient and an intra-class correlation coefficient.
RESULTS: Overall, agreement and reliability of abstract items such as the quality of documentation of clinical reasoning and workup were lower than scores for more concrete items (e.g., presence or absence of documentation of a lab value). Global scores based on an overall impression had somewhat greater agreement and reliability than the quantified scores for abstract items such as clinical reasoning (data below). See table below
CONCLUSIONS: Assessment of patient care notes utilizing an objective scoring tool shows that concrete item scores are more reliably and consistently rated than more subjective parts of the notes, though it had been hoped that the use of an objective tool would increase the consistency of note-scoring. There are several reasons why this might be. First, our guidelines may not have been specific enough. Second, a global impression may be more accurate for abstract concepts such as clinical reasoning than ?. Finally, raters may have required more training than was provided to consistently apply the note-scoring tool. Despite these barriers, finding a standardized way to evaluate the quality of progress notes remains an important goal to improve patient care and outcomes as well as providing a potential tool for assessing and improving trainee physicians' clinical reasoning and documentation skills.

COMBINED SCORES FOR CHF, GI BLEED AND PNEUMONIA INTERN INPATIENT PROGRESS NOTES

Category	Mean Correlation Coefficient	Range of Correlations	Intraclass Correlation Coefficient
Global	.66	.42-.91	.36
Completeness	.60	.14-.83	.25
Clinical Reasoning	.51	−.98-.87	.15
Global Total	.62	.41-.73	.19

RACE AND NICOTINE REPLACEMENT THERAPY TREATMENT OUTCOMES AMONG LOW INCOME SMOKERS S.S. Fu[1]; D.J. Burgess[1]; D. Hatsukami[2]; S. Noorbaloochi[1]; B. Clothier[1]; S. Nugent[1]; M. Van Ryn[2]. [1]Minneapolis VA Medical Center, Minneapolis, MN; [2]University of Minnesota, Minneapolis, MN. *(Tracking ID # 190471)*

BACKGROUND: Prior research suggests that racial minority smokers experience more difficulty with cessation than White smokers, and access formal treatment less often. There has been speculation that treatment may yield different results in minority smokers. To date, there is very little data about the efficacy of guideline recommended pharmacologic treatments for smoking cessation among racial minority populations. None of the 192 studies available for meta-analysis in the 2000 Public Heath Service tobacco cessation clinical practice guidelines reported smoking abstinence rates by racial status. The purpose of this prospective, observational cohort study was to compare long-term cessation outcomes among four racial groups after an aided quit attempt using nicotine replacement therapy (NRT).
METHODS: Stratified on race, a random cohort of smokers (N=1782) who recently filled a prescription for an NRT product using Minnesota HealthCare Programs (e.g., Medicaid) pharmacy claims databases between July, 2005 through September, 2006, was identified. Smoking abstinence outcomes were assessed using a mixed-mode survey protocol (mailed, self-administered survey plus telephone follow-up) approximately 8 months after the NRT index prescription fill date. The primary outcome measure was self-reported 7-day point prevalence smoking abstinence. As a secondary measure, self-reported 30-day duration of smoking abstinence was assessed. In unadjusted analyses, due to relatively small smoking abstinence rates, the ratio of rates was used as the comparative measure rather than the differences of proportions. To estimate the independent effect of race adjusting for potential confounders, multivariate logistic regression was conducted that included in the models all covariates that were not balanced between the race groups and all observed predictors of abstinence at a significance level of 0.05.
RESULTS: The overall survey response rate was 58.2% (95% CI 56.0%, 60.5%) with 788 respondents for the mailed survey and 250 respondents for the phone survey. Among valid survey respondents (n=1019), 341 were White, 304 were Black, 291 were American Indian/Alaskan Native and 83 were Asian. Smoking abstinence outcomes did not significantly vary by race. At about 8 months of follow-up, 7-day point prevalence abstinence rates among survey respondents were 13.8% among Whites, 13.6% among Blacks, 14.1% among American Indians/Alaskan Natives and 20.7% among Asians (p=0.42). Similarly, the 30-day duration of smoking abstinence rates were 10.0% among Whites, 11.5% among Blacks, 8.9% among American Indians/Alaskan Natives, and 18.3% among Asians (p=0.14). In logistic regression analysis race had no overall effect on 7-day point prevalence abstinence (Wald chi-square = 1.23, df=3, p=0.75) or on 30-day duration of smoking abstinence (chi-square = 6.18, df=3, p=.10). Also, there was no evidence that the odds ratio for each of the non-White groups compared to Whites was significantly different from one.
CONCLUSIONS: These findings indicate that racial minorities are equally likely to quit smoking as Whites when using smoking cessation treatment including NRT. Given documented racial disparities in use of evidence-based cessation treatments such as NRT, interventions are needed to improve access and utilization of these treatments in low-income minority groups.

RACE IS A RISK FACTOR FOR DEVELOPING POST-SURGICAL C. DIFFICILE INFECTION W. Southern[1]; R. Rahmani[1]; L. Brandt[1]. [1]Montefiore Medical Center, Bronx, NY. *(Tracking ID # 190443)*

BACKGROUND: Mortality rates from C. difficile-associated disease (CDAD) are increasing, with age-adjusted mortality rates highest among whites. However, it is unclear if this represents true racial differences or different exposures to known risk factors for CDAD, such as antimicrobial use or prolonged hospitalization. This analysis examined race/ethnicity as an independent risk factor for post-surgical CDAD.
METHODS: Using Montefiore Medical Center's administrative dataset we evaluated all in-patients in 2006–07 who had undergone abdominal surgery (defined as surgery involving the stomach, small bowel, colon, appendix, anorectum, gallbladder and biliary tract, pancreas, hernia repair, or "non-otherwise specified abdominal" surgery.) The cohort was divided into 4 racial/ethnic groups: white, black, Hispanic and "other/unknown". We used logistic regression to determine if the association between race/ethnicity and CDAD persisted after adjusting for known risk factors for CDAD.
RESULTS: The sample of 2333 patients was 64.5% female, had a mean age of 56.6 years, and was 21% white, 31% black, 39% Hispanic, and 9% other or unknown race/ethnicity. Rates of post-operative CDAD were significantly different among the different racial/ethnic groups: 5% among whites, 2.5% among Hispanics, and 1.7% among Blacks (p=0.005). Whites were at higher risk of CDAD compared with blacks (ORunadj 3.09, 95% CI 1.53–6.23, p=0.002) or Hispanics (ORunadj 2.04, 95% CI 1.14 – 3.65, p=0.02). After adjustment for antimicrobial use, proton-pump inhibitor use, days in hospital prior to procedure, and admission albumin, whites remained at higher risk for CDAD compared with blacks (ORadj 2.45, 95% CI 1.16–5.17, p=0.02). There was a non-significant increased risk of CDAD for whites compared with Hispanics(ORadj 1.86, 95% CI 0.98–3.54, p=0.06).
CONCLUSIONS: Whites have a significantly higher rate of CDAD after abdominal surgery, compared with blacks or Hispanics. Although whites may have increased exposure to risk factors for CDAD not measured in this analysis, there also may be differences among different racial/ethnic groups, such as the expression of C. difficile toxin receptors in colonic mucosa, that account for the observed differences in rates of post-surgical CDAD. Molecular analyses are warranted to study this hypothesis.

RACIAL AND ETHNIC DISPARITIES IN CARE: TEACHING RESIDENTS TO CONFRONT DISPARITIES BY IMPROVING QUALITY OF CARE R. Gregory[1]; L. Vaquerano[1]; V. Sears[1]; A. Solomon[1]; B. Seigel[1]. [1]George Washington University, Washington, DC. *(Tracking ID # 190775)*

BACKGROUND: Practicing physicians have an overall low awareness of racial and ethnic disparities in care, particularly when asked to consider the occurrence of disparities in their own practice. How physicians view disparities in their own practice, however, may vary depending on their experience and level of training. Interventions tailored to level of training with post-intervention assessment are needed to improve efforts to educate physicians to confront disparities in practice.
METHODS: We surveyed 43 residents in internal and emergency medicine at a single medical center (George Washington University) immediately before and after a 30-minute educational intervention about disparities. The intervention emphasizes key studies in the literature that document the prevalence and causes of disparities and frames disparities in care as failures in quality of care. The interventional also focuses specifically on context: disparities in cardiovascular care delivered to residents while they are rotating through the CCU with specific examples for improvement drawn from this clinical environment in which they practice. Paper surveys were completed anonymously before and after this intervention and responses were assessed by means of a 5-point Likert scale.
RESULTS: Residents' awareness of racial and ethnic disparities in care was relatively low before the intervention and decreased as questions targeted their practice environment: 45% agreed disparities exist in general in the US healthcare system and 35% agreed disparities occur in cardiovascular care specifically. Only 24% felt disparities occurred in their hospital and 12% felt disparities might exist in the care they provide individually for patients in their care. After the intervention, all of these numbers increased dramatically: 86% agree disparities exist in healthcare in general, 88% agreed they exist in cardiovascular care, 69% agreed they occur in their hospital, and 32% agreed disparities might occur for patients they personally treat. Residents' assessment of the strength of evidence documenting disparities in care also increased after the intervention: 55% rated the evidence as "strong" or "very strong" prior to the intervention compared with 72% afterward. Residents' scores on 7 out of 8 quality of care questions tailored specifically to their practice environment increased after the intervention as well: overall scores were 59% correct before and 76% correct afterward.
CONCLUSIONS: Educational interventions tailored to specifics of practice environment and level of training can change residents' awareness of racial and ethnic disparities in care and provide greater awareness of potential disparities in care they provide. Moreover, such interventions can serve to increase physician's knowledge of quality

improvement strategies applicable to their individual practice and frame disparities in care as a quality of care issue.

RACIAL AND ETHNIC DISPARITIES IN CARE: THE PERSPECTIVES OF FACULTY VS. TRAINEES R. Gregory[1]; L. Vaquerano[1]; V. Sears[1]; A. Solomon[1]; B. Seigel[1]. [1]George Washington University, Washington, DC. *(Tracking ID # 190038)*

BACKGROUND: Previous research on practicing physicians has documented overall low awareness of racial and ethnic disparities in care with an inverse relationship between their awareness and proximity to their own individual practices. It is not known whether physicians' awareness of disparities and sense of responsibility to make change are established prior to beginning training or if these vary as they progress through training.
METHODS: We surveyed 119 medical students, 43 residents in internal medicine, and 43 faculty in internal medicine at a single medical center (George Washington University) to obtain a cross-sectional analysis of awareness of disparities and attitudes both about supporting evidence and participants' individual ability to make change. Medical students and faculty completed the survey online and residents completed a paper version distributed during hospital rounds; all responses were anonymous and assessed by means of a 5-point Likert scale.
RESULTS: Awareness of racial and ethnic disparities in care for each group was relatively low: 51% of faculty agreed disparities exist in general in the US healthcare system compared with 44% of residents and 57% of students. Even fewer of each group agreed disparities occurred at their hospital or clinic: 25% of faculty, 24% of residents, and 23% of students. At the level of individual practice, a significant difference between faculty and trainees emerged: only 5% of faculty agreed racial or ethnic disparities might exist compared with 12% for residents and 11% for medical students. Interestingly, all three groups agreed that the literature on racial and ethnic disparities in care was "strong" or "very strong" with similar frequency: 57% faculty, 55% residents, and 51% medical students. All three groups also reported similar beliefs about the ability of physicians to make change in areas of policy such as disparities both together as a profession (81% faculty, 90% residents, 84% students) and as individuals (61% faculty, 67% residents, 61% students).
CONCLUSIONS: Awareness of disparities does vary with level of training at our academic medical center. This suggests that awareness and attitudes towards disparities change as physicians progress through training, specifically, trainees are more likely to acknowledge that disparities may occur in their own practice but may dissociate from this view as they gain more experience and responsibility for patient care. Strategies to improve awareness of disparities must be tailored to physicians' level of training and experience to be maximally effective.

RACIAL DIFFERENCES IN EARLY STAGE BREAST CANCER TREATMENT IN MASSACHUSETTS J.P. Berz[1]; K.T. Johnston[1]; B. Backus[2]; G. Doros[3]; A.J. Rose[4]; S. Pierre[2]; T. Battaglia[1]. [1]Boston University, Boston, MA; [2]Massachusetts Department of Public Health, Boston, MA; [3]Boston University School of Public Health, Boston, MA; [4]Boston University and Center for Health Quality, Outcomes, and Economic Research, Bedford VA, Boston, MA. *(Tracking ID # 189808)*

BACKGROUND: Though black, non-Hispanic women in Massachusetts have reached parity in mammography screening with white, non-Hispanic women, they continue to have higher mortality even when controlling for stage at diagnosis. This study examined racial differences in course of first treatment for stage I and II breast cancer in Massachusetts from 1999–2004 to explore whether disparities in treatment received may contribute to this mortality difference.
METHODS: This population based cohort study included women diagnosed with invasive breast cancer identified through the Massachusetts Cancer Registry. The primary independent variable was race, which could be either white, non-Hispanic or black, non-Hispanic. Outcomes of interest included: 1) receipt of breast conservation surgery (BCS) versus mastectomy and 2) receipt of radiation therapy for those women receiving BCS . Covariates included income, age, marital status, insurance, and stage. Unadjusted odds ratios were calculated for black, non-Hispanic women with respect to each of the dependent variables using white, non-Hispanic women as reference.
RESULTS: Preliminary analyses revealed 23,211 women with stages I-II breast cancer; 3.2% black, non-Hispanic (n=745) and 96.8% white, non-Hispanic (n=22,466). Non-Hispanic blacks were more likely to be younger at diagnosis (p<.0001), unmarried (p<.0001), uninsured or on Medicaid (p<.0001) and diagnosed at later stage (p<.0001). In unadjusted analyses, compared to non-Hispanic whites, non-Hispanic blacks were similarly likely to receive any surgical treatment for breast cancer (OR 0.92, 95% CI 0.45–1.87) and were similarly likely to receive BCS as they were mastectomy for the surgical intervention(OR 1.03, 95% CI 0.88–1.21). However, non-Hispanic blacks were less likely than non-Hispanic whites to receive adjuvant radiotherapy following BCS (OR 0.77, 95% CI 0.64–0.94).
CONCLUSIONS: In preliminary analyses, it appears that black, non-Hispanic women in Massachusetts with newly diagnosed breast cancer who receive BCS continue to be at risk for omission of radiation therapy. Future analyses will examine for interactions with other covariates including facility of care to inform interventions to reduce this apparent disparity.

RACIAL DIFFERENCES IN LOCATION PRIOR TO HOSPICE ENROLLMENT AND ASSOCIATION WITH HOSPICE LENGTH OF STAY K.S. Johnson[1]; M. Kuchibhatla[1]; J.A. Tulsky[1]. [1]Duke University, Durham, NC. *(Tracking ID # 190659)*

BACKGROUND: African Americans are more likely than Whites to experience poor quality end-of-life care, including inadequate pain management, poor provider communication, and less overall satisfaction with care. Because hospice use is associated with better end of life outcomes, improving access to hospice care among African Americans may reduce these disparities. Understanding how race influences referral patterns in acute (hospitals) versus nonacute (nursing homes, home) care settings and how patient location in the days prior to hospice enrollment influences hospice length of stay may inform the development of targeted interventions to increase access to hospice care for African Americans. The objectives of this research are to examine racial differences in patient location one to two days prior to hospice enrollment (preadmission location) and to determine the association between hospice length of stay (LOS) and preadmission location among African Americans.
METHODS: We analyzed data from African-American and White decedents > or = age 65 served by a single hospice provider between January 1, 2000 and December 31, 2003 (28 programs, 8 states). We used logistic regression to determine the association between: (1) race and hospice preadmission location and (2) preadmission location and hospice LOS (< or = 7 days vs. > 7 days) among African Americans. We categorized hospice preadmission location as hospital (acute setting) vs. all other locations (non-acute settings–home, nursing home, or other).
RESULTS: Of 103,029 eligible decedents, 12% were African-American and 88% were White. African Americans were typically younger (median age 79.6 vs. 83.6), not married (27.3% vs. 34.4%, P<.0001), and more likely to have a noncancer diagnosis (52.1% vs. 66.7%, P<.0001), median household income of < $37,208 (63.9% vs. 26.2%, P<.0001), and a caregiver other than a spouse or child (22.5% vs. 13.4%, P <.0001). The mean LOS for both racial groups was 42 days. One to two days prior to hospice admission, African Americans were more likely than Whites to be in the hospital vs. all other locations (59.1% vs. 46.9%, P<.0001). Similar proportions of each racial group were at home (20.3% vs. 20.8%), and a greater proportion of Whites were in nursing homes (28.5% vs. 20.0%). African Americans had a 34% higher odds of being in the hospital (vs. other location) in the days prior to hospice admission (OR 1.34 [1.28, 1.40]) even after controlling for age, gender, diagnosis, marital status, income, caregiver, payment source, hospice location. African Americans whose preadmission location was the hospital (vs. home or nursing home) had 2.5 times higher odds of dying 7 days or less (vs. > 7 days) after hospice admission (OR 2.5 [2.3, 2.7]).
CONCLUSIONS: More African Americans than Whites were in the hospital in the days prior to hospice enrollment, and African Americans whose preadmission location was the hospital versus another setting were at increased risk of dying shortly after hospice enrollment. Hospitalization is a common trigger for hospice referral among older adults, and even more so among African Americans. Initiatives to improve end-of-life care among African Americans should target increasing timely discussions about end-of-life care and hospice referrals in settings outside of the hospital. Such initiatives may have

the best chance of success if they focus on improving access to healthcare for African Americans across nonacute care settings throughout the continuum of chronic illness.

RACIAL DIFFERENCES IN LUNG CANCER SURGERY: DO POOR NUMERACY SKILLS REPRESENT A MODIFIABLE FACTOR FOR DECISIONS AGAINST CARE? S. Cykert[1]; P. Walker[2]; M. Monroe[3]; F. Mcguire[4]; C. Freeman[5]; A. Bunton[1]. [1]University of North Carolina at Chapel Hill, Chapel Hill, NC; [2]Brody School of Medicine of East Carolina University, Greenville, NC; [3]Carolinas Medical Center, Charlotte, NC; [4]University of South Carolina School of Medicine, Columbia, SC; [5]Moses Cone Health System, Greensboro, NC. *(Tracking ID # 190745)*

BACKGROUND: Administrative data have revealed lower surgical rates and reduced survival for African-Americans who are diagnosed with early stage, non-small cell lung cancer. Patient factors such as numeracy have been proposed as possible explanations for patients' decisions against recommended standards of medical care. We report an analysis of the first 200 patients recruited prospectively with newly diagnosed, non-small cell lung cancer with emphasis on patient factors that may influence care.
METHODS: Using pulmonary, oncology, thoracic surgery, and generalist practices in 5 communities, we have enrolled 280 newly diagnosed patients with early stage, non-small cell lung cancer. Inclusion criteria are as follows: patients are required to be at least 18 years old, have a tissue diagnosis or > 60% probability of non-small cell lung cancer using Bayesian methods, and be limited to Stage I or II disease by clinical and radiological testing. Patients are enrolled after direct referral from practices or through the utilization of a chest CT review protocol. After being informed of the diagnosis of probable or definite lung cancer, but before the establishment of a treatment plan, patients are administered a 100-item survey that includes questions pertaining to demographic information, trust, physician-patient communication, perceptions about lung cancer, and physical-functioning. The primary outcome is whether treatment includes lung cancer surgery within 4 months of initial diagnosis. We performed bivariate and logistic regression analyses to explore possible explanations for surgical decisions with emphasis on patient factors including health status, perceptions of communication, race, SES, religiosity, and numeracy. We also controlled for whether or not a tissue diagnosis had been obtained.
RESULTS: So far, we have recruited 280 newly diagnosed patients with early stage, non-small cell, lung cancer. Of these individuals, 202 have reached the 4 month post-diagnosis milestone and 24% are African-American, 63% married, 53% male, 35% with education > high school, and 91% are insured. Patient ages range from 40 to 90 years with a median of 65. Sixty-one percent of all patients have gone on to lung cancer surgery (64% Caucasian, 54% African-American, p-value = 0.2). Only 13% of participating patients demonstrated high numeracy skills but 78% of this group proceeded to lung cancer surgery compared to 59% of the lower numeracy group (p = .06). Regression analysis revealed that patients with fair or better self-reported health (OR 2.51, 95% CI 1.05–6.05) and high numeracy scores (OR 3.47, 95% CI 1.13–10.7) were significantly more likely to receive lung surgery. Marital status, health insurance, age, gender, income, education, religiosity, perceptions of communication, and Caucasian race (OR 1.14, 95% CI 0.54–2.41) are not associated with proceeding to surgery in this model.
CONCLUSIONS: During the early phase of a prospective study examining disparities in treatment of non-small cell, lung cancer, excellent numeracy and fair or better self-reported health appear to be patient factors that are strongly associated with progression to life-saving surgery. Numeracy screening followed by graphic presentation of risk-benefit information may be a method of overcoming disparities for this treatment. However, until physician factors are more thoroughly weighed, the exact impact of a numeracy intervention remains uncertain.

RACIAL DISPARITIES IN USE OF RECOMMENDED AMBULATORY CARE: DO THEY PERSIST? J.S. Ross[1]; S.M. Bernheim[2]; C.P. Gross[2]; E.H. Bradley[2]. [1]Mount Sinai School of Medicine, New York, NY; [2]Yale University, New Haven, CT. *(Tracking ID # 190643)*

BACKGROUND: Disparities in health care outcomes and quality of care have been described among racial minorities for both preventive and chronic disease care, particularly for cardiovascular disease and diabetes. Recent quality improvement initiatives focused on disparities may have narrowed differences in care. Our objective was to determine whether racial differences in use of recommended care have persisted or narrowed between 2000 and 2005.
METHODS: Using data from non-Hispanic white and black adults in the Behavior Risk Factor Surveillance System (2000 survey, n= 156,668, 11.6% black; 2005 survey, n=301,764, 12.0% black), an annual nationally-representative survey of community-dwelling adults, we examined self-reported use of 18 ambulatory services for cancer prevention, cardiovascular risk reduction, diabetes management, and infectious disease prevention, defined by age-, sex-, and co-morbid condition-specific guideline recommendations. We first compared rates of use of each service in 2000 and 2005. We then used multivariable logistic regression to examine the adjusted association between race and use of recommended care, controlling for socio-demographic characteristics, health status, and health care access and including an interaction term between race and survey year, to determine if racial disparities in use of care have changed over time.
RESULTS: Self-reported non-Hispanic white adults were older, had higher household incomes, were more highly educated, more likely to report excellent or very good health status, and more likely to have health insurance when compared with self-reported non-Hispanic black adults. Use of 10 of 18 services increased between 2000 and 2005 among the full sample, ranging from 2–12% greater rate of use (P-values 0.05); similarly, use of 10 services increased between 2000 and 2005 among whites, 5 among blacks (P-values 0.05). In 2000, use of recommended care was higher among whites when compared with blacks for 5 services (P-values 0.05), lower for 3 services (P-values 0.05), and no different for the remaining 10 services (P-values>0.06). In 2005, use of recommended care was higher among whites when compared with blacks for 7 services (P-values 0.05), lower for 6 services (P-values 0.05), and no different for the remaining 5 services (P-values>0.06). For all services examined, the likelihood of use among whites when compared with blacks was not significantly different in 2005 than in 2000. However, there was a trend observed in the narrowing of disparities between white and black use of two services: regular aspirin use among adults with cardiovascular disease (RR=1.21, 95% CI, 1.06–1.33, in 2000 vs. RR=1.05, 95% CI, 0.99–1.11, in 2005; p=0.07) and influenza vaccination among older adults (RR=1.37, 95% CI, 1.24–1.51, in 2000 vs. RR=1.26, 95% CI, 1.21–1.32, in 2005; p=0.07).
CONCLUSIONS: We found little evidence of consistent racial disparities in preventive and chronic disease care between white and black adults in the U.S., in either magnitude or direction. Although white adults were more likely to report use of several services, black adults were more likely to report use of several other services. Moreover, despite increasing emphasis on racial disparities in care and improved performance throughout the U.S. healthcare system, there were no significant changes in use of recommended care between blacks and whites. Ambulatory quality improvement efforts should focus on care which is underused by the entire population.

RACIAL-ETHNIC DIFFERENCES IN POST-STROKE MORTALITY IN VETERANS IN THE STROKE BELT C. Ellis[1]; L.E. Egede[1]. [1]Medical University of South Carolina, Charleston, SC. *(Tracking ID # 190207)*

BACKGROUND: To examine racial-ethnic differences in post-stroke mortality in a cohort of veterans living in the southeastern United States.
METHODS: Data on a cohort of 3,941 veterans with a history of stroke were analyzed. The cohort included veterans who classified themselves as: (1) non-Hispanic White, (2) non-Hispanic Black, (3) Hispanic, Asian, or Hawaiian, and (4) Other. All subjects had a diagnosis of ischemic or hemorrhagic stroke, were seen in VA facilities in the Charleston, SC catchment area, and were followed from January 01, 2000 to date of death or December 31, 2006. Cox proportional hazard models were developed to examine all-cause mortality for ischemic and hemorrhagic stroke. The following independent variables were included in the models: race-ethnicity, age, gender, and comorbidity (congestive heart disease, hypertension, cancer, and depression).
RESULTS: 3828 subjects with ischemic stroke and 113 subjects with hemorrhagic stroke were available for analysis. Approximately 50% of the ischemic stroke sample was non-Hispanic White, 25% non-Hispanic Black, and 25% Other. For hemorrhagic stroke 42% of the sample was non-Hispanic White, 27% Non-Hispanic Black, and 30% Other. Race-

ethnicity did not emerge as a significant risk factor for mortality for either ischemic (HR = 1.13; [0.99, 1.30] p=0.07) or hemorrhagic stroke (HR = 0.84; [0.34, 2.08] p=0.70). Age (HR = 1.02; [1.02, 1.03] p= <0.0001), congestive heart disease (HR = 1.16; [1.03, 1.31] p=0.02), and cancer (HR = 2.76; [1.30, 5.86] p<0.01) were significantly associated with mortality in ischemic stroke.
CONCLUSIONS: Racial/ethnic differences were not present in post-stroke mortality in a cohort of veterans with equal access to care in the Veterans Healthcare System (VHS) in the southeastern United States. Lack of racial/ethnic differences in post-stroke mortality are likely due to equal access to care at initial presentation for stroke and equal access to rehabilitation services provide by the VHS. Studies are needed to clarify and quantify which specific variables have the greatest contribution to post-stroke mortality among veterans.

RANDOMIZED CONTROLLED TRIAL OF A COMPREHENSIVE DISCHARGE PROGRAM B. Jack[1]; M. Paasche-Orlow[2]; D. Anthony[3]; J. Greenwald[1]; C. Manasseh[1]; G. Burniske[1]; S. Forsythe[1]; A. Johnson[1]; J. O'Donnell[1]; V. Chetty[1]. [1]Boston University, Boston, MA; [2]Boston University, Newton, MA; [3]Brown University, Providence, RI. *(Tracking ID # 190669)*

BACKGROUND: Hospital discharge is a non-standardized transition in care shown to be related to adverse events and rehospitalization resulting in considerable morbidity, mortality and costs. We performed a RCT to determine if a comprehensive discharge program will lower emergency department (ED) visits and rehospitalizations.
METHODS: 749 hospitalized subjects of a general medical ward were randomized to receive a comprehensive hospital discharge program by a specially trained nurse using an individualized, "After Hospital Care Plan" (AHCP), a booklet used to prepare patients for discharge; the discharge plan was reinforced by a telephone call from a pharmacist after discharge (successful in 73% of subjects). The intervention incorporated 11 elements: establishing follow-up appointments, identifying outstanding tests and studies, coordinating post-discharge services, patient education, medication reconciliation, having a plan for what to do if a problem arises, reconciling plan with national guidelines, giving a written plan to the patient, assessing patient understanding, sending discharge summary to PCP, and telephone reinforcement. All aspects of the intervention that involve patients were all developed to accommodate patients with limited literacy. Outcome data were collected 30 days after discharge by a telephone call (successful in 87%) and review of hospital records. Intervention averaged 53 minutes of nurse time per subject and 20 minutes of telephone time for the pharmacist.
RESULTS: Among the intervention subjects, at discharge 90% were provided with an AHCP, 96% were schedule with a primary care follow-up appointment, and 56% had discharge medications reconciled with the outpatient electronic medical record. Among the subjects reached by the pharmacist, 52% required some intervention to correct their medication regimen. Among intervention subjects, 56% liked (extremely or very) the AHCP and 72% thought the medication calendar was extremely or quite useful. At 30 days, the intervention subjects were more likely to be able to identify their discharge diagnosis (79% vs. 71%, p<0.05) and to have seen their primary care physician (65% vs. 51%, p=0.002). At 30 days, the intervention subjects were more likely to report that they had understood their medications (85% vs. 58%, p< 0.05), and appointments (88% vs. 54%, p<0.05) very well or extremely well at the time of discharge. The intervention subjects had fewer ED visits (52 vs. 82, p=0.02), fewer rehospitalizations (48 vs. 66, p=0.15) and less total hospital utilization (100 vs 148, p=0.01). Overall, 69 of 375 (18.4%) individuals in the intervention group and 84 of 375 (22.5%) individuals in the control group had at least one ED visit or rehospitalization. The intervention prevented hospital utilization for one subject in every 25 subject enrolled (1/ absolute risk reduction of 4%). Ad interim cost-analysis revealed that the intervention reduced charges for ED visits and rehospitalizations within 30 days an average of $1,012 per patient; this represents an average overall savings of $900 per patient.
CONCLUSIONS: This comprehensive discharge program resulted in fewer ED visits and rehospitalizations within 30 days and is cost saving. These results demonstrate how improving the quality of care at discharge can lead to significant improvements in patient care and can lower costs.

RANDOMIZED TRIAL OF A MAILED INTERVENTION TO ENCOURAGE ADVANCE DIRECTIVE COMPLETION AMONG GERIATRIC PATIENTS M.J. Gilchrist[1]; C. Lewis[1]; R. Sudore[2]; A. Tytell Brenner[1]; J.M. Griffith[1]; M. Pignone[1]. [1]University of North Carolina at Chapel Hill, Chapel Hill, NC; [2]University of California, San Francisco, San Francisco, CA. *(Tracking ID # 189520)*

BACKGROUND: While advance directives (AD's) can serve as a tool to allow patients to guide their end-of-life (EOL) decisions, they remain underutilized. We sought to measure the effectiveness and acceptability of a mailed intervention designed to encourage completion of an advance directive.
METHODS: Using a computerized database of patients in our General Internal Medicine clinic, we randomly selected 400 patients over 65 years of age. Two hundred subjects were randomized to the intervention group and 200 to the control group. The intervention group was mailed a package which included 1) a letter explaining our study, 2) an advance directive decision aid in DVD format, 3) a literacy sensitive advance directive form, and 4) notice of 2 free"advanced directive clinics" to be held in our internal medicine practice. The control group received no mailing at this time. From 7 to 12 weeks after this initial mailing, we surveyed subjects in both groups, using written and phone surveys. Principle outcomes were advance directive completion rate, acceptability of the materials, and materials' effects on patients' self-reported thoughts and discussions regarding EOL issues. Data was analyzed using Stata 10.0 software. Chi-squared analysis was used to analyze advance directive completion rates in the two groups.
RESULTS: Of the 400 subjects initially randomized, 10(4%) subjects were initially removed from the intervention group (5 incorrect addresses and 5 "opt-out"). At the time of the survey, 69(17%) opted out (44 in the intervention group and 25 in the control group), and 75 (19%) were unable to be contacted (37 in the intervention group and 38 in the control group). Thus, 246(61%) completed a survey (109 in the intervention group and 137 in the control group). Of the 246 survey respondents, 44 (40%) in the intervention group and 59 (43%) in the control group reported having completed an AD prior to our study. Among the remaining 65 in the intervention group and 78 in the control, 5 subjects in the intervention group (8%) and 2 subjects in the control group (2%) reported completing an advance directive after our study began (p = 0.33). Of the 88 subjects in the intervention group who reported receiving the informational package, 64 (73%) liked getting the materials and 27 (31%) reported watching the decision aid. After receiving the materials, 46 (52%) reported thinking about EOL issues, 31 (35%) reported talking about EOL issues with friends and/or family, and 8 (9%) reported talking about EOL issues with their doctor. There was no significant difference in any of these measures across age, race, education, or home-ownership.
CONCLUSIONS: A mailed intervention did not increase advanced directive completion. Many participants reported having completed an AD prior to the start of our study. Intervention group members who reported receiving the mailed materials liked getting them, and a large number reported subsequently thinking about EOL issues, but few went on to complete advance directives in the 12 weeks after receiving them.

RANDOMIZED TRIAL OF PROVIDER-LEVEL INTERVENTION FAILS TO INCREASE INTERNAL MEDICINE RESIDENTS' PRESCRIBING OF CONTRACEPTIVES AND FOLATE M. Sobota[1]; J. Arnsten[1]; E. Du[1]; H.V. Kunins[1]. [1]Montefiore Medical Center, Bronx, NY. *(Tracking ID # 190806)*

BACKGROUND: Contraceptives and folate are highly effective in reducing reproductive risks. Yet internists are less likely to counsel reproductive aged women about contraception or folate than family physicians or obstetrician-gynecologists. Our goal was to determine whether a brief education session and clinical reminder intervention increased the proportion of internal medicine residents who prescribe contraceptives or folate to reproductive aged women.
METHODS: We designed a randomized trial to assess the impact of the intervention on internal medicine residents' prescribing of contraceptives and folate. Eligible participants included all Montefiore Medical Center categorical internal medicine residents on ambulatory rotations from November 2006-January 2007. Participants practiced at either a hospital- or community-based site. Reproductive aged patients at these

sites are largely insured by New York State Medicaid, which pays for contraceptive and folate prescriptions. Participant randomization to the intervention or control condition was stratified by gender and clinic site. The intervention consisted of (1) a 10-minute education session conducted by a study investigator individually or in small groups, followed by (2) a one-month clinical reminder phase, during which medical assistants placed reproductive health reminder stickers on the charts of reproductive aged patients seen by intervention group residents. Control group residents received neither component. The main outcome was the proportion of participants who electronically prescribed contraceptives or folate for women ages 18–45 during a one-month period, six months after the intervention. Data were analyzed using Fisher's exact test and binomial regression to adjust for unequal visits with reproductive aged women. We calculated that recruiting 27 participants to each group would yield 80% power to detect a 35% effect size.
RESULTS: We enrolled 57 of 63 (90%) eligible residents. Participants randomized to the intervention (N=30) and control (N=27) groups were similar with respect to mean age (28.7+/−3.3 vs 28.1+/−2.1 years), gender (59% female) and practice site (63% hospital-based, 37% community-based). There were slightly more interns in the control group (62% vs 38%, p=.26). Intervention participants were one-third more likely to prescribe contraceptives or folate in the prior month than control group participants, but this difference was not significant (30% vs 22%, p=0.56). Folate was prescribed twice as frequently by intervention than control participants, although this difference was non-significant (25% vs 12.5%, p= 0.48). In a binomial regression analysis adjusted for visits, the intervention was not significantly associated with prescribing contraceptives or folate in the prior month (OR 1.7, 95% CI 0.71–4.1). The 8% effect size was less than the 35% anticipated, reducing the power to 5.6%.
CONCLUSIONS: Our brief education session followed by a one-month reminder sticker intervention did not significantly increase internal medicine residents' prescribing of contraceptives or folate. Although non-significant, the finding that folate prescribing was twice as likely in the intervention compared to the control group suggests that this may be an easier practice to change than contraceptive prescribing. Future investigations are needed to understand internal medicine residents' barriers to prescribing contraceptives and folate.

RAPID IMPACT OF A CHRONIC CARE PROGRAM IN A VULNERABLE INTERNAL MEDICINE POPULATION N. Phifer[1]; D. Riley[1]; S. Cykert[2]. [1]Moses Cone Hospital, Greensboro, NC; [2]University of North Carolina at Chapel Hill, Greensboro, NC. *(Tracking ID # 190780)*

BACKGROUND: Usual primary care for adult diabetics has yielded disappointing results for measures of processes of care and outcomes. Seven percent of all Americans are affected by diabetes and the numbers are growing. More efficient and effective paradigms for care are needed. It has been suggested that application of the 6 component Chronic Care Model could improve outcomes even in vulnerable populations. We report the initial results of an onsite diabetes chronic care program established in a residency clinic caring for largely poor and vulnerable patients.
METHODS: METHODS: The Chronic Care Model was initiated in an internal medicine clinic serving over 800 diabetic patients using the following steps: 1) A nutritionist/certified diabetic educator (CDE) was hired and placed directly at the clinical site. 2) A diabetes registry was created 3) Using a standard tool, chronic care support was measured. 4) Based on evidence based medicine and consensus guidelines, standing orders were established. 5) Patients with hemoglobin A-1-C measurements > 8.0 were automatically referred for chronic management services. 6) The CDE served as a care coordinator between resident physicians and other diabetic patient needs. The services provided by the CDE included diet, self-management, glucose monitoring, medication, and disease education. CDE visits were arranged immediately at the time of physician visits and also occurred independently. Medication adjustments by the CDE were allowed according to the standing orders. The primary outcome was population control of diabetes as noted by serial measurements of hemoglobin A-1-C (A1C).
RESULTS: 854 diabetics are included in the initial registry as identified by appropriate ICD-9 codes. The median age is 55 years and 65% of these patients are women. The racial/ethnic composition includes 66% African-Americans, 28% Caucasian, and 3% Hispanic and health insurance distribution is 38% Medicare, 16% Medicaid, 22% commercial or managed care, and 24% uninsured. Only 4% are type-I diabetics. The data represent the first year of active intervention. Average A1C for the entire population declined from 7.8 to 7.5. The proportion of patients with A1C's > 8 fell from 59% to 33%. For patients actually seen by the CDE, the average A-1-C fell from a baseline of 9.44 to 7.7 (N= 212). Average inpatient length of stay for this diabetic population decreased from 5.87 days to 5.43 days. The decrease in length of stay is likely due to the ready availability of outpatient medication adjustment by the CDE.
CONCLUSIONS: Application of the Chronic Care Model in a residency clinic caring for resource-limited, underinsured, diabetic patients led to dramatic improvements in diabetes control. Reduction of hospital length of stay represents an initial financial justification for this model of care.

READY OR NOT – WILL THEY COME? SHOULD WE EXPECT INCOMING INTERNS TO DECLARE PRIMARY CARE INTEREST? C. Bates[1]. [1]Beth Israel Deaconess Medical Center, Boston, MA. *(Tracking ID # 189936)*

BACKGROUND: In recent years, the number of primary care match programs in internal medicine and the number of overall match positions in primary care tracks has declined substantially. Our residency has had a primary care track for more than 30 years, but it is not counted in NRMP numbers. The track is focused on the JAR and SAR years; it does not have a separate match number. Interns may join the track at the start of internship or as late as spring of internship. The number of housestaff in the track per year is based only upon housestaff interest. From 2001 to the present, we graduated as many as 19 residents in 2001 and as few as 8 in 2002. In 2001, primary care residents were asked to add a second continuity practice site to their primary site assignment. We surveyed these graduates of our primary care program to better understand their career decisions.
METHODS: An on-line survey was administered through a hospital-based web-based instrument. Program graduates were contacted by email and asked to participate by clicking on a link. Names of respondents were stored in a separate data base in order to track respondents; responses to questions were anonymous.
RESULTS: There were 51 of 80 resident graduates (64%) from 2001–2007 who responded to the survey. Only 14 of 51 respondents (27%) intended to join the primary care track when they matched to our program. Of these 14 residents, 2 have done general medicine fellowships, 2 have done geriatrics fellowships, 1 has done oncology and the rest remain in primary care practice. Of the 37 residents who were not sure they would join primary care when they matched to our program, 15 (41%) are in primary care practice, and 8 (21%) report some but <50% of their practice as primary care. Nine residents were aware of the primary care track, but explicitly did not intend to join the program. Six of those nine remain in primary care practice. Twenty-four graduates (47%) would not have matched to our primary care track if it had a separate match number; 11 of these 24 (46%) are now in primary care practice. The program was a "favorite part of residency training" for 35% of graduates, 57% were very glad to have been in the track, and 8% felt that their experience in the track "didn't really matter." None wished they had not been in the track. 58% of respondents felt that debt burden was not important in their career decisions; 6 of these 30 respondents graduated with >$100,000 debt. Four of the 6 residents who felt that debt burden was very important are in full time primary care practice. 43% felt that job compensation was not important in their career decisions; the three residents who felt that compensation was very important are in specialty practice. 29 respondents felt that lifestyle was very important; 48% of these are in primary care practice. 32 (63%) felt that intellectual rigor was very important; 44% of them are in primary care practice. Only 3 felt that prestige was very important. 31 respondents felt that long term longitudinal relationships were a very important influence on their career paths.
CONCLUSIONS: Medical students may not be ready to choose between primary care and specialty practice when applying for residency. Other programs may wish to consider similar flexibility in selecting enhanced ambulatory training during internship. In our sample, debt burden, salary, and prestige were less important determinants of career choice than were lifestyle, intellectual rigor and longitudinal relationships with patients.

RECENT TRENDS IN RACIAL AND ETHNIC DIFFERENCES IN CHRONIC KIDNEY DISEASE: DOES A RISING TIDE FLOAT ALL BOATS? R. Vargas[1]; O. Duru[2]; R. Boer[3]; P. Pantoja[4]; K. Norris[5]. [1]University of California, Los Angeles, Los Angeles, CA; [2]Division of General Internal Medicine and Health Services Research, Los Angeles, CA; [3]The RAND Corporation, Santa Monica, CA; [4]RAND Health, Santa Monica, CA; [5]Charles R. Drew University of Medicine and Science, Los Angeles, CA. *(Tracking ID # 190921)*

BACKGROUND: The prevalence of chronic kidney disease (CKD) has increased the United States over the past 15 years. Despite persistent racial and ethnic disparities in the development of kidney failure similar disparities are not always demonstrated in studies of earlier stages of kidney disease.
METHODS: We conducted an analysis of recent trends in 1) prevalence of micro and macro-albuminuria (>30–300 mg/g and >300 mg/g) and 2) CKD stages 1–5 as determined by estimated glomerular filtration rate (eGFR) from the Modification of Diet in Renal Disease study. Data were drawn from a nationally representative sample of non-institutionalized adults 18 and over in the U.S. National Health and Nutrition Examination Survey. Three waves of trends were examined in two-year intervals ('99-'00, '01-'02 and '03–04). In multivariate logistic regression models using SUDAAN, we adjusted for clinical and demographic variables to examine observed temporal differences in albuminuria and CKD, as well as differences by race/ethnicity. We also examined interaction terms for race/ethnicity by wave years to assess if any observed racial and ethnic differences changed over time.
RESULTS: Of the 14,927 eligible respondents, 16.4% had evidence of CKD while 8.4% and 1.3% had evidence of micro or macro-albuminuria, respectively. 14.6% of Hispanics, 16.3% of Non-Hispanic Whites, and 18.1% of Non-Hispanic Blacks had evidence of CKD. 8.9%, 7.8%, and 10.0% of Hispanics, Whites, and Blacks had micro-albuminuria while 1.7%, 1.1%, and 2.8% of Hispanics, Whites, and Blacks had macro-albuminuria. Results of fully adjusted models are shown in Table 1. Additional results from the interaction term of wave 3 and Black race include an OR of 2.3 95% CI (1.10,5.02) in fully adjusted models (not shown in table).
CONCLUSIONS: In examing recent trends in CKD we found a significant reduction in macro-albuminuria between '99-'00 and '02–03 in the U.S. population OR 0.50 95% CI(0.26,0.96) and a non-significant trend toward lower rates of early CKD as well. However, these improvements were not equally shared across all racial groups, as Black patients in '02-'03 were more than twice as likely to have macro-albuminuria compared to whites. We also found that Blacks and Hispanics were significantly less likely to have stage 2 and above CKD but had a non-significant trend towards higher rates of stage 4 or 5 CKD, suggesting that they may have a more rapid decline toward ESRD.

Time Trends and Racial and Ethnic Differences in Albuminuria and CKD; Logistic regression models adjusted for age, sex, education, poverty, insurance, hypertension control, wave, BMI and diabetes; Odds Ratios and 95% Confidence Interval OR(95%CI);*p=<0.05

	Micro-albuminuria	Macro-albuminuria	CKD (1–5)	CKD (2–5)	CKD (3–5)	CKD (4–5)
1999–2000	reference 1.00	reference 1.00	reference 1.00	reference 1.00	reference 1.00	reference 1.00
2001–2002	0.92 (0.76,1.12)	1.02 (0.58,1.80)	1.00 (0.84,1.19)	1.06 (0.80,1.38)	1.27 (0.94,1.73)	0.92 (0.36,2.38)
2003–2004	0.82 (0.68,1.00)	0.50 (0.26,0.96)*	0.84 (0.69,1.01)	0.84 (0.67,1.05)	0.97 (0.70,1.34)	0.71 (0.29,1.75)
Hispanic	1.06 (0.82,1.36)	1.38 (0.63,3.04)	1.11 (0.85,1.44)	0.64 (0.42,1.0)*	0.85 (0.30,2.44)	1.21 (0.31,4.74)
White	reference 1.00	reference 1.00	reference 1.00	reference 1.00	reference 1.00	reference 1.00
Black	0.96 (0.68,1.34)	1.47 (0.85,2.53)	0.99 (0.70,1.41	0.77 (0.61,0.96)*	0.89 (0.59,1.35)	2.56 (0.81,8.06)

RECONSTRUCTING MENTORSHIP:QUALITATIVE ANALYSIS OF THEMES FROM PANEL MENTORING SESSIONS R.J. Chakkalakal[1]; E.D. Brownfield[1]; E.L. Brownfield[2]. [1]Emory University, Atlanta, GA; [2]Medical University of South Carolina, Charleston, SC. *(Tracking ID # 190836)*

BACKGROUND: Qualitative analyses of traditional one-on-one mentoring sessions have described several themes of effective mentoring (1). Panel mentoring was introduced as an alternative to the traditional model at the 2006 and 2007 Southern Society of General Internal Medicine (SSGIM) annual meetings. In a separate abstract, we report the feasibility and acceptability of these sessions. The purpose of this project was to compare panel mentoring themes with those described in traditional dyadic sessions.
METHODS: Registrants of the 2006 and 2007 SSGIM annual meetings interested in panel mentoring participated in sessions comprised of 1 mentee and 3–4 mentors. Mentors were recruited based on varying expertise and interests. All sessions were tape recorded and then evaluated by a single reviewer to identify session themes and compare them to a previously published list of themes described during traditional year-long dyadic sessions Themes were categorized as content, process, and growth over time (1).
RESULTS: 15 panel sessions were conducted, each lasting an average of 32 minutes. Compared to traditional mentoring themes, panel mentoring sessions included 15/21 content, 18/18 process, and 0/6 growth over time themes. Several unique themes emerged in the panel sessions that have not been previously described in traditional sessions including developing networking and negotiating skills, creating a teaching portfolio, and incorporating advice from multiple mentors.
CONCLUSIONS: Panel mentoring and traditional mentoring share several similar themes. Panel sessions also explore new themes and allow mentees to interact with mentors from diverse backgrounds. Panel mentoring as a single event however, precludes the opportunity to address growth over time. As dyadic mentoring becomes less realistic and desirable, panel mentoring offers an efficient, feasible and well-received alternative model. Future studies should explore the effects of panel mentoring over time.
References: 1. Rabatin JS, Lipkin M, Rubin AS, Schachter A, Nathan M, Kalet A. A year of mentoring in Academic Medicine: Case Report and Qualitative Analysis of Fifteen Hours of Meetings Between a Junior and Senior Faculty Member. JGIM. 2004:19(2):569–573.

REDUCING DISTORTION IN QUALITY MEASUREMENT IN PRIMARY CARE D.A. Dorr[1]; J. Bowen[1]; A. Dipiero[1]. [1]OHSU, Portland, OR. *(Tracking ID # 190677)*

BACKGROUND: Measurement of – and payment for – the quality of health care delivered has been an increasingly debated issue over the past decade. While the potential benefits in an ideal system are many, concerns about the drawbacks and distortions of measurement have been high. Examples of such distortions include temporal and population sampling errors (e.g., measuring outcomes when a patient is first diagnosed with a condition), mis-assignation of patients to providers (e.g., without an established relationship), and failure to risk adjust patients. We attempt to explore potential distortions by comparing different techniques for measurement.
METHODS: Eleven standard quality measurements in diabetes were applied to a set of 707 patients with chronic conditions in an academic internal medicine practice using electronic health record data. Quality measurements were divided into three categories: process measures (7), behavioral change measure (1; goal-setting), and intermediate outcomes (3; HbA1c<7%; LDL<100; BP<130/80). Different strategies of measurement tested included cross-sectional (current performance for all active patients as of a specific date); relationship-based (cross-sectional excluding first seen in last 90 days); and prospective (changes over 1 year of treatment within the clinic). Analysis included comparison of percent of patients excluded using each method and percent of population adherent to each measure. Sub-analyses included risk adjustment by Charlson-derived comorbidity score, behavioral change measure, and primary language. Chi-square tests were used for statistical analysis.
RESULTS: Average adherence to the measures using the standard cross-sectional method was 62.1±12.4%; excluding patients first seen in last 90 days made no significant change (62.1±12.2%). Prospective measurement was slightly higher (65.5±12.0%) but the difference was not significant. Process measures varied slightly, with prospective measures showing higher flu vaccination rates (48% versus 42% in cross-sectional, p=.03). Trajectory of HbA1c, LDL, and blood pressure all showed improvement in the prospective measurement versus other groups (HbA1c: 61% versus 59%, p=.46; LDL 74% versus 63%; p<.001 and BP 76% versus 57%, p<.001). More patients were excluded on average with prospective measurement (95 or 15.8% of total versus 23 or 3.3% in relationship and 0 in cross-sectional). A higher comorbidity score, setting goals with patients, and ability to speak English significantly improved chances of adherence to a number of measures in all groups; higher comorbidity score led to less chance of HbA1c<7.0 (p<.01).

CONCLUSIONS: Variation from different techniques for quality measurement was limited except for intermediate outcomes which showed significant improvements with prospective measurement. For outcomes measurement in ambulatory chronic illness care (and without outside data sources), it may make sense to limit measurement to prospective changes over time. Adjustment for population differences would still be required under a prospective model. Several implications will be discussed.

REDUCTION IN GLYCOSYLATED HEMOGLOBIN AND THE RISK OF CARDIAC EVENTS AMONG VETERANS STARTING TREATMENT FOR TYPE 2 DIABETES C.E. Mclaughlin Gavin[1]; E. Lawler[1]; R. Scranton[1]; D. Gagnon[1]; J. Gaziano[1]. [1]MAVERIC, Boston VA Healthcare System, Boston, MA. *(Tracking ID # 190263)*

BACKGROUND: Diabetes is associated with a 2–4 fold increased risk of myocardial infarction, yet randomized clinical trials have not shown a relationship between tight diabetic control and a reduction in cardiac events.
METHODS: We performed a retrospective analysis of 7054 veterans initiating pharmacologic treatment for type 2 diabetes in the New England Veterans Affairs Healthcare System. After one year of treatment, veterans were categorized by the magnitude of reduction in absolute percent glycosylated hemoglobin (HbA1c). Categories were defined as no reduction or an increase in HbA1c (referent), HbA1c reduction of 0–1 units (small reduction), HbA1c reduction of 1–2 units (moderate reduction), and HbA1c reduction of greater than 2 units (large reduction). Patients were followed for incident cardiac events (myocardial infarction or surgical/percutaneous coronary revascularization). We report multivariate adjusted hazard ratios (HRs) and 95% confidence intervals (CIs) obtained using Cox Proportional Hazards regression.
RESULTS: During a median follow-up of 3.5±2.3 years, we observed 292 incident cardiac events. In a multivariate model adjusted for age, gender, baseline HbA1c measurements, underlying cardiovascular disease/risk factors, co-morbid conditions, cardiac medications, vitals, laboratory data and access to care parameters, compared to those with no HbA1c reduction or an increase in HbA1c, the HRs (95% CIs) were 1.07 (0.77–1.49) for those with the smallest HbA1c reductions, 0.98 (0.70–1.36) for those with moderate HbA1c reductions and 0.57 (0.38–0.84) for those with the largest HbA1c reductions (p for trend across HbA1c reduction categories= 0.01). In multivariate models stratified by preexisting coronary artery disease (CAD), among those with preexisting CAD, when compared to the reference category, those in the largest HbA1c reduction category had a decreased risk of cardiac events (HR = 0.46, 95% CI 0.28–0.76). Among those without preexisting heart disease, this effect was attenuated (HR= 0.79, 95% CI 0.36–1.74).
CONCLUSIONS: In this large cohort of veterans initiating pharmacologic treatment for type 2 diabetes, those with a reduction in HbA1c greater than 2 had a decreased risk of incident cardiac events compared to those with no reduction or an increase in HbA1c. This association was strongest among those with preexisting cardiac disease. Additional studies are needed to determine whether it is the ability to reduce HbA1c or the post-treatment HbA1c achieved that predicts cardiac risk.

REFUSING TISSUE/BLOOD DONATION FOR RESEARCH: THE ASSOCIATION OF RACE AND TRUST WITH WILLINGNESS TO PROVIDE TISSUE SAMPLES IN A GENETIC EPIDEMIOLOGIC STUDY J. Bussey-Jones[1]; J.M. Garrett[2]; G.E. Henderson[2]; M. Maloney[3]; C. Blumenthal[2]; G.M. Corbie-Smith[2]. [1]Emory University, Atlanta, GA; [2]University of North Carolina at Chapel Hill, Chapel Hill, NC; [3]University of North Carolina, Chapel Hill, NC. *(Tracking ID # 190652)*

BACKGROUND: A large and diverse group of research participants willing to donate tissue samples is critical to genetic research. Prior work suggests that all groups do not express equal enthusiasm regarding tissue donation for genetic research. Our work had the following objectives: 1) measure willingness to donate tissue/blood samples of participants in a genetic epidemiology study, 2) identify factors associated with willingness to donate samples, and 3) measure the relationships between willingness to donate samples and how likely they would be to participate in a genetic research study in the future.
METHODS: We surveyed black and white cases and controls who participated in the North Carolina Colorectal Cancer Study (NCCCS). Cases were 40 to 80 years old, resided in a 33-county area, with a diagnosis of colorectal cancer. Controls were drawn from DMV records and Medicare beneficiary lists.. Our survey included questions on whether or not a participant had given a blood and/or mouthwash sample for NCCCS. Additionally, participants were asked about trust in research and researchers, and perceived potential discrimination resulting from participating in a genetic research study. Finally, participants were asked, "how likely would you be to take part in [genetic research] in the future?"
RESULTS: Our response rate was 73% (n=801). Respondents had a mean age of 64 years, 19% African American and 81% white, and 57% male. Overall 15% of participants did not give a blood sample, 8% did not give a mouthwash sample, and only 3.5% did not give either. African Americans were less likely to give a blood sample when compared to whites (13% vs. 21%, p<0.05). This difference persisted after controlling for other demographic factors as well as several measures of trust. Those who refused to provide blood samples were more likely to agree that we "shouldn't do research until we know how the information will be used", "the government can't be trusted to regulate use of genetic information", "research participants may be deceived by researchers", "researchers want to know more than they need to know", and "researchers use minorities as guinea pigs". Those who provided both blood and mouthwash samples were much more likely to express willingness to participate in future genetic research studies (50% vs. 22%, p<0.05). These differences were particularly evident among the African American participants.
CONCLUSIONS: We found that participants' provision of tissue samples was associated with white race, more trust of medical researchers, and expression of willingness to participate in future genetic research studies. These findings represent potential barriers to recruitment and retention of participants from diverse backgrounds for genetic studies. Focused interventions to help educate potential study participants about tissue donation in genetic research, and efforts to establish and demonstrate the trustworthiness of the research team may assist future study participation.

RELATION BETWEEN CLINICAL INFORMATION TECHNOLOGIES AND INPATIENT OUTCOMES: A MULTIPLE HOSPITAL STUDY R. Amarasingham[1]; L. Plantiga[2]; M. Diener-West[2]; D.J. Gaskin[3]; N.R. Powe[2]. [1]University of Texas Southwestern Medical Center at Dallas, Dallas, TX; [2]Johns Hopkins University, Baltimore, MD; [3]University of Maryland, Baltimore, MD. *(Tracking ID # 190433)*

BACKGROUND: Despite widespread speculation that clinical information technologies will improve clinical and financial outcomes, few studies have examined this relation in a large number of hospitals. We examined whether greater automation of a hospital information system is associated with improved clinical and financial outcomes.
METHODS: This was a cross-sectional survey of 41 general, acute care hospitals in Texas using the physician-based Clinical Information Technology Assessment Tool (CITAT) between December 2005 and May 2006. The CITAT measures a hospital's level of automation based on physicians' daily interaction with the hospital's information system, avoiding simple terminological definitions that may not account for usability characteristics of the information system. Physician ratings were used to quantitatively assess the degree to which 4 major domains of an information system (notes & records, test results, order entry, and decision support) are effectively computerized at each of the study hospitals. We examined the relation between scores for each of these domains and inpatient mortality, complications, cost, and length of stay in multiple logistic regression analyses, for all hospital discharges (n= 167,233) and discharges in which the principal diagnoses were myocardial infarction (n=4,728), heart failure (n=9,697), coronary artery bypass graft (n=2,298), and pneumonia (n=7,208). All models included adjustments for risk of patient mortality or complications, hospital bed size, total margin, and ownership.
RESULTS: A 10 point increase in the automation of notes & records was associated with a 15% lower adjusted odds of fatal hospitalizations among all hospitalizations(OR=0.85, p<.05). Higher scores in order entry were associated with 9% and 55% lower adjusted odds of death for myocardial infarction and coronary artery bypass graft, respectively. Higher scores in decision support were associated with 21% lower adjusted odds of mortality for pneumonia (OR=0.79, p<.05) and 16% lower adjusted odds of complications for all hospitalizations (OR=0.84, p<.05). Higher scores on test results were associated with lower charges of $418 (p<.05) for all hospital admissions. No clinically or financially meaningful associations with length of stay were identified.

CONCLUSIONS: This study provides empiric evidence that greater automation of a hospital's information system may be associated with reductions in inpatient mortality, complications and charges in a diverse group of hospitals. If further studies confirm these associations, U.S. hospitals should accelerate the acquisition of these technologies.

RELATIONSHIP BETWEEN CIGARETTE SMOKING AND ABDOMINAL OBESITY C. Willi[1]; A. Chiolero[2]; F. David[3]; J. Cornuz[1]; P. Marques-Vidal[2]; F. Paccaud[2]; G. Waeber[4]; P. Wollenweider[5]. [1]Department of Ambulatory Care and Community Medicine, University of Lausanne, Lausanne,; [2]Institute of Social and Preventive Medicine, Lausanne University, Lausanne,; [3]Institute of Social and Preventive Medicine, Lausanne University, Lausanne, AE (Europe); [4]University Hospital Center (CHUV), University of Lausanne, Lausanne,; [5]University Hospital Center (CHUV), University of Lausanne, Lausanne, AE (Europe). *(Tracking ID # 190448)*

BACKGROUND: Although smokers tend to have a lower body-mass index (BMI) than non-smokers, smoking may affect body fat (BF) distribution. Some studies have assessed the association between smoking, BMI and waist circumference (WC), but, to our knowledge, no population-based studies assessed the relation between smoking and BF composition. We assessed the association between amount of cigarette smoking, BMI, WC and BF composition.
METHODS: Data was analysed from a cross-sectional population-based study including 6187 Caucasians aged 32–76 and living in Switzerland. Height, weight and WC were measured. BF, expressed in percent of total body weight, was measured by electrical bioimpedance. Obesity was defined as a BMI>=30 kg/m2 and normal weight as a BMI<25 kg/m2. Abdominal obesity was defined as a WC>=102 cm for men and >=88 cm for women and normal WC as <94 cm for men and <80 cm for women. In men, excess BF was defined as %BF >=28.1, 28.7, 30.6 and 32.6 for age groups 32–44, 45–54, 55–64 and 65–76, respectively; the corresponding values for women were 35.9, 36.5, 40.5 and 44.4. Cigarette smoking was assessed using a self-reported questionnaire.
RESULTS: 29.3% of men and 25.0% of women were smokers. Prevalence of obesity, abdominal obesity, and excess of BF was 16.9% and 26.6% and 14.2% in men and 15.0%, 33.0% and 27.5% in women, respectively. Smokers had lower age-adjusted mean BMI, WC and percent of BF compared to non-smokers. However, among smokers, mean age-adjusted BMI, WC and BF increased with the number of cigarettes smoked per day: among light (1–10 cig/day), moderate (11–20) and heavy smokers (>20), mean +/-SE %BF was 22.4 +/−0.3, 23.1+/−0.3 and 23.5+/−0.4 for men, and 31.9+/−0.3, 32.6+/−0.3 and 32.9+/−0.4 for women, respectively. Mean WC was 92.9+/−0.6, 94.0+/−0.5 and 96.0+/−0.6 cm for men, and 80.2+/−0.5, 81.3+/−0.5 and 83.3+/−0.7 for women, respectively. Mean BMI was 25.7+/−0.2, 26.0+/−0.2, and 26.1+/−0.2 kg/m2 for men; and 23.6+/−0.2, 24.0+/−0.2 and 24.1+/−0.3 for women, respectively. Compared with light smokers, the age-adjusted odds ratio (95% Confidence Interval) for excess of BF was 1.04 (0.58 to 1.85) for moderate smokers and 1.06 (0.57 to 1.99) for heavy smokers in men (p-trend = 0.9), and 1.35 (0.92 to 1.99) and 2.26 (1.38 to 3.72), respectively, in women (p-trend = 0.04). Odds ratio for abdominal obesity vs. normal WC was 1.32 (0.81 to 2.15) for moderate smokers and 1.95 (1.16 to 3.27) for heavy smokers in men (p-trend < 0.01), and 1.15 (0.79 to 1.69) and 2.36 (1.41 to 3.93) in women (p-trend = 0.03). Odds ratio for obesity vs. normal weight was 1.35 (0.76 to 2.41) for moderate smokers and 1.33 (0.71 to 2.49) for heavy smokers in men (p-trend = 0.9) and 0.78 (0.45 to 1.35) and 1.44 (0.73 to 2.85), in women (p-trend = 0.08).
CONCLUSIONS: WC and BF were positively and dose-dependently associated with the number of cigarettes smoked per day in women, whereas only WC was dose dependently and significantly associated with the amount of cigarettes smoked per day in men. This suggests that heavy smokers, especially women, are more likely to have an excess of BF and to accumulate BF in the abdomen compared to lighter smokers.

RELATIONSHIP BETWEEN NON-ADHERENCE TO ANTIRETROVIRAL MEDICATION AND UNPROTECTED SEX: INTERSECTING RISKS AMONG HIV-INFECTED PATIENTS IN THE SOUTH C.A. Grodensky[1]; C.E. Golin[1]; C.M. Suchindran[1]; J.S. Groves[1]; D.L. Long[1]; S.M. Przybyla[1]. [1]University of North Carolina at Chapel Hill, Chapel Hill, NC. *(Tracking ID # 190622)*

BACKGROUND: Sub-optimal adherence to antiretroviral medications (ARVs) can lead to virologic failure and the development of drug resistant virus. Viremia due to non-adherence in persons who practice risky sexual behaviors could lead to increased HIV transmission, including of resistant virus. However, few studies have assessed the co-occurrence of ARV non-adherence and transmission risk behavior or its relationship with other psychosocial factors.
METHODS: From July 2006 to September 2007, we collected Audio Computer Administered Self-Interview (ACASI)- and interviewer-administered data from "SafeTalk," a trial of a clinic-based HIV prevention intervention among sexually active people living with HIV/AIDS (PLWHA) in North Carolina. Sexual activity was assessed through a series of questions in ACASI about participants' number of vaginal and anal sex acts and whether each act was protected with a condom. We categorized participants as "sexually risky" if they reported at least one vaginal or anal sex act during which a condom was not used. Self-reported adherence to ARVs was assessed by a research assistant using a visual analog scale representing the percentage of ARV doses taken in the past month. We categorized participants as "non-adherent" if they reported taking <95% of their doses. Demographic, clinical and psychosocial factors were assessed using ACASI, included gender, age, current viral load, emotional well-being, substance use, and significant stressful life events. Among participants on ARVs, we performed a multinomial logistic regression to assess demographic and psychosocial factors associated with being in one of four categories: 1) adherent and not sexually risky, 2) adherent and sexually risky, 3) non-adherent and not sexual risky, or 4) non-adherent and sexually risky.
RESULTS: Of the 318 participants in the trial, 216 were also on ARVS,; among these 216, ages ranged from 21–70 with a mean age of 44; 85 (38%) were female; 149 (67%) were Black/African-American and 55 (25%) White; 66 (30%) reported being gay/homosexual, 13 (6%) bisexual, and 132 (59%) straight/heterosexual; and 55 (25%) had not graduated from high school. Identical percentages of participants reported vaginal or anal sex without a condom (21%) and <95% adherence to ARVs (21%). Of the 216 participants, 137 (63%) were adherent/non-risky, 35 (16%) adherent/risky, 33 (15%) non-adherent/non-risky, and 11 (5%) non-adherent/risky. Non-adherent/risky participants were less likely to have at least high school education than adherent/non-risky participants [OR .226, CI: .064-.793, p=.020], but not significantly different in gender, age, and undetectable viral load. Controlling for these variables, non-adherent/risky participants were less likely to have high emotional well-being [OR .802, CI: .695-.926, p=.003] and more likely to have been evicted or asked to leave housing in the last 6 months [OR 5.634, CI: 1.388–22.861, p=.016] and to have used crack or cocaine in the past 3 months [OR 10.279, CI: 2.359–44.794, p=.002].
CONCLUSIONS: While only 5% of our sample reported a combination of unprotected sex and ARV non-adherence, our data suggest that instability in housing may play a role in the co-occurrence of these behaviors, and that treatment for depression and substance abuse reduce the risk of those most likely to transmit resistant HIV.

RESIDENT KNOWLEDGE OF BLACK BOX WARNINGS S.K. Rigler[1]; T. Shireman[1]; A. Mayorga[1]; J. Generali[2]; K. Moeller[2]. [1]University of Kansas School of Medicine, Kansas City, KS; [2]University of Kansas School of Pharmacy, Kansas City, KS. *(Tracking ID # 190158)*

BACKGROUND: The Food and Drug Administration requires pharmaceutical manufacturers to issue "Black box warnings (BBW)" in product labeling for selected serious adverse drug effects. Resident awareness of BBW content may influence prescribing quality and relates to several ACGME competencies, including medical knowledge, patient care, and systems-based practice. However, BBW content may not be explicitly taught during residency. Our objectives were to develop a survey to assess primary care residents' knowledge of BBWs, and to compare scores in interns and senior residents.
METHODS: We administered the survey anonymously to a convenience sample of internal medicine and family medicine residents who were present at routine teaching conferences. Residency and year of training were collected without names. Twenty medications were included, 15 of which carry a BBW and 5 of which do not. Drugs were chosen to represent a wide range of indications, frequency of use in generalist practice, and number of years on the market. For each drug, residents were to check 'yes' or 'no' for whether they believed that drug carried a BBW. If they chose 'yes,' they were then asked to write, in free text, the reason for the BBW. We then

developed a scoring algorithm with which to convert these free-text entries into a correct/incorrect score for the stated reason for the BBW. Kappa scores for inter-rater reliability for these scores for each drug ranged from 0.7 to 1.0, with most drugs demonstrating complete agreement. Descriptive statistics were obtained, including percent correct for each individual drug, the mean total percent correct for BBW presence/absence, and the mean total percent correct for BBW reasons. Student's t-tests were used to compare these total scores for interns (R1s) versus senior residents (R2s and R3s combined).
RESULTS: Due to the anonymous nature of the survey, one-third of residents opted out and several others took a survey but returned it without data. Overall, approximately 60% of residents in attendance participated. Twenty-nine complete surveys were returned, nearly all from internal medicine residents. The rate of correct response varied widely by drug, ranging from a low of 7% correct for stavudine by R1s to a high of 100% correct for gentamicin by R2/R3s. On average, R1s (n=14) scored correctly on 49% of all items asking whether or not a BBW existed, compared to 63% of R2/R3s (n=15); p=0.010 for t-test comparison. For items asking for the reason for a BBW, R1s on average provided correct answers for 20% of drugs, in comparison to 40% for R2/R3s (p=0.001 for t-test). However, many free-text answers which were scored as incorrect did indeed mention legitimate drug safety concerns but they were not the reasons specifically provided in the BBW.
CONCLUSIONS: Knowledge of BBWs improves between internship and senior residency despite the lack of a specific educational activity in the formal curriculum. However, much room for improvement remains. Some residents appear to have gained moderate knowledge about BBWs for drugs used commonly in training and/or about BBWs receiving recent widespread publicity in the media. However, for other drugs, awareness of BBWs and their specific content is poor. Quality of care, prescribing safety, and medicolegal concerns warrant the development of a specific educational activity for residents focused on improving awareness of current BBWs and acquiring mechanisms for staying current in the future.

RESIDENT PERCEPTIONS OF THE EDUCATIONAL VALUE OF NIGHT FLOAT ROTATIONS AT A LARGE MULTI-HOSPITAL INTERNAL MEDICINE RESIDENCY PROGRAM J.E. Wipf[1]; A.M. Luks[1]; C. Smith[2]. [1]University of Washington, Seattle, WA; [2]University of Washington/Boise VA Medical Center, Boise, ID. *(Tracking ID # 189279)*

BACKGROUND: Despite the increasing use of night float rotations following changes in resident duty hour requirements, little data is available about the educational impact and resident perceptions of these rotations. We sought to clarify the effect of night float rotations on resident education.
METHODS: We surveyed all internal medicine residents at a university-based residency program in Seattle, Washington. Residents quantified their attendance at educational conferences, attending contact and sleep on night float and non-night float rotations and rated their agreement with statements about different aspects of night float rotations. Free response comments were elicited about night float rotations. Two-sample t-tests were used to compare quantitative responses from residents regarding night float and non-night float rotations and one-way ANOVA was employed to detect differences due to year or training track.
RESULTS: Surveys were mailed to 163 residents and analyzable responses were received from 116 (analyzable response rate 71%). Residents attended fewer resident report sessions (p<0.001), grand rounds (p<0.001) and other educational conferences (p<0.001) and spent less time reading educational materials (p= 0.0036), interacting with attending physicians (p<0.001) and sleeping at home on night float rotations (p<0.001). All differences were highly statistically significant. During night float rotations, 91% of residents did not attend any resident report sessions while 72% did not attend any grand rounds sessions and 91% did not attend any other educational conferences. First year residents had smaller differences between the number of educational conferences attended on night float and non-night float rotations. Preliminary track residents had a larger difference in the number of hours spent sleeping on the different types of rotations compared to other tracks. There were no other differences in results based on year in the program or training track. Residents had strongly negative opinions about the educational value of night float rotations, their ability to adjust to the altered sleep cycle and the impact of these rotations on their personal lives. In their free responses, residents stated that they liked the autonomy on night float rotations and the opportunity to improve their triage and cross-cover skills, while confirming their strong negative opinions about problems with the sleep-wake cycle and the impact on their personal lives. Despite giving negative ratings to the educational value of night float rotations, many respondents felt that night float rotations made long-call rotations better and were willing to do such rotations for the sake of other residents' well-being.
CONCLUSIONS: Night float rotations limit educational opportunities and are associated with negative opinions of their educational value on the part of internal medicine residents. Given the increasing role night float rotations are playing in internal medicine training programs, further work is necessary to clarify whether problems exist across residency programs and to identify ways to ameliorate these problems.

RESIDENTS' EXPERIENCE OF RESEARCH AND SCHOLARLY ACTIVITY IS ASSOCIATED WITH THEIR SATISFACTION WITH THEIR RESIDENCY TRAINING IN JAPAN O. Takahashi[1]; S. Ohde[2]; J. Jacobs[3]; Y. Tokuda[1]; F. Omata[1]; T. Fukui[1]. [1]St. Luke's International Hospital/St. Luke's Life Science Institute, Tokyo,; [2]St. Luke's Life Science Institute, Tokyo,; [3]University of Hawaii, Honolulu, HI. *(Tracking ID # 190930)*

BACKGROUND: Currently in Japan, the Ministry of Health, Labour and Welfare has a stated goal for physicians to engage in academic and scholarly activities during their two years of residency training. However, to date, there has been no formal assessment to determine the incidence and type of activities the residents have engaged in. We aimed 1) to characterize current academic and scholarly activities of residents during their training, 2) to identify existing and potential barriers preventing residents from engaging in academic and scholarly activities and 3) to estimate the association between residents' satisfaction with their training program and their research activity.
METHODS: Cross-sectional nation wide survey. In March, 2007, a questionnaire was mailed to 1500 residents who had completed the mandatory two-year postgraduate residency program. The survey asked residents about their research experiences including type of activities, barriers to performing their research, residents' opinions on scholarly work, and satisfaction with the residency program. Research and scholarly activities were defined in the survey as: clinical research; case reports; and attending a regional, national, or international medical conference.
RESULTS: There were 1124 subjects who returned questionnaires with items completed (response rate: 74.9%). The data show that 75.3% of Japanese residents engaged in some kind of academic or scholarly activity during their 2-year program. The types of activities are as follows: oral case-report (61.2%), presenting at a regional, national or international conference (25.0%), publishing in a medical journal (10.0%), and hypothesis-driven clinical research (5.1%). The barriers cited by residents which limited their ability to engage in academic and scholarly activities included 'No time" (40.2%), "No mentor" (31.0%), and "No interest" (25.1%). Six-three percent of residents thought research should be a residency requirement. In logistic multivariate analysis, residents' satisfaction with their residency program was statistically significantly associated with the experience of research activity (odds ratio (OR): 1.5), male gender (OR: 1.5), satisfaction with income and resident support infrastructure (OR: 3.9), satisfaction with residency program (OR: 18.7) adjusting for location of residency (university or non-university program) and residents' age.
CONCLUSIONS: The majority of residents surveyed thought research activity was a worthwhile experience despite a few barriers. To better meet this goal of the Ministry, to have residents engage in scholarly activities, protected research time, appropriate mentoring, and repeated assessment of progress needs to be provided. Moreover, these results suggest residents' experience of research activity could increase their satisfaction with residency training.

RESOURCE UTILIZATON PATTERNS OF THIRD YEAR MEDICAL STUDENTS A. Cooper[1]; M. Elnicki[1]. [1]University of Pittsburgh, Pittsburgh, PA. *(Tracking ID # 190465)*

BACKGROUND: Little is known about the educational resources students use in various learning situations. We sought to identify resource utilization patterns during an inpatient Internal Medicine clerkship.
METHODS: In this prospective, observational cohort study, a confidential survey of third year medical students at the end of their inpatient

internal medicine clerkship was performed. Questionnaires investigated resource utilization in specific clinical situations during the inpatient internal medicine rotation. Students were also asked questions regarding study methods and goals of knowledge acquisition. Student study styles were ascertained using a 5-point scale with 1=never use a method and 5 = always use a method. Continuous data were analyzed using Kruskal-Wallis and Wilcoxan rank sum tests where appropriate.
RESULTS: The survey was completed by 130 of 144 students (90% response rate) on inpatient Internal Medicine rotations. The majority of students used Up to Date to prepare for attending rounds and while admitting patients (64% and 67% respectively). However, when preparing for the NBME subject examination, 25% used MKSAP for Students, 25% used National Medical Series (NMS) or Blueprints, 17% used Harrison's Principles of Internal Medicine, and only 13% used Up to Date. The majority of students stated that, in regard to their study style, they usually read about their patients (mean 4.5, SD .66) and look up topics online (mean 4.03, SD 1.0). Few students memorize lists (mean 2.36, SD 0.97) or read in-depth about topics in textbooks (mean 2.95, SD 1.0). When study styles of students were compared, students planning a career in internal medicine read significantly more about topics in textbooks and searched more for original articles compared to students not planning an internal medicine career (mean 3.3 v 2.7, $p = .035$ and mean 3.5 v 3.8, $p = .049$). Finally, students who stated that their main reason for studying was to pass the final examination did not read original research articles as often compared to students who listed other primary goals of studying (mean 2.0, SD .93 v. all means>3.0, $p<.05$).
CONCLUSIONS: Students utilize different resources when preparing for various clinical and academic situations on the inpatient internal medicine rotation. While Up to Date was the primary resource used on the inpatient rotation for preparing for attending rounds and answering questions while admitting patients, this was not the primary resource for preparing for the examination. Resource choice also was affected by career plans and goals for studying. These findings may help optimize advising students regarding selection of reading materials, and to design future educational resources.

RESPONDING TO ADVICE TO CURTAIL ALCOHOL CONSUMPTION: DECISION FACTORS AMONG NONABUSING DRINKERS DIAGNOSED WITH HEPATITIS C E.P. Stoller[1]; N.J. Webster[2]; C.E. Blixen[2]; R.C. Mccormick[2]; A. Hund[2]; A.T. Perzynski[2]; S.W. Kanuch[3]; C.L. Thomas[2]; K. Kercher[4]; N.V. Dawson[2]. [1]Wake Forest University, Winston-Salem, NC; [2]Case Western Reserve University, Cleveland, OH; [3]MetroHealth Medical Center, Cleveland, OH; [4]University of Nebraska at Omaha, Omaha, NE. *(Tracking ID # 190296)*

BACKGROUND: Understanding drinking decisions among non-abusing drinkers is important in managing a number of medical conditions that are not alcohol related but which benefit from reducing alcohol consumption. Most guidelines for counseling patients about drinking are based on research on abusing drinkers. We explored decision factors influencing responses of non-abusing drinkers advised to curtail drinking because of medical conditions, focusing on chronic Hepatitis C (HCV).
METHODS: We compared items in existing quantitative instruments with decision factors that emerged through analysis of qualitative data reflecting the experiences of HCV+ non-abusing drinkers. We then estimated the prevalence and association with current drinking of decision factors reported by non-abusing drinkers but not reflected in existing instruments using responses to a telephone survey of 577 HCV+ patients who were drinking at the time of diagnosis.
RESULTS: Our study found that 90% of the 733 items that have been confirmed to be salient for abusers also influence the change process for non-abusers faced with a medical need to stop drinking. We also identified a set of new decision factors, the majority of which were endorsed by survey respondents. Patients who had quit drinking tended to attribute post-diagnosis drinking to occasional triggers, whereas patients who were still drinking were more likely to endorse rationales not tied to specific triggers. The new decision factors identified in our study reflect three categories with heuristic value for clinicians in general internal medical settings treating non-abusing patients who must curtail alcohol consumption for medical reasons: (1) the interaction of alcohol with the course of illness and treatment; (2) patient tailoring of advice not to drink; and (3) stigma.
CONCLUSIONS: Although most items were salient for both abusing and non-abusing individuals, recognition of the new decision factors provides clinicians with opportunities to understand reasons for continued alcohol consumption among non-abusing patients. The new decision items may allow for more specific and effective patient counseling about alcohol consumption.

REVERSAL OF FORTUNE: INCOME DISPARITIES IN CHOLESTEROL IN THE ERA OF STATINS V.W. Chang[1]; D.S. Lauderdale[2]. [1]University of Pennsylvania; Philadelphia VAMC, Philadelphia, PA; [2]University of Chicago, Chicago, IL. *(Tracking ID # 190681)*

BACKGROUND: The past few decades have witnessed tremendous progress in the reduction of cardiovascular mortality, and such progress is considered an exemplar for successful returns on investments in medical research and technology. Cholesterol levels, a central risk factor for cardiovascular disease, have been significantly lowered in recent years by pharmaceutical innovation. Introduced in the late 1980's, statins (HMG-CoA reductase inhibitors) offered, for the first time, highly effective drug control. In this paper, we examine income disparities in cholesterol before and after the introduction and dissemination of statins. While statins have largely been welcomed as a key contributor to our progress against cardiovascular mortality, less attention is devoted to the fact that statins, as an expensive and potent new technology, may be disproportionately adopted those who are better resourced, creating or exacerbating social disparities.
METHODS: Data from three successive waves of the National Health and Nutrition Examination Survey (NHANES): II (1976–1980), III (1988–1994), and Continuous (1999–2004) are used to examine secular changes in the relationship between lipid levels and income over a thirty-year period. The outcomes of interest are total cholesterol levels and fasting low density lipoprotein (LDL) levels. Multivariate regression models are used to assess the association between lipid levels and income over time. Cholesterol (or fasting LDL) is modeled as the dependent variable and income, survey year, and other covariates are included as predictor variables. Our hypothesis that income disparities have changed over time is tested with an interaction term between income and survey year. Exploratory analyses additionally consider the relationship between income and statin use and, furthermore, simulate time changes in the absence of statins.
RESULTS: Average lipid levels have declined at all income levels over time. However, income disparities for both total cholesterol and LDL have undergone dramatic changes during a period in which statins were introduced. For both men and women, income gradients were initially positive in the late 1970's, but became negative in the period subsequent to the advent and dissemination of statins. While the more advantaged were once more likely to have high levels of cholesterol, they are now definitively less likely to have such unhealthy outcomes. For example, compared to low income men, high income men used to have 51% *greater* odds ($p<0.05$) of high LDL ($\geq$160 mg/dl), but now have 34% *lower* odds ($p<0.05$). In keeping with these findings, other analyses show that income is positively associated with statin use among those with hyperlipidemia. Lastly, results from exploratory analyses simulating the absence of statins are consistent with the hypothesis that statin use contributed to the observed secular changes in income gradients.
CONCLUSIONS: While statins hold great promise for reducing cardiovascular mortality, they have, at least in the initial period, reversed social disparities, turning a positive gradient into a negative one with respect to lipids. Technologies are typically implemented in a context of inequalities, and our findings serve as a timely example of how an innovation that raises average health can have the unanticipated or unintended consequence of linking social factors to a risk factor. Moreover, these changes serve as forceful example of social conditions as a fundamental cause of disease.

REVERSE DISPARITIES? OUTPATIENT VISIT RATES AMONG HIGH-DEDUCTIBLE HEALTH PLAN MEMBERS AFTER A FIRST EMERGENCY DEPARTMENT VISIT J.F. Wharam[1]; A. Galbraith[1]; F. Zhang[1]; S. Soumerai[1]; B.E. Landon[1]; D. Ross-Degnan[1]. [1]Harvard Medical School, Boston, MA. *(Tracking ID # 189906)*

BACKGROUND: High-deductible health plans (HDHP) include financial incentives such as full coverage of preventive services, low outpatient co-payments, and high emergency department cost-sharing to encour-

age primary care utilization. However, critics have raised concerns that some HDHP members, including those of lower socioeconomic status (SES), might broadly forgo all health care because of a lack of understanding of the nuances of their coverage.
METHODS: Harvard Pilgrim Health Care began offering a HDHP in March 2002 that covered outpatient physician visits in full after a $20 co-payment, but did not cover emergency department use until members had reached their annual deductible. We studied health insurance claims in the first year after HMO plan members were required to switch to a HDHP by their employers. We analyzed outpatient visit rates before and after a first emergency department visit, compared to rates among contemporaneous matched members whose employers offered only HMO coverage throughout the entire period and who also visited the emergency department. We considered members to have low SES based on whether they lived in a census block with greater than 10% of households below poverty level or 25% of adult household members with less than a high school education. We used Poisson regression to adjust for covariates including age, sex, morbidity, date of shift to a HDHP, individual versus family plan, employer size, severity of first emergency department visit, and duration of time before and after the first emergency department visit.
RESULTS: We studied 1238 HDHP and 9836 HMO control members, 18.1% and 16.8% of whom were in the low SES cohort, respectively. After adjustment, HDHP members experienced a non-significant 6.1% increase in outpatient visits after their first emergency department visit compared to HMO controls (95% C.I., −4.1% to 17.1%). Lower SES HDHP members experienced a 25.2% increase in outpatient visits after their first emergency department visit relative to lower SES HMO members (95% C.I., 1.3% to 54.9%). Among the higher SES cohort, HDHP members experienced a non-significant 5.4% increase in outpatient visits after their first emergency department visit compared to HMO members (95% C.I., −4.8% to 16.7%).
CONCLUSIONS: After an initial emergency department visit requiring a large out of pocket payment, HDHP members experienced a small non-significant increase in outpatient visits compared to HMO members. However, HDHP members of lower SES showed a substantial and statistically significant increase in outpatient visit rates after their first emergency department visit relative to similar low SES HMO plan members. These finding suggest that low SES members in this HDHP did not indiscriminately cut back on the use of all health care services after experiencing a costly emergency department visit. Further research is needed to determine the appropriateness of such patterns of outpatient use and their effects on health outcomes.

RHEUMATOID ARTHRITIS INCREASES RISK OF ALL-CAUSE MORTALITY DURING ELECTIVE HOSPITALIZATIONS WITH SURGICAL PROCEDURES: AN ANALYSIS USING THE NATIONAL INPATIENT SAMPLE OF HEALTHCARE COST AND UTILIZATION PROJECT
A. Yazdanyar[1]; J.E. Bost[1]; M.C. Wasko[1]; K.L. Kraemer[1]; M.M. Ward[2]. [1]University of Pittsburgh, Pittsburgh, PA; [2]NIAMS/NIH/DHHS, Bethesda, MD. *(Tracking ID # 189955)*

BACKGROUND: Rheumatoid arthritis(RA) is associated with increased morbidity and mortality. It is yet to be determined whether RA is associated with increased perioperative risk of adverse events. Using population-based data, we examined the impact of RA on risk of all-cause in-hospital mortality among patients undergoing surgery during elective hospitalizations.
METHODS: We conducted a cross-sectional analysis using International Classification of Diseases, ninth revision, discharge diagnoses codes provided in the 2001 to 2004 Healthcare Cost and Utilization Project-National Inpatient Sample. We identified patients with RA and Osteoarthritis (OA), selected co-morbidities (congestive heart failure, chronic renal disease, diabetes mellitus, hypertension, coronary artery disease, atrial fibrillation, valvular heart disease), and principal surgical procedure. The principal surgical procedure was categorized into low, intermediate, and high risk using American College of Cardiology guidelines. Using multivariable logistic regression to adjust for potential confounders, we determined the risk of all-cause in-hospital mortality in RA relative to OA patients.
RESULTS: The weighted sample included 18,205 RA and 509,413 OA patients. RA patients were younger (mean age:62.2 vs 67.2 years; $p<0.01$), more likely to be female (75.7% vs 61.7%; $p<0.01$), have congestive heart failure without pulmonary edema (4.4% vs 3.1%; $p<0.01$), chronic renal disease (0.2% vs 0.1%; $p=0.03$), and less likely to be diabetic (11.6% vs 14.5%; $p<0.01$) or hypertensive (43.9% vs 56.6%; $p<0.01$) than OA patients. The proportions (RA vs OA) of coronary artery disease (13.6% vs 13.2%), atrial fibrillation (5.4% vs 5.5%), and valvular heart disease (0.9% vs 1.0%) did not differ between groups. Significantly fewer RA patients underwent intermediate risk surgery (81.4% vs 96.4%) while a greater proportion underwent low (10.6% vs 2.0%) or high risk surgery (8.0% vs 1.6%). There were 80(0.4%) in-hospital deaths in the RA as compared to 815(0.2%) deaths in the OA patients ($p<0.01$). In a multivariable logistic regression analysis adjusted for age and gender, RA patients had a greater risk of all-cause in-hospital mortality than OA patients (Odds Ratio [OR]=3.72; 95% Confidence Interval [CI]: 2.90–4.86). The increased risk of mortality in RA compared to OA patients remained significant after adjusting for selected co-morbidities and surgical risk (OR=2.52; 95% CI: 1.93–3.29).
CONCLUSIONS: RA was associated with an increased risk of all-cause mortality during elective hospitalizations which included a surgical procedure. The association remained significant after adjusting for potential confounding variables. This finding has implications for perioperative risk assessment in patients with RA.

ROBUST PREDICTION OF EXPENDITURES WITH A TWO ITEM MODEL
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BACKGROUND: Risk prediction can help identify high risk populations and guide management and the allocation of financial resources. We sought to compare the ability of a single item assessing general self-rated health (GSRH), "In general, would you say your health is Excellent, Very Good, Good, Fair, or Poor?", to more complex self-rated health and diagnosis-based models for identifying individuals at risk for high future health expenditures.
METHODS: We used data from Panel 8 (2003–2004) of the Medical Expenditure Panel Survey (n=7,948), a nationally representative sample of the U.S. civilian non-institutionalized population, to compare the predictive ability of GSRH to more complex risk prediction models: 1) a self-rated health measure, the Short Form-12 Physical Component Score (PCS) and 2) a diagnostic-based tool, the Charlson-Deyo Comorbidity Index (Charlson-Deyo). We assessed performance by creating a log model with each predictor and a primary outcome of high total annual healthcare expenditures and secondary outcomes of high pharmacy costs, high office-based physician expenditures and any inpatient hospital expenditures. We also estimated R2 from linear regression models.
RESULTS: Participants reporting "poor" GSRH had 5 times the age-adjusted mean annual expenditures as their counterparts reporting "excellent" GSRH [$10,898 (SE $1038) vs. $2,274 (SE $126), respectively]. The GSRH model performed as well as the PCS, and Charlson-Deyo models in predicting the top quintile of total annual expenditures with areas under the receiver operating characteristic curve (AUC) of 0.79, 0.79 and 0.77, respectively. The GSRH model also performed as well as the PCS, and Charlson-Deyo models for predicting pharmacy (AUC: 0.83, 0.82, and 0.80, respectively), office-based (0.73, 0.74, and 0.73, respectively) and hospital inpatient expenditures (0.74, 0.75 and 0.73, respectively). Adding the information in the Charlson-Deyo to the GSRH model did not improve the predictive ability for annual total expenditures (0.79 to 0.80). Results were similar for sub-categories of expenditures. The R2 for GSRH indicates that it performs best predicting pharmacy expenditures (17.0%) and accounted for more of the variance than the PCS (14.5%) and Charlson-Deyo (13.8%) models.
CONCLUSIONS: A simple model consisting of GSRH plus age stratifies the general population according to future health expenditures and performs as well as more complex risk prediction tools, including one that is diagnosis-based. Both GSRH and age are easily collected and analyzed and can create a simple risk stratification and prediction tool to replace more complex models.

SATISFACTION WITH DIABETES CARE: THE ROLE OF TRUST AND PARTICIPATORY DECISION MAKING
J.H. Halanych[1]; M.M. Safford[1]; J.J. Allison[1]. [1]University of Alabama at Birmingham, Birmingham, AL. *(Tracking ID # 189670)*

BACKGROUND: As conceptualized by the Institute of Medicine, patient satisfaction is an important dimension of quality of care. Differences in

satisfaction with care between African American (AA) and European American (EA) patients have been documented, but are not well understood. We examined the role of two aspects of the patient-provider relationship, trust and participatory decision making, in satisfaction with care in a cohort of AA and EA patients with diabetes.
METHODS: We used computer-assisted telephone interviewing to survey 1,786 AA and EA Medicare Managed Care patients with diabetes from Alabama, Florida, and North Carolina. The survey included questions on demographics, income, education, insulin use, satisfaction with diabetes care (Michigan Diabetes Research and Training Center), trust (Wake Forest Trust in Physicians), and participatory decision making (Medical Outcomes Study). Information about comorbidities (Charlson Comorbidity Index), and presence of diabetes complications (retinopathy, nephropathy, or neuropathy) was determined from Managed Care administrative data. Bivariate analyses and linear multivariable regressions were conducted.
RESULTS: Mean age of participants was 73 years, 64% were female, and 45% were AA. In bivariate analyses, trust was associated with satisfaction with diabetes care in both AA and EA patients ($p<0.001$). Participatory decision making was associated with satisfaction in EA ($p<0.001$), but not in AA patients ($p=0.50$). These associations persisted in multivariable models (Table) adjusting for covariates.
CONCLUSIONS: Trust in one's physician had a similar relationship with satisfaction with care in both AA and EA older diabetes patients, but participatory decision making was associated with higher satisfaction only in EA patients. A deeper understanding of how aspects of the patient-provider relationship contribute to satisfaction with care in different racial/ethnic groups is needed if efforts to improve satisfaction with care are to be effective.

Multivariable Analysis of Associations with Satisfaction with Diabetes Care (adjusted for age, sex, education, income, diabetes complications, insulin use, and Charlson Comorbidity Index)

	N	Regression Coefficient	95% Conf Interval	R-squared
EA	781			0.136
–Trust		0.11	0.09, 0.13	
–Participatory Decision Making		0.06	0.01, 0.10	
AA	603			0.108
–Trust		0.10	0.07, 0.12	
–Participatory Decision Making		0.0001	−0.05, 0.05	

SCREENING FOR LIMITED HEALTH LITERACY: ARE COMMONLY AVAILABLE ADMINISTRATIVE DATA ENOUGH? J.J. Sudano[1]; S.A. Lewis[1]; D.N. Doria[2]; L.M. Dejesus[2]; N.V. Dawson[1]. [1]Case Western Reserve University, Cleveland, OH; [2]MetroHealth Medical Center, Cleveland, OH. *(Tracking ID # 190550)*

BACKGROUND: Prior studies have suggested that education is an inaccurate predictor of health literacy level and that a single screening item can better predict inadequate literacy compared with commonly available administrative data such as education and other demographic characteristics.
METHODS: We studied 318 adult patients ages 45–64 attending an urban academic health center outpatient clinic. Demographic (age, sex, language of interview) and educational attainment items and the Short Test of Functional Health Literacy in Adults (STOFHLA) were administered; participants were telephoned at a later date and asked 3 questions designed to screen for inadequate or marginal literacy skills. These items query how often respondents a) have someone help them READ health information, b) had trouble UNDERSTANDING written information about their health condition, and c) had trouble FILLING OUT medical forms. Multivariable regression models were used to evaluate the best predictors of the continuous STOFHLA score (ordinary least squares [OLS] regression) and literacy level categories (logistic regression comparing inadequate vs. marginal/adequate and inadequate/marginal vs. adequate). In each analytic method we entered variables in stages to access the individual, independent, and marginal contributions of the demographic and education variables and the 3 screening items. Standardized coefficients (betas), adjusted R-square (R-sq) values, and C-statistics were used to assess relative predictive values of variables and model fit.
RESULTS: A total of 75 whites (24%), 82 blacks (26%), and 161 Hispanics (50%) participated. Mean age was 52.7 (SD=5.2); 57% were female; 140 Hispanics chose Spanish as their interview language (44% of total). Mean educational attainment was 11.7 years (SD=3.5) with 38% reporting 13 or more years of education. Mean STOFHLA scores (range 0–36) were 27.4 (SD=10.5); 17% scored inadequate (range 0–16), 8% marginal (range 17–22), and 75% adequate (range 23–36). In OLS models predicting STOFHLA scores with only demographics, R-sq=0.23; with demographics and education, R-sq=0.48; with demographics and 3 screening items, R-sq=0.40; full model with all items R-sq=0.54. In the full OLS model, the largest betas were education=0.45 ($p<0.001$), Spanish language=−0.14 ($p<0.01$), screening items READ= −0.19 ($p<0.001$), and FILLING OUT= −0.12 ($p=0.055$). In models predicting inadequate vs. marginal/adequate literacy with demographics, C=0.78; with demographics and education, C=0.88; with demographics and 3 screening items, C=0.86; full model with all items, C=0.90; results predicting inadequate/marginal vs. adequate literacy were nearly identical.
CONCLUSIONS: The addition of questions designed to screen for limited literacy only marginally improved the predictions of literacy levels obtained by using commonly available administrative data. In contrast with prior studies, we found that education remained the most important and robust indicator of literacy levels among older adults in a clinical population. One screening item (READ), however, also seems to be an important predictor as found in prior studies, but it did not have better predictive value than education in our analyses. One limitation of our study is that the results may not be generalizable to other populations and hence suggest further study across a nationally representative sample is warranted.

SCREENING MAMMOGRAPHY USE IN MEDICARE BENEFICIARIES REFLECTS 4-YEAR MORTALITY RISK D. Koya[1]; G.J. Chen[1]; W.P. Moran[1]. [1]Medical University of South Carolina, Charleston, SC. *(Tracking ID # 190113)*

BACKGROUND: Because of competing causes of mortality in the elderly, the net mortality benefits from screening mammography depend on life expectancy. Consistent with this, breast cancer screening guidelines recommend that women and physicians consider life expectancy when making screening decisions. We determined the relationship between 4-year mortality risk and use of screening mammography in Medicare beneficiaries, in a cross-sectional study using Medicare Current Beneficiary Survey (MCBS) data.
METHODS: We used MCBS 2002 data to analyze recent mammography use across 4 groups of mortality risk among non-institutionalized female Medicare beneficiaries 65 years and older. Women with breast cancer history were excluded. 4-year mortality risk is an ordinal variable with 4 strata of increasing probability of death derived from a published and validated prognostic index {risk group 1 (4% 4- year mortality), risk group 2 (15% 4-yr mortality), risk group 3 (42% 4-yr mortality) and risk group 4 (64% 4-year mortality)}. The prognostic index includes 12 predictors of mortality (age, sex, BMI, smoking status, co morbid conditions and functional status) obtained from self-report. Multivariate logistic regression was used to assess the independent association between mortality risk and mammography. A subgroup analysis was conducted to determine the relationship between mammography use and mortality risk by age groups. SUDAAN was used for statistical analyses to account for the complex survey design of the MCBS.
RESULTS: There was a significant decreasing trend in the use of mammography across mortality risk groups 1,2,3 and 4 (62.7%, 51.5%, 36.6% and 24% respectively; trend test $p<0.001$). The adjusted odds of mammography use were highest in low mortality risk group and show a gradual decline with increasing mortality risk ({OR (CI) for risk groups 1,2,3 and 4 were 1.00, 0.69 (0.53 – 0.90), 0.37 (0.27 – 0.49), and 0.22 (0.13 – 0.36) respectively}). No significant differences in receipt of mammography across age groups within each mortality risk group were found.Factors significantly associated with higher rates of receipt of mammography use were higher education, higher income, number of office visits in the current year, receipt of influenza or pneumonia vaccines and receipt of Pap testing.
CONCLUSIONS: The inverse association between mammography use and 4-yr mortality risk in female Medicare beneficiaries suggests that

patients and providers do consider prognosis as a factor in the use of screening mammography. Prospective studies are needed to explore the use of 4-year mortality risk prognostic index as a cancer screening decision tool among older women in the clinical setting.

SCREENING UNDOCUMENTED IMMIGRANTS IN SWITZERLAND FOR TUBERCULOSIS AND LATENT TUBERCULOSIS INFECTION USING THE INTERFERON-G ASSAY P. Bodenmann[1]; P. Vaucher[1]; F. Tribolet[2]; B. Favrat[1]; J. Zellweger[1]. [1]University Hospital of Lausanne, Lausanne,; [2]Point d'Eau Health Care Centre, Lausanne, . *(Tracking ID # 189572)*

BACKGROUND: Undocumented immigrants are a potential source of tuberculosis (TB) and latent tuberculosis infection (LTBI), but are difficult to screen and treat. In Western Switzerland, there are an estimated 20,000 immigrants/1 million inhabitants, and 90% of them lack medical insurance. Dedicated medical centers for undocumented immigrants facilitate interaction with this population group. In this study, we used the interferon-g assay to assess the prevalence of LTBI in a population of immigrants visiting two urban healthcare centers. We also assessed adherence to preventive or curative treatment, if prescribed.
METHODS: All consecutive new patients attending two healthcare centers for undocumented immigrants in Lausanne, Switzerland, between January and July 2007 were offered TB and LTBI screening using a questionnaire on risk factors and current symptoms. The nurse practitioners also offered the interferon-g assay (T-Spot.TB™, Oxford Immunotec). Patients with a positive T-Spot.TB™ or TB symptoms were examined by a physician and had a chest X-ray performed. Adherence to treatment for TB or LTBI was evaluated monthly at visits to the tuberculosis service of the Department of Ambulatory Care and Community Medicine.
RESULTS: Of 161 undocumented immigrants, 131 (81.4%) agreed to be screened; 125 had a complete examination. Of these 125, 51.2% were from South America and 19.2% from Sub-Saharan Africa. Most patients (83.2%) entered Switzerland without passing the official screening procedure for TB for asylum seekers and refugees, and 52% of the patients had been in Switzerland for less than two years. Twenty-four of the 125 patients (19.2%; CI95% 12.7;27.2) had a positive T-Spot.TB™, and 2/125 had active TB (1.6%; CI95% 0.2;5.7). Of the 18 patients with LTBI, 4 did not show up for a second visit. Ten patients had an indication for standard isoniazide or rifampicine preventive therapy, but 5 interrupted their treatment before the scheduled end (50% completion rate).
CONCLUSIONS: Screening for active and latent tuberculosis in this hard-to-reach population is feasible using dedicated clinics, and the prevalence of TB and LTBI in this population is high. However, the low adherence to treatment for LTBI is an important public health concern, and new strategies are needed to address this.

SEE ONE, DO ONE, TEACH ONE- AN EVALUATION OF PROCEDURAL SKILLS EDUCATION DURING INTERNAL MEDICINE RESIDENCY M. Mourad[1]; J. Kohlwes[2]. [1]University of California, San Francisco, San Francisco, CA; [2]University of California, San Franciso/San Francisco VA Medical Center, California, San Francisco, CA. *(Tracking ID # 190209)*

BACKGROUND: Due to the decreasing number of internists performing invasive procedures, the American Board of Internal Medicine (ABIM) recently rescinded their procedure certification requirement for internal medicine residents. During the course of their training, however, residents routinely perform and supervise these invasive procedures. Though ingrained in the practice of medicine, "see one, do one, teach one" does not provide the expertise needed to safely perform procedures. With the ever increasing importance of reducing hospital stay and minimizing complications, the ability of mid-level residents to safely perform and supervise procedures is of critical importance. We aimed to evaluate internal medicine residents' perceived competency with medical procedures and correlate it with quantitative procedural experience. Secondarily we sought to ascertain at what point during residency trainees report comfort with performing and supervising each required procedure.
METHODS: We performed a cross-sectional self-administered survey of 136 internal medicine residents at a 3-hospital university based program prior to implementing a procedures training curriculum. Survey questions included residents subjective comfort performing and supervising procedures, the number of procedures performed, and complications from performed procedures.
RESULTS: The response rate was 70%. In a multivariate model, greater than 75% residents perceived they were competent to perform and supervise most common procedures after having done an average of 5–6. However, trainees required an average of 7–9 placements of internal jugular or subclavian central lines before obtaining perceived competency. The number of procedures performed was the strongest predictor of perceived comfort performing and supervising procedures after controlling for covariates of gender, resident year and invasive subspecialty focus. While on average greater than 75% of residents were comfortable with all procedures by the end of residency, many mid-level residents fall short of this goal. Notable is the failure of the average number of rising R2s to achieve the comfort threshold in thoracenteses, femoral lines or IJ/subclavian lines, the procedures with the highest complication rates.
CONCLUSIONS: At the completion of a three year residency program, the majority of internal medicine residents feel comfortable both performing and supervising procedures. During their residency, however, residents are using skills with which they do not feel comfortable. As long as medicine residents are expected to perform and teach procedures we must ensure they are adequately trained and supervised. Our study argues for more formalized curriculum for procedures training early during internal medicine residency taught by skilled supervisors. Based on our findings, resident feedback, and hospital leadership, we are currently arranging for changes in our invasive procedures training at our institution.

SEGREGATION IN MEDICINE: EARLY AFRICAN AMERICAN EXCLUSION FROM ORGANIZED MEDICINE, 1870–1895 O. Olakanmi[1]; R. Baker[2]; H. Washington[3]; T.L. Savitt[4]; E. Jacobs[5]; E.L. Hoover[6]; M. Wynia[1]. [1]AMA Institute for Ethics, Chicago, IL; [2]Union Graduate College, Schenectady, NY; [3]DePaul University School of Law, New York, NY; [4]East Carolina University, Greenville, NC; [5]Rush Medical College, Chicago, IL; [6]University at Buffalo, Buffalo, NY. *(Tracking ID # 190703)*

BACKGROUND: Segregation and racism within the medical profession has had a profound impact upon the African American community. We explored the multifarious ways in which organized medicine contributed to American medicine's racial divide. This report focuses on the early exclusion of African American physicians from participation in the American Medical Association (AMA) and the subsequent development of the National Medical Association.
METHODS: A panel of experts reviewed and analyzed the history of the relationship between African American physicians and organized medicine. Panel members were initially selected by AMA Institute for Ethics staff and additional members were added to the panel by the panel itself. The panel elected to avoid making moral judgments about this history and the motivations of the actors; instead, emphasis was placed on tracing the results of specific, key policy decisions.
RESULTS: Between 1847 and 1875, any medical school, hospital, or professional society could, in theory, elect to send a delegation to the AMA's national convention. But in 1870 and 1872, there were a set of post civil war conflicts over whether to admit delegates from an integrated medical society. Dr. Nathan Smith Davis – later lauded as the "father" of the AMA – led the fight not to seat the integrated delegation. He won, and then, in 1873, proposed that delegations be restricted to state and local medical societies, and that the state society, not the national AMA convention, should determine which local societies would be officially recognized by the AMA. Davis' proposal was adopted in 1874. The effects of this policy decision were profound and long-lasting. Although the AMA never adopted explicit, race-based membership criteria at the national level, well-recognized patterns of racial exclusion within state and local societies, particularly in the South, effectively excluded the vast majority of African American physicians from the AMA and, thus, from the mainstream of American medicine. For almost 100 years after 1874, the AMA maintained that its federation structure was immutable and that state and local societies had the right to determine their own membership criteria. In response to their exclusion from AMA-affiliated medical societies, African American physicians established their own, racially-integrated medical societies. When the AMA refused to recognize these societies, leading African American physicians formed the National Medical Association (NMA) in 1895.
CONCLUSIONS: Racial exclusion within organized medicine disenfranchised most African American physicians and led to the formation of separate, parallel organizations. Understanding the historical role of organized medicine in medical segregation and racism is important in addressing persistent racial and ethnic health and health care dispa-

rities, mistrust of physicians among African Americans, and the relatively low proportion of African American physicians.

SELF-MANAGEMENT SUPPORT AND COMMUNICATION FROM NURSE CARE MANAGERS COMPARED TO PRIMARY CARE PHYSICIANS: A FOCUS GROUP STUDY OF PATIENTS WITH CHRONIC MUSCULOSKELETAL PAIN M.S. Matthias[1]; M.J. Bair[1]; K.A. Nyland[1]; M.A. Huffman[2]; D.L. Stubbs[3]; T. Damush[1]; K. Kroenke[2]. [1]Roudebush VA Center of Excellence for Implementing Evidenced-Based Practice, Indianapolis, IN; [2]Regenstrief Institute, Indianapolis, IN; [3]Indiana University School of Medicine, Indianapolis, IN. *(Tracking ID # 189913)*

BACKGROUND: While it is well established that physician-patient communication directly impacts health outcomes, little attention has been devoted to studying communication with other care providers such as nurse care managers (NCMs). A better understanding of the communication between patients and NCMs is particularly important given the increasing role NCMs are playing in chronic disease management, especially in the primary care setting. Our objective was to identify how patients perceived their communication with NCMs and primary care physicians in the management of chronic musculoskeletal pain.
METHODS: We conducted four focus groups. Patients were recruited from VA and university primary care clinics after completion of a randomized clinical trial. The trial tested a 6-session pain self-management program combined with antidepressant therapy for patients with comorbid depression and chronic pain. Nurse care managers delivered the intervention. Groups consisted of three to six patients and were stratified by gender. An experienced moderator facilitated the sessions, guided by semi-structured questions addressing care received from providers and self-management strategies delivered during the trial. Groups were audio-taped and transcribed. Analysis of transcripts identified emergent themes from patient narratives of their experiences with their physicians and NCMs. Three researchers independently coded transcripts using constant comparison methodology. Discrepancies were resolved by consensus.
RESULTS: Patients (N = 18) were 27 to 84 years old (M = 54.8), 61% women, 72% White, and 22% Black. One-third of the sample was veterans. Regarding the roles their physicians and NCMs played in the management of their pain, participants described the NCMs as "helpful" and "understanding." Patients felt that the NCM took the time to listen to them ("It was good to talk to somebody.") and genuinely cared about their well-being ("She really took a lot of interest in me."), while at the same time encouraging them to continue their self-management strategies ("You need that backbone to remind you to keep going and say, hey, you're doing good, let's keep going."). In contrast, patients felt that their physicians did not spend enough time with them, did not understand what it was like to be in constant pain ("They don't know what the pain feels like."), and did not listen to them ("They need to sit down and listen to their patients and find out what is going on."). Similarly, many patients also commented that their doctors wanted to "push" medications rather than identifying the cause of the pain ("My doctor just wants to push prescription after prescription, and I didn't want to hide the pain, I wanted to fix it.").
CONCLUSIONS: Our study demonstrates that the NCMs provided valuable encouragement and emotional support—two critical aspects of patient-centered, chronic pain care that physicians may be challenged to provide because of time constraints. These results carry two major implications: 1) suggestions for how primary care physicians can improve care to patients suffering from chronic pain (e.g., active listening to patients); 2) advantages of a pain self-management program delivered by nurse care managers, who provide patients with support and non-pharmaceutical strategies to relieve pain.

SELF-REPORTED FAMILIARITY WITH ACUTE RESPIRATORY INFECTIONS TREATMENT GUIDELINES IS ASSOCIATED WITH HIGHER ANTIBIOTIC PRESCRIBING RATES K. Mccolgan[1]; B. Middleton[1]; J.L. Schnipper[1]; T. Yu[1]; L.A. Volk[2]; R. Tsurikova[1]; J.A. Linder[1]. [1]Brigham and Women's Hospital, Boston, MA; [2]Partners HealthCare System, Inc., Wellesley, MA. *(Tracking ID # 190514)*

BACKGROUND: Familiarity with guidelines is generally thought to be associated with guideline implementation and improved quality of care. In 2001, the Centers for Disease Control and Prevention (CDC), along with several specialty societies, released the "Principles of Judicious Antibiotic Use for Adult Acute Respiratory Tract Infections." These guidelines aim to reduce antibiotic prescribing overall and reduce inappropriate antibiotic prescribing for predominantly viral infections. We sought to determine if self-reported familiarity with the guidelines was associated with reduced antibiotic prescribing for ARIs in primary care.
METHODS: Between December 2005 and March 2007, we surveyed primary care clinicians about their familiarity with the CDC guidelines. We linked these responses to administrative diagnostic and electronic prescribing data for non-pneumonia ARI visits from November 2005 to May 2006. We combined those who reported that they were "not at all familiar" or "somewhat familiar" and compared them to clinicians who reported being "moderately familiar" or "extremely familiar" with the CDC guidelines. We divided ARI visits into diagnoses that were antibiotic-appropriate (otitis media, streptococcal pharyngitis, and sinusitis) and those that were non-antibiotic-appropriate (non-specific upper respiratory tract infection, non-streptococcal pharyngitis, acute bronchitis, and influenza). We compared prescribing rates between groups using the chi-squared test.
RESULTS: We sent the survey to 612 clinicians and 287 clinicians (47%) answered the question about familiarity with the CDC guideline. Diagnostic and prescribing data were available for 177 survey respondents (62%). These 177 clinicians had a mean age of 43 years, were 62% female, 88% were physicians, and 20% were residents. Respondents reported being "not at all familiar" (4%), "somewhat familiar" (30%), "moderately familiar" (45%), or "extremely familiar" (20%) with the CDC guidelines. These clinicians prescribed antibiotics in 43% of 10,143 non-pneumonia ARI visits. Clinicians who reported being more familiar with the guidelines prescribed antibiotics in 45% of visits compared to 39% of visits to clinicians who reported being less familiar with the guidelines ($p<.0001$). Among non-antibiotic appropriate diagnoses ($n = 7234$), clinicians who reported being more familiar with the guidelines prescribed antibiotics in 37% of visits compared to 28% of visits by clinicians who reported being less familiar with the guidelines ($p<.0001$). Among antibiotic-appropriate diagnoses ($n = 2909$), clinicians who reported being more familiar with the guidelines prescribed antibiotics in 68% of visits compared to 62% of visits by clinicians who reported being less familiar with the guidelines ($p = .001$).
CONCLUSIONS: Self-reported familiarity with the CDC guidelines appeared to be associated with increased antibiotic prescribing for patients with ARIs, even for non-antibiotic appropriate diagnoses. Self-reported familiarity with guidelines should not be assumed to be associated with consistent guideline implementation or higher quality of care. Interventions meant to increase familiarity with guidelines should not be presumed to improve the quality of care.

SENSITIVITY OF ELECTROCARDIOGRAPHY IN THE DETECTION OF LEFT VENTRICULAR HYPERTROPHY IN A PREDOMINANTLY AFRICAN- AMERICAN POPULATION – A RETROSPECTIVE ANALYSIS C.M. Eze-Nliam[1]; A. Dufresne[1]; K.K. Eneh[2]; E. Jaffe[3]. [1]INTERFAITH MEDICAL CENTER,, Brooklyn, NY; [2]Interfaith Medical Center, Brooklyn, NY, Brooklyn, NY; [3]INTERFAITH MEDICAL CENTER, Brooklyn, NY. *(Tracking ID # 190733)*

BACKGROUND: Left ventricular hypertrophy (LVH) is an independent risk factor for cardiovascular mortality; the adjusted hazard ratio in studies ranges from 1.4 to 3.7 depending on the electrocardiographic criteria used. Electrocardiography remains the basic tool for detection of LVH. However, different electrocardiographic criteria vary in their degree of sensitivity. Due to the higher prevalence of LVH and associated adverse cardiovascular events in African Americans, accurate diagnosis of LVH is a clinical priority in this population.
METHODS: The electrocardiograms of 242 in-patients with echocardiographic LVH from August 2006 to January 2007 were read by a cardiologist using the following 5 criteria: Sokolow-Lyon voltage, Sokolow-Lyon-Rappaport, Cornell voltage duration product, White-Bock, and Romhilt-Estes point scoring criteria. Only electrocardiograms done within two weeks of the corresponding echocardiogram were selected. Systat version 12 software was used in data analysis. Echocardiographic diagnosis of LVH was considered the gold standard in this study.
RESULTS: The electrocardiograms of 242 patients (60% females, 40% males) were analyzed. 98% of the study population was African- Americans. The mean age was 66 years. One or more of the 5 electrocardiographic

criteria for LVH listed above was met in only 58% of the patients. Furthermore, when one point was given for the presence of any of these 5 criteria on each electrocardiogram (1210 possible LVH detections), the cumulative detection of LVH was only 28%. The Cornell criteria had the greatest sensitivity for LVH (43%); Sokolow-Lyon-Rappaport (28.5%), Sokolow-Lyon (27.4%), White-Bock (22.1%), and Romhilt-Estes (18.6%) had lower sensitivities. There was a strong correlation between the Cornell criteria and other criteria so that an electrocardiogram that meets the Cornell criteria was likely to meet one or more of other criteria. Surprisingly, there was a statistically significant correlation between Cornell's criteria and male sex. (P = 0.032).
CONCLUSIONS: Electrocardiography has a poor sensitivity for detection of LVH in our African-American population. The sensitivity of Cornell criteria for echocardiographic LVH is known to increase with age. This may account for the higher sensitivity we observed in this study when compared to another study in African-Americans of a younger age group than ours where the sensitivity ranged from 3% to 29%. Consequently, we recommend that echocardiography should be used, when clinically indicated, in evaluating a patient for LVH irrespective of the electrocardiographic findings. This will increase the diagnostic yield of LVH and thereby decrease the incidence of adverse cardiovascular events in this population when appropriate medical management is instituted.

SETTING PRICES FOR GENERIC MEDICATIONS: A SURVEY OF PATIENT PERCEPTIONS N.K. Choudhry[1]; E. Cox[2]; M.A. Fischer[1]; M. Jyotsna[1]; W. Shrank[1]. [1]Brigham and Women's Hospital and Harvard Medical School, Boston, MA; [2]Express Scripts, St. Louis, MO. *(Tracking ID # 190145)*

BACKGROUND: The greater use of generic prescription medications has been widely advocated as a policy solution for rising health care costs. Although generics accounted for 63% of prescriptions dispensed in the U.S. in 2006 and the rate of generic drug use is increasing, there are still substantial opportunities for further improvement. Tiered formularies, in which patients pay higher co-payments for brand-name medications, are widely used to create incentives for patients to use generics. On average, the difference between co-payments patients pay for generic and preferred brand-name drugs is $13. It is unclear whether this price difference is large enough to effectively steer patients toward generics. In order to estimate patients' price sensitivity between generic and brand-name medications, we conducted a national mailed survey of a random sample of commercially insured adults.
METHODS: We surveyed a random sample of 2,500 commercially-insured beneficiaries of a large, national pharmacy benefits manager between February and April of 2007. We provided survey subjects with hypothetical scenarios in which they had been prescribed medications to treat high cholesterol, back pain and depression and asked them about their willingness to purchase generic medications. We used descriptive statistics to examine characteristics of the respondents and to summarize our overall results. Generalized estimating equations with contrasts were used to evaluate whether the proportion of patients who were willing to purchase differed by medication type. We developed linear regression models to identify independent predictors of the price savings patients would need to receive in order for them to use generic medications.
RESULTS: Our usable response rate was 48%. Two-thirds of the respondents were women, 86% identified themselves as white/Caucasian, and their mean age was 52 years. Few respondents would never buy a generic medication although a greater proportion (13.1%) indicated that they would not buy a generic antidepressant than a generic cholesterol (5.7%) or back pain (5.9%) medication (p<.001). Similarly, while the majority of respondents would buy a generic medication if it were less expensive than the branded drug, the proportion that would do so was smallest for anti-depressants (p<0.001). Among patients who would be willing to use a generic medication if it were less expensive than a brand-name medication, the median amount they would have to save each month to choose the generic is $25.50 (interquartile range $18-$50). Of note, 46% of respondents had an average price threshold to choose a generic of above $13. On multivariable analysis, older and non-white patients needed to save more in order to choose a generic.
CONCLUSIONS: We found that most patients would be willing to choose a generic medication over a comparable brand-name medication if the generic medication cost less. On average, patients would need to save $25.50 per month for them to choose the generic alternative. Accordingly, our results suggest that efforts to increase the proportion of generic medication used may be aided by increasing the co-payments associated with preferred brand-name drugs or decreasing them for generics.

SEXUAL ACTIVITY AND FUNCTION IN ETHNICALLY DIVERSE OLDER WOMEN A.J. Huang[1]; J.S. Brown[1]; S.K. Van Den Eeden[2]; A.I. Ragins[2]; H. Shen[1]; D.H. Thom[1]. [1]University of California, San Francisco, San Francisco, CA; [2]Kaiser Permanente Division of Research, Oakland, CA. *(Tracking ID # 189487)*

BACKGROUND: Sexual activity and function are thought to decline in women with increasing age, but data on sexual activity and function in older women are extremely limited. Among older women, decline in sexual activity may be caused by decline in sexual interest or physical health, but also by changes in partner status or partner's ability to have sex.
METHODS: We examined sexual activity and function in a population-based, cross-sectional cohort of 2010 ethnically-diverse women aged 45 to 80 years randomly selected from age and race strata from the Northern California Kaiser Permanente Care Program. Self-administered questionnaires were used to assess prevalence and frequency of sexual activity among all participants, reasons for sexual inactivity among those who were inactive, and problems with sexual activity among those who were active in the past 3 months. Tests for heterogeneity and linear trend were used to examine differences in sexual activity and function across age categories (i.e., 45 to 59, 60 to 69, and 70 years or older).
RESULTS: Of the 2010 participants (including 973 White, 373 Black, 232 Latina, and 338 Asian women), 63% reported at least some sexual activity in the past 3 months, and 28% reported weekly or more frequent sexual activity. Sexual activity declined with increasing age, with 37% of women aged 45 to 59 years reporting weekly activity, compared to 23% of women aged 60 to 69 years, and 12% of women aged 70 years or older (P for trend across age groups<.01). Of those who reported no sexual activity in the past 3 months, the most commonly cited reason for sexual inactivity was lack of interest in sex (36%), followed by lack of a partner (34%), physical problem or illness of the partner (21%), and lack of interest in sex by the partner (10%); only 8% of women said they were sexual inactive because of their own health problems. Among those who were sexually active, 17% reported problems with sexual arousal, 23% with lubrication, 19% with orgasm, and 14% with discomfort or pain during sexual intercourse. Slightly more than 20% of women who were not sexual active still described themselves as at least moderately sexually satisfied; the proportion of women who said they were sexually satisfied despite being sexually inactive did not differ significantly by age (P for trend across age categories = .10).
CONCLUSIONS: Although frequency of sexual activity declines in women with increasing age, a substantial proportion of community-dwelling women remain sexually active into older age. Lack of a partner interested in sex or capable of having sex may be a greater contributor to sexual inactivity than personal health problems in this population.

SHOULD PATIENTS WITH CO-MORBID PSYCHIATRIC DISORDERS BE EXCLUDED FROM DIABETES DISEASE MANAGEMENT PROGRAMS? COMPARISONS OF GLYCEMIC CONTROL AT AN URBAN COMMUNITY HEALTH CENTER C. Pedley[1]; C. Herring[2]; D. Graves[1]; M. Smoak[1]; J.L. Wofford[1]. [1]Wake Forest University School of Medicine, Winston-Salem, NC; [2]Campbell University School of Pharmacy, Buies Creek, NC. *(Tracking ID # 189767)*

BACKGROUND: Previous studies of diabetes disease management have typically excluded patients with severe psychiatric co-morbidities. As Medicaid more aggressively adopts diabetes disease management strategies, it is not known how the high prevalence of co-morbid psychiatric disorders will affect measures of glycemic control.
METHODS: In the process of initiating a new diabetes disease management program in a large urban community health center, we compared the presence of psychiatric/pain disorders with prior A1C records to (1) establish the prevalence of baseline psychiatric/pain disorder, and (2) compare glycemic control with and without co-morbid psychiatric/pain disorders. Based on medications and diagnoses from chart review, patients were classified as having severe psychiatric disorder, problem pain disorder, depression, or no psychiatric/pain diagnoses. We then compared the number and average of A1Cs over the prior year for patients with and without psychiatric/pain co-morbidities.

RESULTS: Among our clinic's 339 Medicaid diabetics, the prevalence of severe psychiatric disorder, problem pain disorder, and depression was 12.0% (n=41), 14.4% (49), and 20.0% (68), respectively. Twenty-five percent (85/339) had no A1Cs over the prior year, while 45% (152/339) had two or more. The average number (±1SD) of A1Cs, (1.6±1.6) for all Medicaid diabetics, was significantly different for patients with severe psychiatric disorder (1.6±1.1), severe pain disorder (1.4±1.4), depression (2.2±2.0), or no psychiatric diagnoses (1.4±1.5) (ANOVA F=.003). The average (±1SD) A1C was 8.3 (±2.3) overall. This was not significantly different for any of the groups. The average number of clinic visits during the prior year was 5.2 (±4.4). The number of clinic visits differed for patients with severe psychiatric disorder (5.1±2.2), severe pain disorder (6.6±1.9), depression (7.8±1.3), or no psychiatric diagnoses (3.0±2.2). The average number of prescribed medications was 9.4 (±4.8) overall, but was higher among patients with severe pain disorder (12.5±5.2), and depression (12.2±5.6), but not those with severe psychiatric disorders (9.5±5.0).
CONCLUSIONS: Among Medicaid diabetics at this community health center, psychiatric or pain disorders were not associated with worse glycemic control. These findings suggest that excluding those with psychiatric/pain disorders from diabetes disease management programs is not advantageous, nor warranted in Medicaid populations.

SHOULD WE TEST FOR CYP2C9 BEFORE INITIATING ANTICOAGULANT THERAPY IN PATIENTS WITH ATRIAL FIBRILLATION? M.H. Eckman[1]; S.M. Greenberg[2]; J. Rosand[2]. [1]University of Cincinnati, Cincinnati, OH; [2]Massachusetts General Hospital, Boston, MA. *(Tracking ID # 189136)*

BACKGROUND: While genetic variants of the warfarin metabolism gene CYP2C9 have been associated with an increased risk of major bleeding during the initiation phase of anticoagulant therapy, studies suggest that patients receiving warfarin are at continued increased risk throughout treatment. Therefore, we addressed the question, does genotyping for CYP2C9 before initiating anticoagulant therapy for non-valvular atrial fibrillation (AF) improve patient outcomes?
METHODS: We used a Markov state transition decision model. Data sources included the English language literature using MEDLINE searches and bibliographies from selected articles. Setting: Either ambulatory or inpatient settings necessitating new initiation of anticoagulation. Patients: The base case was a 69 year-old man with newly diagnosed non-valvular AF. Interventions: Strategies compared were: A) Genetic testing followed by 1) warfarin for those without culprit alleles, and either 2) Aspirin or 3) No antithrombotic therapy for those with culprit alleles or B) Foregoing testing and administering 1) warfarin or 2) aspirin or 3) no therapy. We also examined the additional strategy of a genotype-based approach for intial dose titration. Main Outcome Measure: Effectiveness in quality-adjusted life years (QALYs).
RESULTS: In the base case, testing and treating patients with CYP2C9*2 or CYP2C9*3 with aspirin rather than warfarin was best, yielding an expected utility of 8.97 quality-adjusted life years (QALYs). However, warfarin therapy without genetic testing was a close second, yielding 8.96 QALYs, a difference of roughly 5 days. Sensitivity analyses demonstrated that genetic testing followed by aspirin was best for patients at lower risk of embolic events (1.3%–5% per year). Warfarin without testing was preferred if the rate of embolic events was greater than 5% per year, or the risk of major bleeding while receiving warfarin was lower. Results for the additional strategy of genotype-based dose titration for initial management were somewhat better than warfarin without prior testing (gain of 0.01 QALYs), but no better than testing and using aspirin to treat patients with culprit alleles.
CONCLUSIONS: The benefit of testing for culprit alleles of CYP2C9 as an adjunct to decision making for antithrombotic therapy in patients with AF depends upon several factors, particularly the risk of thromboembolic events for the individual patient. For the "average" patient with nonvalvular AF, not otherwise at increased risk for major hemorrhage, genetic testing for CYP2C9 and warfarin yield essentially equivalent outcomes. The gain from testing may be clinically significant in patients at lower risk of embolic events or at greater risk of bleeding. Finally, although a genotype-based dosing strategy resulted in a gain in quality-adjusted life expectancy compared with warfarin without testing, the gain was minimal. Limiting the benefit of such testing was our assumption that genotype-based dose titration and intensive early anticoagulation management will only reduce the risk of hemorrhages occurring during the initiation phase of anticoagulation.

SHOULD WE WORRY ABOUT THE QUALITY OF QUALITY IMPROVEMENT CURRICULA FOR TRAINEES? D.M. Windish[1]; R.T. Boonyasai[2]; D.A. Reed[3]; C. Chakraborti[4]; E.B. Bass[2]. [1]Yale University, New Haven, CT; [2]Johns Hopkins University, Baltimore, MD; [3]Mayo Clinic College of Medicine, Rochester, MN; [4]George Washington University, Washington, DC. *(Tracking ID # 189930)*

BACKGROUND: The Accreditation Council on Graduate Medical Education requires that residents demonstrate competence in practice based learning and improvement by systematically analyzing their practice using quality improvement (QI) methods and implementing changes with the goal of practice improvement. To meet this competency, graduate and undergraduate medical educators have developed and implemented QI curricula. We systematically examined the quality and methodological rigor of published QI curricula.
METHODS: We searched Medline, ERIC, EMBASE and CINAHL for English language articles published between 1980 and September 2007. Paired reviewers independently read each citation, abstract and article to determine inclusion. Articles were abstracted if they: 1) described curricula teaching QI to medical trainees; 2) used QI theory; and 3) contained an evaluation. We extracted data on curricular content and objectives, educational strategies, evaluation methods and outcome measures. We assessed inclusion of 7 QI educational objectives derived from the Institute for Healthcare Improvement knowledge domains. Study quality was measured using the medical education research study quality instrument (MERSQI), a previously validated tool.
RESULTS: 17 of 16897 citations met eligibility criteria. Curricula targeted residents (9 articles) medical students (5), and a combination of residents, fellows or attendings (3). Most curricula (88%) occurred at a single institution. Curricula had clearly stated objectives in 76% of articles, whereas 29% clearly stated curricular content. QI educational objectives were adequately met in: i) 11 studies for the domain of making change, ii) 10 studies for developing new, locally useful knowledge, iii) 9 studies for measurement, iv) 5 studies for collaboration, v) 3 studies for addressing healthcare as a system, vi) 2 studies for customer knowledge, and vii) 1 study for social context and accountability. The most common teaching method was experiential learning (17 studies), followed by lectures (15), small group work (13), and brainstorming (4). 33% of studies taught QI theory in combination with a clinical best practice. The most frequent study design for curricular analysis was pre/post (41%) followed by post-only (29%), non- randomized, two-group design (23%) and a randomized controlled trial (6%). 53% of studies discussed the content of their evaluation method, and 35% used valid instruments to evaluate outcomes. In assessing the most rigorous outcome measure used, knowledge/skill assessments were most common (41% of studies) and showed positive effects in 49% of evaluations. Attitude/satisfaction measures were the most rigorous in 29% of studies and were favorable 71% of the time. Patient/healthcare outcomes were less frequent (18% of studies) but demonstrated improvement in 60% of measures. Both studies that evaluated behavior changes had 100% success. For study quality, the mean MERSQI score was 10.6 (range 5 to 15) with the highest potential score of 18.
CONCLUSIONS: Most published QI curricula inadequately addressed QI educational objectives and had insufficient descriptions to ensure replication. Although most studies used higher quality teaching methods of experiential work and collaboration, few studies used rigorous study designs, validated assessment tools, or patient-related outcomes. Future QI curricula should focus on increasing methodological rigor and using more patient-oriented assessments.

SMOKING CESSATION COUNSELING AMONG SMOKERS WITH ALCOHOL, DRUG, OR MENTAL DISORDERS M.K. Ong[1]; Q. Zhou[1]. [1]University of California, Los Angeles, Los Angeles, CA. *(Tracking ID # 190480)*

BACKGROUND: Cigarette smoking continues to be the leading preventable cause of death in the United States. Individuals with comorbid alcohol, drug, or mental (ADM) disorders combined make up over 40% of all smokers in the U.S., and are more likely to smoke and to be a heavy smoker than the general population. Smokers with ADM disorders also have lower quit rates than smokers without any ADM disorders. Smoking cessation counseling increases the odds of quitting. This study examined how often general medical providers counsel smokers with ADM disorders to quit.

METHODS: We examined 1,088 adults who reported that they were current smokers in both the 1998–1999 Community Tracking Study (CTS) survey and the 2000–2001 Healthcare for Communities (HCC) survey, and reported in the HCC survey they had seen a general medical provider in the past year. The HCC survey included 7,909 CTS respondents, oversampling for those who were poor, used mental health services, reported treatment for an alcohol problem from a doctor or other medical professional in the past two years, or reported psychological distress in the CTS survey. Past year ADM disorders were defined in the HCC survey by self report of disorder and symptoms, and included psychotic disorder, major depressive disorder, dysthymia, generalized anxiety disorder, panic disorder, alcohol dependence, binge drinking, drug dependence, and drug abuse. We conducted bivariate analyses and logistic regressions that examined the likelihood of receiving smoking cessation counseling from a general medical provider in the past year with the presence of any and individual ADM disorders in the past year, after controlling for age, gender, ethnicity, education, marital status, region, immigrant status, health status, body mass index, activity level, health insurance, employment, and income level.
RESULTS: Among study individuals, 47.3% had an ADM disorder. Past year smoking cessation counseling was received by 78.8% of all study individuals and 78.5% of those with ADM disorders. In the multivariate regression analyses, individuals with ADM disorders were equally likely to receive smoking cessation counseling than individuals without ADM disorders (OR: 0.94, p = 0.71). When separate ADM disorders were examined, individuals with drug dependence were significantly more likely to receive smoking cessation counseling than those without drug dependence (OR 2.86, p = 0.02). Similar results except for lower counseling rates (61.0% overall) were found when not restricted to seeing a general medical provider in the past year. Other significant predictors of smoking cessation counseling included female vs. male gender (OR = 1.59, p = 0.01), age 35–44 vs. under 25 (OR = 2.01, p = 0.05), Hispanic vs. white ethnicity (OR = 0.34, p<0.01), fair (OR = 2.17, p = 0.03) and poor vs. excellent (OR = 4.36, p <0.01) health status, and residing in the South vs. the Northeast (OR = 0.54, p<0.01).
CONCLUSIONS: Smokers with ADM disorders are equally likely to receive smoking cessation counseling from general medical providers compared with smokers without ADM disorders. Smokers with drug dependence are also more likely to receive smoking cessation counseling than those without this disorder. Smokers with ADM disorders should continue to be targeted for smoking cessation counseling. Future studies should determine if this counseling increases their smoking cessation.

SPECIALIST CARE AND PRIMARY CARE PROVIDER PERFORMANCE ON A QUALITY OF CARE MEASURE: EXAMPLE OF MANAGEMENT OF UNCONTROLLED HYPERTENSION B.J. Turner[1]; C. Hollenbeak[2]; M.G. Weiner[1]; C. Roberts[3]. [1]University of Pennsylvania, Philadelphia, PA; [2]Pennsylvania State University, Hershey, PA; [3]Pfizer, Inc., New York, NY. *(Tracking ID # 189842)*

BACKGROUND: Primary care provider (PCPs) are being held accountable for quality of care even when their patients see specialists. In patients with uncontrolled hypertension (HTN), we hypothesized that, when the patient sees a cardiovascular (CV) disease specialist, the PCP might defer HTN management to that specialist. Conversely, in patients with comorbidities that are unrelated to CV disease (e.g., COPD), care from specialists for such unrelated conditions should permit the PCP to focus more on managing uncontrolled HTN.
METHODS: From electronic medical records linked to administrative and physician data for patients followed in 6 academic primary care practices from 1/1/04 to 12/30/06, we identified 18,634 patients with HTN treated by 202 PCPs. We excluded 44 patients without specialty care, leaving 15,497 patients who had 70,559 visits with uncontrolled HTN to 200 PCPs. The outcome was antiHTN drug intensification before the next visit by increasing a current drug dose, adding a new drug, or renewing an expired drug. We identified 28 unrelated comorbidities such as arthritis and COPD diagnosed at two or more visits as well as related vascular comorbidities (i.e., coronary artery, peripheral vascular, cerebrovascular diseases). We classified patients' visits to CV specialty (i.e., cardiology, nephrology) or unrelated specialties (e.g., orthopedics, pulmonary). Using generalized estimating equation logistic regression models, we adjusted for patient, health care, treatment, and PCP characteristics and for clustering. Reported associations are significant at P<0.0001. We repeated the analysis clustering on physician.
RESULTS: Over half of the study cohort was black and 60% female. Uncontrolled HTN was addressed by antiHTN drug intensification at 31% of visits. At study visits, 20.5% had >=1 related comorbidity and 83% had >=1 unrelated comorbidity (mean 2.2 [SD 1.8]). CV specialist care was received by 28% of patients while all received care from >=1 unrelated specialist and 60% had care from >=2. Patients had a higher adjusted odds ratio (AOR) for antiHTN drug intensification if they had one related comorbidity (AOR 1.15 [CI 1.07–1.23] vs. none) or >=2 (AOR 1.19 [CI 1.04–1.36] vs none). However, CV specialty care was also positively associated with intensification with higher AORs or care from one type of CV specialist (1.11 [CI 1.06–1.17] vs. none) and for both types of CV specialists (1.52 [CI 1.35–1.70] vs. none). Conversely, unrelated comorbidities had a negative association with having antiHTN drugs intensified with a 9% (CI 7–10%) reduction in the AOR per each additional unrelated comorbidity. Unrelated specialty care was also negatively associated with intensification with an AOR for care from >= 2 unrelated types of specialists of 0.90 [CI 0.86 – 0.95] vs. one; but the association was not stronger for more unrelated specialty care, with an AOR of 0.86 [0.81–0.92]) for three types of unrelated specialists vs. one and 0.87 [0.79–0.96] for >=5 vs.one. A model clustering on the physician showed similar results.
CONCLUSIONS: Contrary to our hypotheses, among patients with uncontrolled HTN, CV specialty care is associated with the PCP being more likely to intensify treatment while unrelated specialist care is associated with a lower likelihood of addressing uncontrolled HTN. These effects persisted after adjusting for differing types of comorbidities. Thus, care from other specialists does not appear to relieve PCPs of the need to address this process of care measure.

SPINE AND PAIN CLINICS THAT TREAT PATIENTS WITH BACK AND NECK PAIN: WHAT DO THEY DO, AND ARE THEY MULTIDISCIPLINARY? T.S. Carey[1]; L. Castel[1]; J.K. Freburger[2]; M. Holmes[1]; R. Scheinman[1]; A.M. Jackman[1]. [1]University of North Carolina at Chapel Hill, Chapel Hill, NC; [2]Sheps Center for Health Services Research, Chapel Hill, NC. *(Tracking ID # 189974)*

BACKGROUND: Treatment recommendations for chronic back pain focus on integrated care among providers. Management of this condition is recommended along the biopsychosocial model. To date, there has been little study in the U.S. of what constitutes a spine or pain clinic, who provides care at these clinics, and what type of care is provided. As part of a larger project, we sought to describe spine and pain clinics serving North Carolina residents with respect to organizational characteristics, provider mix, and services offered, and to assess the multidisciplinary nature of those clinics surveyed.
METHODS: We identified and surveyed spine and pain clinics serving North Carolina residents with chronic back and neck pain. Respondents to a statewide phone survey of the prevalence of chronic back and neck pain identified spine or pain clinics they attended, defined as a practice with multiple practitioners from different specialties who specialize in treating back/neck pain. We supplemented this primary source with a yellow pages search. To be eligible for the pain clinic study, managers at the practice had to confirm that their practice treated patients with chronic (3 months or longer) back and neck pain. Forty-six practices completed a 20-minute telephone questionnaire. We conducted descriptive and exploratory analyses of the clinics' characteristics, and investigated their multidisciplinary characteristics.
RESULTS: The response rate was 75%. There was marked heterogeneity among the clinics surveyed. Fifty-nine percent of practices were free-standing (n=27) and 61% were physician-owned (n=28). Twenty-five clinics (54%) had an anesthesiologist. Other common physician providers were physiatrists and surgeons. Less than a third of sites had psychiatrists or other mental health providers (n=12; 26%); only 26% employed a physical therapists. Seventy six percent of sites offered epidural injections, 74% long-term narcotic prescriptions, and 67% antidepressants. The majority of clinics (30 out of 33) prescribing narcotics provided monitoring of therapy using periodic urine toxicology testing. Forty-eight percent of sites (n=22) offered exercise instruction, yet 30% offered traction (considered an ineffective therapy). Few clinics were multidisciplinary in nature. Only three (7%) met the criteria of having a medical doctor, registered nurse, physical therapist, and mental health specialist. The median number of provider types represented across sites (categorized as allopathic providers, physical therapists, mental health practitioners, alternative medicine) was one.

CONCLUSIONS: Pain clinics varied widely in their organizational characteristics, including provider composition and scope of services offered. Most pain clinics in North Carolina were not multidisciplinary. Our findings indicated limited variety in provider and service types, indicating room for possible improvement among these clinics, given the evidence supporting an active multimodal approach to the treatment of chronic back and neck pain. The organizational characteristics of most spine and pain clinics appear to focus on the 'bio' in the biopsychosocial model with less attention to psychosocial issues. Long-term outcomes of chronic back and neck pain may be improved if spine and pain clinics diversified providers and services, aiming toward more multidisciplinary function.

STANDARDIZED PATIENT RATINGS PREDICT ACTUAL PATIENT SATISFACTION C.A. Feddock[1]; G. Talente[2]; J.F. Wilson[1]; C.(. Griffith[1]; S.A. Haist[1]. [1]University of Kentucky, Lexington, KY; [2]East Carolina University, Greenville, NC. *(Tracking ID # 190554)*

BACKGROUND: Standardized patients (SPs) are routinely used in medical education for the assessment of clinical skills and for the determination of clinical competence. Many examinations use SPs to specifically evaluate communication skills. Despite this common application, no studies have assessed whether SP ratings of interpersonal skills and satisfaction are predictive of actual patient satisfaction. The purpose of our study was to assess whether SP ratings of a resident during a clinical encounter could predict actual patient satisfaction ratings of that resident.
METHODS: During the 1999–2002 academic years, all residents in a Midwest university internal medicine residency program underwent a single standardized patient (SP) Clinical Evaluation Exercise (CEX), during which residents were expected to do a complete history and physical on an SP portraying a common medical condition. After each resident encounter, the SP completed a series of checklists, including a nonverbal behavior survey, a medical history checklist (a list of items that should be asked by the resident during the interview), and an overall "patient" satisfaction survey. Nonverbal behavior was rated on a 10-item, 7-point Likert-type instrument (e.g. The resident's facial expressions were, 1=unexpressive, blank to 7=very expressive, emotional). SP satisfaction was assessed on a 5-item, 7-point Likert-type scale. Resident nonverbal behavior and SP satisfaction were represented by the mean score across the 10 items and 5 items, respectively. Over the same time period, patients in the internal medicine resident continuity clinics completed a 7-item patient satisfaction questionnaire on the residents. The patient satisfaction questionnaire consisted of seven commonly used patient satisfaction statements rated on a 10-point Likert-type scale. For the purposes of analysis, patient satisfaction was represented as the mean score across all seven items on this questionnaire. The data were analyzed using simple correlation and multiple regression approaches to assess the association between SP ratings and actual patient satisfaction.
RESULTS: A total of 86 residents had ratings from both a SP and clinic patients. The mean number of actual patient satisfaction ratings for each resident was 18±12. Actual clinic patient satisfaction was correlated to both SP ratings of satisfaction (r=.31, p=.003) and resident nonverbal skills (r=.29, p=.006). In the multiple regression analysis, controlling for resident gender and experience, actual patient satisfaction was independently predicted by SP ratings of resident nonverbal behavior (p = .003), but not by the completeness of the resident's history-taking (the number of correctly performed items on the history checklist).
CONCLUSIONS: After a single station SP CEX, SP ratings of both resident nonverbal behaviors and "patient" satisfaction are both associated with actual patient satisfaction. Further, nonverbal communication seems more important than thoroughness of the history during the SP encounter in predicting actual patient satisfaction. Educators should consider using SPs to provide trainees feedback about their interpersonal skills, particularly nonverbal behaviors.

STATE VARIATIONS IN THE CONTRIBUTIONS OF MAJOR DISEASES TO DISPARITIES IN MORTALITY N. Bharmal[1]; M.D. Wong[1]. [1]University of California, Los Angeles, Los Angeles, CA. *(Tracking ID # 190314)*

BACKGROUND: Mortality from all causes is higher for blacks nationally and in most states. Which diseases contribute most to these disparities within each state is unknown. Our objective was to estimate the contribution of specific causes of death to racial differences in life expectancy for each state in the U.S.
METHODS: We estimated cause-specific risks of death from 2003 National Vital Statistics data using standard life table methods. To estimate the contribution of specific causes of death to racial differences in life expectancy, we calculated potential gains in life expectancy (PGLE) that would result if a specific cause of death were eliminated stratified by race, gender and state. We excluded Alaska, Hawaii, Idaho, Maine, Montana, New Hampshire, North Dakota, South Dakota, Utah, Vermont, and Wyoming (40 states remaining), because of insufficient numbers of deaths among African Americans to allow reliable mortality risk estimates.
RESULTS: The average racial disparity in life expectancy for the states analyzed was 6.12 years in men and 5.15 years in women. The black-white disparity in life expectancy for all-cause mortality varied from 13.05 years (Washington DC) to −1.94 years (New Mexico) among men from 8.18 years (Wisconsin) to 0.05 (New Mexico) among women. For men, homicide had the biggest impact in on the racial gap in life expectancy in 27 of the 40 states. Homicide made the largest contribution to disparity in Washington DC (decrease, 2.28 years per person), and the least impact in New Mexico (decrease, 0.13 yrs). For women, other diseases, which includes diabetes mellitus and inflammatory diseases of the female pelvic tract, had the greatest impact on the racial life expectancy disparity in 21 of the 40 states. These diseases had the largest impact in Kansas (decrease, 2.01 yrs) and smallest contribution in New Mexico (increase, 3.31 yrs). Table 1 summarizes the major causes of racial disparity in life expectancy.
CONCLUSIONS: Our findings show that states vary substantially in which diseases have the greatest impact on racial disparity in mortality. This has important implications for targeting efforts to reduce existing disparities in mortality rates at the state-level through targeted disease intervention and prevention programs.

Table 1. Impact Impact of Specific Causes of Death on Racial Differences in Life Expectancy

	Frequency of States			
Causes of Death	#1 racial gap cause		#2 racial gap cause	
	men	women	men	women
Homicide	27	1	12	0
Pregnancy/Infant	4	8	8	11
Ischemic Heart Dx	0	4	0	4
Other Heart dx	3	5	6	9
Other Dx NOS	2	21	8	6
HIV	4	1	4	3
CVA	0	0	1	6
GI cancer	0	0	0	1
Prostate cancer	0	0	1	0

STATIN USE DOES NOT PREVENT RECURRENT ADENOMATOUS POLYP FORMATION IN A VA POPULATION R.M. Hoffman[1]; N. Parker-Ray[2]; R.M. Schrader[2]; J. Barakat[1]. [1]New Mexico VA Health Care System, Albuquerque, NM; [2]University of New Mexico School of Medicine, Albuquerque, NM. *(Tracking ID # 189293)*

BACKGROUND: The evidence that HMG-CoA reductase inhibitors (statins) protect against colorectal cancer is inconsistent. However, retrospective studies were limited by recall bias regarding medication use and prospective studies were of relatively short duration with limited baseline cancer risk assessments and no systematic cancer detection strategies. We used an electronic pharmacy database and the surrogate endpoint of recurrent polyp formation to overcome these limitations. The objective of our study was to determine whether statin use protected against recurrent adenomatous polyps.
METHODS: We conducted a retrospective cohort study using the Albuquerque VA Medical Center's electronic database to identify patients who underwent colonoscopy and adenomatous polypectomy

between 1/1/99 through 12/31/02. Eligible patients were those subsequently undergoing surveillance colonoscopy at least 3 years after their initial exam. We used an electronic pharmacy database to ascertain statin use during the study period (lovastatin, simvastatin, atorvastatin were the only prescribed statins) as well as use of fibric acid derivatives, niacin, calcium, aspirin (ASA), and other NSAIDS. Statin use was reported as prescription days and cumulative dose (calculated by multiplying prescription days by dose; dose was based on mg of lovastatin, we assumed that simvastatin and atorvastatin were 2 and 4 times more potent than lovastatin, respectively). We collected pathology data on the number, size, and histology of polyps removed at the initial and subsequent colonoscopies. We abstracted medical record data on demographics, body mass index (BMI), smoking history, alcohol use, family history of colorectal cancer, personal history of inflammatory bowel disease, diabetes, or previous polyps. We used backward elimination in multivariate proportional hazards regression to estimate the association between statin use and time until polyp recurrence, adjusting for other medication use, age, BMI, habits, and clinical history.
RESULTS: We evaluated 197 patients; 98% were men, 41% non-Hispanic white, 34% Hispanic. The mean (SD) age at initial polypectomy was 63.1 (8.8) years, the mean (SD) BMI was 28.9 (5.4) kg/m2, 20% had a family history of colorectal cancer, 33% had diabetes, 1.5% had inflammatory bowel disease, 34% were current smokers, 28% were taking a statin, and 32% were taking ASA. A mean (SD) of 2.0 (1.5) adenomatous polyps were removed with the initial colonoscopy. A second colonoscopy was performed a mean (SD) of 1207 (452) days later and adenomas were removed in 55% of the patients. During study follow-up, 47% of patients were prescribed a statin with a mean (SD) amount of 35.3 (39.6) cumulative grams (based on lovastatin equivalents) and a mean (SD) of 809 (516) cumulative days of use. On univariate analyses, the risk for recurrent polyps was higher for patients taking any statins during follow-up (61%) vs. those not taking any statins (27%), P =0.09. On multivariate analysis, modeling cumulative statin dose, the only variable significantly associated with recurrent adenomas was the number of polyps removed at the initial examination (HR = 2.1, 95% CI 1.4–3.2).
CONCLUSIONS: The use of statins was not shown to be protective against the recurrence of adenomatous polyps in a VA cohort.

STATINS AT THE END OF LIFE: A RECOGNIZED, LIFE LIMITING CONDITION DOES NOT DECREASE THEIR USE M.J. Silveira[1]; M. Shevrin[2]; A.S. Kazanis[2]. [1]Ann Arbor VAMC & University of Michigan, Ann Arbor, MI; [2]Veterans Health Administration, Health Services Research and Development Center of Excellence, Ann Arbor, MI, Ann Arbor, MI. *(Tracking ID # 190503)*

BACKGROUND: Evidence suggests that statin therapy in patients with life limiting conditions may be more burdensome than beneficial. For this reason, palliative care experts recommend discontinuing statins in such patients as they near the end of life. However, the extent of statin prescribing at the end of life has yet to be described. Moreover, whether statin prescribing patterns are affected by the presence of a life limiting condition is unknown.
METHODS: We conducted a retrospective, cohort study to measure the prevalence of statin use during the last year of life. Within the cohort, we nested a case-control trial to test the influence of a recognized, life limiting diagnosis upon the duration of statin therapy.
RESULTS: Our cohort consisted of 3,031 individuals who died in the Veterans Integrated Service Network 11 between July 1, 2004 and June 30, 2005. Of those, 1584 were receiving statins at 6 months prior to death. From the population receiving statins, we identified 337 cases with a recognized life limiting condition at least 6 months prior to death and 1247 controls without a life limiting condition who matched cases on number of comorbidities, age, and socioeconomic status but differed in cause of death. In a Cox proportional model examining the timing of statin use, there was no significant difference in the time off statins between cases and controls, suggesting that the diagnosis of a life limiting illness does not increase the speed or likelihood that a statin will be discontinued prior to death.
CONCLUSIONS: Among 1584 veterans who died between July 1 2004 and June 30 2005, we observed no difference in the duration of statin prescribing between those who had a recognized life limiting condition prior to death and those who died less predictably. These findings underscore a missed opportunity to reduce the therapeutic burden upon patients with life limiting conditions and limit healthcare spending.

STATISTICAL MODELING AND QUALITATIVE DATA: THE DEVELOPMENT OF AN APPROACH TO MIXED METHODS WITHIN HEALTH SERVICES RESEARCH S. Zickmund[1]; J.E. Bost[2]. [1]VA Pittsburgh Healthcare System, Pittsburgh, PA; [2]University of Pittsburgh, Pittsburgh, PA. *(Tracking ID # 190813)*

BACKGROUND: Health Services Researchers frequently use qualitative data. Such an approach is especially important in the design of studies where knowledge of unique patterns of behavior or the acceptance of a particular intervention can be critical in translating research into practice. Yet such methods are open to criticism for being difficult to employ with complex datasets. Researchers have begun exploring "quasi-statistical" qualitative methods, yet rarely is this data carried on into the final analysis. The object of this presentation is to explore ways to directly integrate qualitative findings into statistical models used in mixed methods research in a way that retains the evocative textual force of this unique and important form of data.
METHODS: We describe how traditional statistical approaches (ANOVA, Chi-squared, etc.) can be used to univariately compare quantitatively coded qualitative variables to an outcome measure. Where these variables fit into the multivariable modeling algorithm depend on several factors, including whether these variables are considered potential confounders, mediators or moderators and how much they correlate with other predictors in a study. Also we address how investigators must decide if they should include the qualitative variables in the model after all other potential predictors are assessed (due to the time and cost of collecting the qualitative information) or whether they should treat them as one would any other predictor. Whether one is modeling to build the best prediction model or to have primary predictors one wishes to assess also impacts the situation if and when qualitative variables are included.
RESULTS: The above methodological issues will be demonstrated using current mixed methods data from the Patient Narrative Study The results will include a discussion of the development of a qualitative codebook to facilitate the creation of quantitative categories, and an approach to the use of qualitative data in statistical models. We also demonstrate the impact of our multivariable models by including our qualitative variables at various stages of the model building process. We assess whether they statistically predict our outcome, interact or confound the effects of other predictors and violate any model building assumptions. Finally, methods for including qualitative quotes within the results sections while still including the qualitative data within the statistical model are discussed.
CONCLUSIONS: With continued work within Health Services Research, investigators will be able to integrate qualitative and qualitative mixed methods data into the results of studies in a way that is both textually compelling and statistically accurate.

STRATEGIES FOR IMPROVING BREAST CANCER SCREENING AMONG INDIGENT WOMEN E.G. Price[1]; K. Mccarthy[1]; T. Pearman[1]. [1]Tulane University, New Orleans, LA. *(Tracking ID # 190727)*

BACKGROUND: The organization and delivery system of a practice can hinder or facilitate cancer screening. Lack of onsite resources, difficulties with scheduling appointments and prohibitive waiting times may discourage patient participation in cancer screening.
METHODS: We conducted a retrospective chart review of 254 indigent female patients from an academic, community-based, primary care clinic in New Orleans to determine: (1) the rate of breast cancer screening among patients referred for free digital mammography (located at another community-based clinic) between October 2006 and October 2007, and (2) changes in screening rates after the mammography facility reduced patient wait time for appointments (# days between dates of referral and appointment) and notified the referring clinic of appointment dates and time. We conducted a brief telephone survey of 80 patients who did not keep their appointments to determine common reasons for non-adherence.
RESULTS: 58 of 254 patients (22.3%) completed their mammograms. Prior to changes in scheduling procedures, average wait time for appointments was 58 days compared to 11 days after scheduling changes. However, screening rates were higher among women referred for mammography before changes in scheduling procedures (45.7%) compared to women referred afterwards (14.1%). Forty-four of 80 women referred for mammography after scheduling changes and who

did not complete their mammograms agreed to participate in a telephone survey (55% response rate). We were unable to reach 24 patients secondary to disconnected/inaccurate phone numbers. Most survey respondents believed that annual mammography is important (90.7%). The common reason for missing appointments was not knowing that it had been scheduled (65.9%). Most respondents reported they would have kept appointments had they been informed (65.1%). Review of procedures at the referring clinic revealed that screening rates were highest before scheduling changes during which time the referring clinic's staff routinely notified patients about their appointments. The mammography facility routinely reschedules "no-show" patients; however, inaccurate home addresses/ non-operational telephone numbers are major impediments.
CONCLUSIONS: Access to free mammograms and reductions in patient wait times for appointments did not improve screening rates among indigent patients. Adherence to appointments was higher when patients were notified by the referral clinic staff. Primary care clinics that serve indigent patients may need patient navigators to help coordinate cancer screening referrals, identify barriers to care, facilitate patient adherence to appointments and track receipt of services.

STUDENTS' CAREER CHOICE AND EVALUATION OF MULTI-MODAL INTERDISCIPLINARY CARE TRAINING IN A GERIATRIC CLERKSHIP M.K. Bautista[1]; J.R. Meuleman[1]; R.I. Shorr[1]; R.J. Beyth[2]. [1]GRECC, NF/SG VHS; Dept of Aging and Geriatrics, University of Florida, Gainesville, FL; [2]GRECC, RORC, NF/SG VHS; Dept of Aging and Geriatrics, University of Florida, Gainesville, FL. *(Tracking ID # 189607)*

BACKGROUND: Since the Liaison Committee on Medical Education mandated that U.S. medical schools must provide interdisciplinary care as a core curriculum, there has been a growing need to provide students with interdisciplinary care experiences. Our geriatric clerkship uses multi-modal instructions in exposing 4th-year medical students to interdisciplinary care of medically complex older patients. This study aims to determine whether students' career choice affects their rating of our geriatric clerkship.
METHODS: A cross-sectional study of 4th-year medical students who completed a 2-week required geriatric clerkship from July 2007 through December 2007 at a large state-university medical school in Gainesville, FL. Three instructional methods were employed in the clerkship: 1) Interactive web-based learning modules- students complete to self-assess their clinical knowledge on falls and dementia in older adults; 2) Small group sessions- students discuss 2 sample clinical cases with geriatric faculty as an integral learning component to the web-based learning modules; 3) Geriatric Interdisciplinary Care Summaries (GICS)– students complete to formulate comprehensive interdisciplinary care plans for two of their patients at one of 4 inpatient sub-acute rehabilitation facilities. Students meet with their clinical preceptors weekly to receive feedback on their completed GICS. Additionally, students complete a 2-week clinical sub-internship at one of the 4 clinical facilities. Students' career choices were compared with their overall rating of the clerkship and their perceived usefulness of the 3 instructional methods (5-point Likert scale: 1=Poor to 5=Excellent). Responses from each student were summed from these 4 ratings to create a composite score (range: 4 – 20) that was compared across students' career choices (internal medicine/family medicine, surgery, pediatrics, and other) by performing the ANOVA.
RESULTS: Forty-three students completed the clerkship during the study period. Four students did not report their career choice. Sixteen students (40%) chose either internal medicine or family practice, 8 (20%) chose surgical specialties, 5 (13%) chose pediatrics and 10 (27%) chose other specialties [radiology(n=3), psychiatry (n=2), emergency medicine (n=1), neurology(n=1), radiation oncology(n=1), and others(n=2)]. Students rated the overall clerkship as good to very good (mean±SD, 3.9±1.2). Similarly, the students rated the usefulness of the 3 instructional methods as good to very good (small group session 3.8±1.0; on-line learning module 3.5±1.2; GICS 3.3±1.3). Cronbach alpha of these 4 responses exceeded 0.7, indicating high internal consistency among the responses. Among 36 students who completed all 4 responses, a mean composite score was 15±3.2 that was normally distributed by kurtosis, skewness, Shapiro-Wilk and Kolmogorov-Smirnov tests. The ANOVA of the composite scores was not significantly different across students' career choices [$F=0.26$ (3, 33), $p=0.86$].
CONCLUSIONS: Students rated the geriatric clerkship highly and their rating was not influenced by their career choice. They also found that the multi-modal interdisciplinary care training to be very useful. Even among students whose career choice is not in geriatrics or primary care, geriatrics is a good model for interdisciplinary care training. Our medical school's curriculum committee independently concurred with the students and rated our geriatric clerkship the highest among all 4th-year required rotations.

SUBCLINICAL THYROID DYSFUNCTION AND THE RISK OF CORONARY HEART DISEASE AND MORTALITY: A META-ANALYSIS OF PROSPECTIVE STUDIES N. Ochs[1]; R. Auer[1]; D. Bauer[2]; J. Gussekloo[3]; J. Cornuz[1]; N. Rodondi[1]. [1]University of Lausanne, Lausanne,; [2]University of California, San Francisco, CA; [3]Leiden University Medical Center, Leiden, . *(Tracking ID # 189484)*

BACKGROUND: Subclinical thyroid dysfunction (defined as abnormal TSH and normal thyroid hormone levels) is common, particularly in older adults and in women, but controversy persists as to whether screening and treatment of subclinical thyroid dysfunction is warranted. As previous studies have been conflicting, we performed a meta-analysis of prospective studies to determine whether subclinical thyroid dysfunction is associated with coronary heart disease (CHD) and mortality (total or cardiovascular).
METHODS: We searched MEDLINE from 1950 to June 2007, and the bibliographies of key articles in the field and those included in this review. We included all prospective studies that provided risk estimates for CHD or mortality (total or cardiovascular) in subjects with subclinical thyroid dysfunction compared to those with normal thyroid function. Two authors independently reviewed each potential study for eligibility, assessed data quality, and extracted the data. We assessed methodological study quality and performed sensitivity analyses. When available, we used multiply adjusted results.
RESULTS: 11 prospective studies met our eligibility criteria, 10 examining subclinical hypothyroidism, with 2136 CHD events and 2822 deaths, and 6 examining subclinical hyperthyroidism, with 1399 CHD events and 2021 deaths. Overall, subclinical hypothyroidism was not associated with the risk of CHD (summary relative risk [RR]=1.20, 95% confidence interval [CI], 0.96–1.49) with weak evidence for heterogeneity (p for heterogeneity=0.14, I^2=33.4%). However, risk estimates were lower when pooling higher quality studies (RR from 1.02 to 1.08). Subclinical hypothyroidism was associated with CHD risk among subjects <65 years (RR for studies with a mean age<65 years=1.51, 95%CI, 1.09–2.09; vs. 1.05, 95%CI, 0.90–1.22 for studies with a mean age65 years; p for meta-regression by age=0.02). Results did not meaningfully differ in other sensitivity analyses. Subclinical hypothyroidism was not associated with cardiovascular mortality (RR=1.18, 95%CI, 0.98–1.42) or total mortality (RR=1.12, 95%CI, 0.99–1.26). Subclinical hyperthyroidism was not significantly associated with CHD (RR=1.36, 95%CI, 0.92–2.01), cardiovascular mortality (RR=1.36, 95%CI, 0.86–2.18) or overall mortality (RR=1.19, 95%CI, 0.95–1.48; for all: p for heterogeneity>0.20, I^2<30%), but confidence intervals were wider than for subclinical hypothyroidism.
CONCLUSIONS: This systematic review of prospective cohort studies with a large number of outcomes included indicates that subclinical hypothyroidism and hyperthyroidism are not associated with CHD risk and mortality, but subclinical hypothyroidism may be associated with increased CHD risk among those <65.

SUBSTANCE USE IN PATIENTS WITH SEXUALLY TRANSMITTED DISEASES: RESULTS FROM A NATIONAL SURVEY J.M. Tetrault[1]; D. A. Fiellin[1]; L.E. Sullivan[1]. [1]Yale University, New Haven, CT. *(Tracking ID # 190687)*

BACKGROUND: Approximately 19 million sexually transmitted diseases (STDs) are diagnosed annually in the U.S. Seventy-five percent of STDs are diagnosed in general medical settings. While substance use can put individuals at risk for STDs due to disinhibition, little is known about the prevalence of substance use in patients diagnosed with STDs in the general population.
METHODS: We used data from the 2005 National Survey on Drug Use and Health to examine the prevalence and substance use correlates of patients reporting a sexually transmitted infection with gonorrhea, chlamydia, syphilis, or herpes in the past year. We examined past-year use of alcohol, cigarettes, marijuana, non-medical prescription opioids, cocaine, intra-nasal and injection heroin. Alcohol abuse and dependence

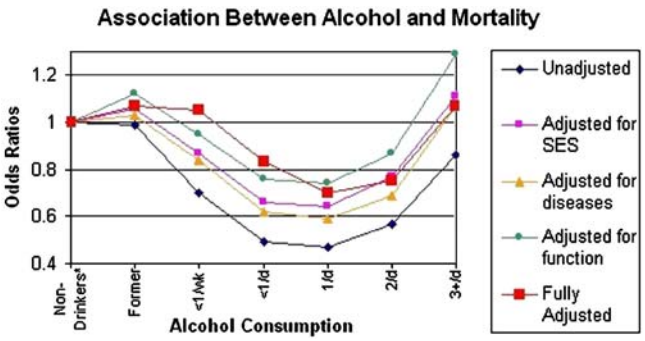
were diagnosed according to standard criteria. We performed chi-square tests and calculated unadjusted odds ratios between past-year STD, demographic variables, and past-year substance use variables. We constructed a series of multivariable models examining the association between past-year STD and past-year substance use variables, adjusting for demographics and other substance use.
RESULTS: Of the 54,623 respondents, 1% (n=641, representing an estimated 586,328 infections nationally) reported a past-year STD. Of those with a past-year STD, 70% were women, 58% were white, and 38% were 18–25 years old. Eighty-six percent reported alcohol use, 22% had alcohol abuse/dependence; 49% cigarette use, 32% marijuana use, 14% non-medical prescription opioid use, 8% cocaine use, 1.2% intra-nasal heroin use, and 0.25% injection heroin use. The characteristics most strongly associated with past-year STDs were: age 18–25 years old (OR 6.0, 95% CI 4.35–8.29), female gender (OR 2.23, 95% CI 1.74–2.84), Hispanic ethnicity (OR 7.30, 95%CI 4.16–12.82), and >12th grade education (OR 3.69, 2.18–6.23). All substance use variables were associated with past-year STD. After adjusting for demographic and all other substance use variables, past-year STD was associated with: alcohol use (AOR 1.78, 95% CI 1.17–2.72), alcohol abuse/dependence (AOR 1.96, 95% CI 1.36–2.79), and marijuana use (AOR 1.80, 95%CI 1.30–2.50); but not associated with non-medical prescription opioid use, cocaine use or heroin use.
CONCLUSIONS: A diagnosis of an STD should prompt clinicians to screen for substance use, in particular alcohol and marijuana. Interventions to address substance use in patients diagnosed with an STD should be refined for use in general medical settings.

SURVEY OF HOSPITAL CHART DOCUMENTATION PRACTICES AMONG INTERNISTS AND INTERNAL MEDICINE SUBSPECIALISTS IN THE NORTHEAST UNITED STATES R. Sharma[1]; A. Wilson[2]; N. Cosgrove[2]; W. Kostis[3]; A. Moreyra[2]; J. Kostis[1]. [1]UMDNJ-Robert Wood Johnson Medical School, New Brunswick, NJ; [2]University of Medicine and Dentistry of New Jersey-Robert Wood Johnson Medical School, New Brunswick, NJ; [3]Johns Hopkins University School of Medicine, Baltimore, MD. *(Tracking ID # 189236)*

BACKGROUND: Under the influence of various pressures, physicians may document information in patient hospital records that they did not personally obtain or observe.
METHODS: To study the prevalence of questionable hospital documentation practices, we surveyed by mail a 10% random sample of eligible internists (IM) and internal medicine sub-specialists (IMSS) (n=2,649, 56% of whom were internists) practicing in the Northeastern United States. Physicians were asked to respond to an anonymous, self-administered questionnaire describing chart documentation practices they may have engaged in, and to rate the importance of possible influences. Six documentation practices were presented, ranging from copying laboratory values documented by other health care providers, to writing notes on patients who they did not see or examine. A composite score (CS) was computed for positive responses. We compared the CS scores of IM and IMSS physicians, adjusting for their demographic and practice characteristics.
RESULTS: Responses were received from 1,126 physicians. The response rate of IM was 37%, and that of IMSS was 49%. Invasive procedures were reported to be performed by 5.5% of IM and 62.2% of IMSS. IM were younger (mean ± SD, 47.6±9.9 vs. 50.2±9.8, p=<.0001), more likely be in private practice (63% vs. 57%, p=0.04) and to have graduated from a non-US medical school (72% vs. 60%, p=0.0002) than IMSS. Among IM physicians, there was significantly less use of electronic medical records (14.6% vs. 23.6%, p=0.0001, and MD extenders (NP, PA (28.6% vs 45.1%, p<.0001) or fellows (48.9% vs. 65.7%, p<0.0001). IM were more likely to be female (34% vs. 20%, p<.0001) and of non-white race (36% vs. 24%, p<.0001). Questionable chart documentation was reported significantly less frequently by IM physicians compared to IMSS (CS 1.2±1.5 vs. 1.5±1.5, p=0.0006). In multivariate analysis, the following factors were independently associated with increased CS: younger age, white race, graduation from US medical school, working with residents or fellows. The performance of invasive procedures was a confounding factor in the logistic model. After stratifying, procedure performance was associated with a higher incidence of questionable documentation practices among IMSS (1.7±1.6 vs. 1.2±1.4, p=0.001) but not among IM (1.2±1.5 vs. 1.2±1.5, NS). IMSS physicians who considered billing requirements an important influence were significantly more likely to engage in questionable practices, but not IM physicians. Conversely, after multivariate adjustment, all physicians who considered good medical practice an important influence were significantly less likely to report engaging in such practices.
CONCLUSIONS: IM physicians were less likely to report engaging in questionable chart documentation practices than IMSS. Among IMSS, those performing procedures were more likely to report irregular documentation practices. Such practices may adversely affect both the quality of care the patient receives by propagating inaccurate information, and future performance improvement efforts which rely on chart abstraction.

SURVIVAL ADVANTAGE FOR LIGHT DRINKERS PERSISTS AFTER ACCOUNTING FOR FUNCTION AND SOCIOECONOMIC STATUS S.J. Lee[1]; K. Lindquist[2]; K.E. Covinsky[2]. [1]San Francisco VA Medical Center/UCSF, San Francisco, CA; [2]University of California, San Francisco, San Francisco, CA. *(Tracking ID # 189968)*

BACKGROUND: Previous studies have shown a U-shaped association between alcohol consumption and mortality with light drinkers having the lowest mortality rates. However, many of these studies shared characteristics of the observational studies of the estrogen-mortality relationship, with insufficient adjustment for many potential confounders such as functional limitations and socioeconomic status (SES). Thus, we hypothesized that extensive adjustment for potential confounders would explain the survival advantage of light drinkers (1 drink/day) compared to non-drinkers.
METHODS: We examined alcohol use and 4-year mortality among 14842 subjects enrolled in the 2002 wave of the Health and Retirement Study, a nationally representative study of US adults over age 55. All predictors and covariates were ascertained through self report, including alcohol use, age, gender, race and ethnicity, education, income, wealth, smoking, weight and height, importance of religion, social support, depression, disease diagnoses and functional limitations. Multivariate logistic regression was used to determine associations between alcohol use and mortality before and after adjustment for an array of potential confounders.
RESULTS: Overall 4-year mortality was 12%. Function and SES were the strongest confounding factors of the alcohol-mortality relationship. However, accounting for these factors only partially attenuated the survival advantage among light drinkers (1 drink/day), with the odds ratio (OR) for mortality increasing from 0.47 (95% CI: 0.38 – 0.57) without adjustment to 0.70 (95% CI: 0.56 – 0.89) with adjustment. (see Figure) Accounting for these factors eliminated the survival advantage among very light drinkers (<1 drink/week), with the OR increasing from 0.70 (95% CI: 0.60 – 0.82) without adjustment to 1.05 (95% CI: 0.88 – 1.26) with adjustment.
CONCLUSIONS: Contrary to our hypothesis, function and SES, which have not been considered in most prior studies, was found to weaken but not eliminate the survival advantage of light drinkers (1 drink/day) compared to non-drinkers.



*Reference Group

SYMPTOMS, DEPRESSION, AND SPIRITUAL WELL-BEING: A COMPARISON OF HEART FAILURE AND ADVANCED CANCER PATIENTS D. Bekelman[1]; J. Rumsfeld[2]; E. Havranek[3]; T.E. Yamashita[1]; J.S. Kutner[1]. [1]University of Colorado Denver, Aurora, CO; [2]Department of Veterans Affairs Medical Center, Eastern Colorado Health Care System, Denver, CO; [3]Denver Health and Hospital Authority, Denver, CO. *(Tracking ID # 189488)*

BACKGROUND: Although morbidity and mortality in chronic heart failure are high, the burden of illness on patients is generally not considered to be as severe as in advanced cancer, where a much higher proportion of patients receive palliative care services. We compared three prototypical palliative care domains, symptom burden, psychosocial comorbidity, and spiritual well-being, in heart failure and cancer patients. We also examined how these domains differed based on ejection fraction and patient-reported health status in heart failure patients.
METHODS: This was a cross-sectional study of 60 outpatients with symptomatic chronic heart failure and 30 outpatients with nonresectable or metastatic lung or pancreatic cancer recruited from outpatient clinics at a community hospital and an academic referral hospital. Symptom presence (Memorial Symptom Assessment Scale-Short Form, range 0–28 physical symptoms), depression (Geriatric Depression Scale-Short Form, range, 0–15 depression symptoms), and spiritual well-being (Functional Assessment of Chronic Illness Therapy- Spiritual Well-Being scale, range, 0–48, higher score indicates better spiritual well-being) were measured. The heart failure patients were grouped according to the most recent ejection fraction and heart failure-specific health status using the Kansas City Cardiomyopathy Questionnaire (range 0–100, score ≤50 indicating poor health status). Using separate ANOVA models, we compared the least-squares means for number of symptoms, depression scores, and level of spiritual well-being between the heart failure and cancer groups. These models were adjusted by age, gender, marital status, education, and income.
RESULTS: Heart failure and cancer patients reported similar numbers of physical symptoms (9.1 vs. 8.6, p=0.79), depression scores (3.9 vs. 3.2, p=0.53), and spiritual well-being (35.9 vs. 39.0, p=0.31). Symptoms, depression, and spiritual well-being were also similar between heart failure patients with ejection fraction ≤30, ejection fraction >30, and cancer patients. Heart failure patients with poor heart failure-specific health status had higher overall physical symptoms (13.2 vs. 8.6, p=0.03), depression scores (6.7 vs. 3.2, p=0.001), and lower spiritual well-being (29.0 vs. 38.9, p=0.004) than patients with metastatic cancer.
CONCLUSIONS: Patients with symptomatic chronic heart failure have a burden of symptoms, comorbid depression, and level of spiritual well-being at least on par with patients with advanced cancer. These results underscore the need to address symptom burden and psychosocial comorbidity among heart failure patients, particularly those in whom measured health status is poor. They also call for broader attention to the need for palliative care as a treatment option for heart failure patients just as it is for cancer patients.

TALKING ABOUT STOPPING: CANCER SCREENING DECISION-MAKING WITH OLDER ADULTS WITH MULTIMORBIDITY. S.M. Bernheim[1]; T.R. Fried[1]; D. Margaret[1]; C.P. Gross[1]. [1]Yale University, New Haven, CT. *(Tracking ID # 190875)*

BACKGROUND: Although it is increasingly recognized that the benefit of cancer screening decreases as a function of worsening health status or increasing age, there is little evidence to guide patient or physician decisions about when to stop breast and colon cancer screening. Our objective was to understand how patients incorporate multimorbidity into decisions about stopping cancer screening.
METHODS: We conducted semi-structured interviews with older adults (over 65 years old) with at least two chronic medical conditions to elicit their thoughts about how multimorbidity influences cancer screening decisions. Initial pilot interviews revealed that patients had difficulty engaging in discussions about ceasing screening without prompting. We therefore developed an educational tool about the relationship between limited life expectancy and cancer screening to aid the discussion. After asking initial questions about cancer screening decision-making with participants we introduced this brief (5–7 minute) educational tool. The rest of the interview consisted of additional questions about cancer screening in the context of hypothetical health scenarios. Finally, we asked about patients' wishes for future conversations with their physicians about stopping cancer screening. Using grounded theory, 3 independent readers coded interviews for salient themes. Codes and tagged quotations were iteratively reviewed for consistency of ideas.
RESULTS: We interviewed 20 participants from diverse racial and socioeconomic backgrounds from two practice settings. Half of the sample (n=10) was greater than 80 years of age, and 10 (50%) were from minority racial/ethnic backgrounds. Most patients were still being screened for cancer, but 3 (15%) had stopped screening. Participants described cancer screening decisions as largely driven by physician recommendation. Before exposure to our educational tool, few participants reported that age, health status, or life expectancy influenced, or would influence, cancer screening decisions. We found however that: 1) Following a standardized educational tool the majority of participants could articulate an understanding of how limited life expectancy might lead to stopping screening for breast and colon cancer. 2) Participants' responses to hypothetical health scenarios, after education about life expectancy and cancer screening, included a wide variety of ways that age, health status and life expectancy might influence their own or others' decisions to stop screening, but 3) participants frequently expressed either inconsistent beliefs or conflicted feelings about stopping cancer screening in the face of severe illness or limited life expectancy. 4) Participants had strong opinions about future screening discussions with their physicians, both about who should make cancer screening decisions and about the desire to know their own prognosis, but these opinions ranged widely.
CONCLUSIONS: Our study highlights important challenges in tailoring cancer screening recommendations according to patient age and health status. Our results show that an investment in patient education, although helpful in prompting discussions, may not be successful at eliciting clear patient choices about stopping screening in the context of multimorbidity. This work suggests the need for further development of models to aid physician-patient communication about complex medical decisions.

TEACHING AND EVALUATING EVIDENCE-BASED PRACTICE COMPETENCY: FEASIBILITY OF AN EDUCATIONAL PRESCRIPTION FOR RESIDENTS D.A. Feldstein[1]; S. Mead[1]; L.B. Manwell[1]. [1]University of Wisconsin-Madison, Madison, WI. *(Tracking ID # 189831)*

BACKGROUND: Many tools evaluate residents' evidence-based practice (EBP) skills, but few evaluate their performance during actual patient care. The educational prescription (EP), a device for teaching EBP, has not been used to formally evaluate resident performance. This study assessed: 1) the feasibility of using EPs to teach EBP in inpatient settings; and 2) the reliability of the EP to measure EBP competency.
METHODS: Eight Internal Medicine faculty members underwent two-hour training sessions in EBP and EP grading. They assigned EPs to residents during inpatient ward and consult rotations at a University and a VA hospital. The EP was designed to guide residents through the steps of EBP. Residents were graded by faculty as "not yet competent", "competent" or "superior" in six areas on the EP: question formation, database searching, evidence appraisal, application of evidence to the specific patient, overall competence, and ability to teach. Both faculty and resident physicians completed end-of-rotation questionnaires assessing the frequency of educational prescription use and attitudes toward the EP process. Additional information on barriers and facilitators to EP use and the impact of EPs on patient care was obtained in faculty interviews and resident focus groups. Two authors independently graded 20 resident EPs to evaluate scoring reliability (Cohen's kappa).
RESULTS: The eight faculty physicians attended on 14 inpatient rotations with 20 residents. Ten rotations were at the University hospital and four at the VA. The faculty assigned an average of 2.9 (SD 2.6) educational prescriptions per rotation, of which 2.3 (SD 2.2) were completed. Six faculty physicians completed nine end-of-rotation questionnaires. On eight questionnaires, faculty indicated that they would probably or definitely continue to use EPs in their teaching (89%). Both quantitative and qualitative data indicated that time is the major barrier to EP use. In addition to their value as a teaching tool, EPs were found to reveal unrecognized deficits in resident knowledge: "It was most helpful for identifying things I was assuming that they knew and they didn't." Sixteen residents (six PGY1s, six PGY2s and four PGY3s) completed end-of-rotation questionnaires. These residents completed an average of 1.8 (SD 0.98) educational prescriptions per rotation. Ten (63%) residents responded that performing EPs was probably/definitely a valuable experience while five (31%) felt it was not. Nine (56%) also believed it would change their approach to patient care; three (21%) did not. In post-hoc analysis, residents who thought their attitude toward EBP was a barrier to using EPs rated EPs as less valuable. The two authors had inter-rater reliabilities for scoring the six areas ranging from =0.22 to = 0.72.
CONCLUSIONS: It is feasible to train faculty physicians to use EPs during inpatient rotations. Minimal training time is required and residents are able to complete nearly two EPs per rotation. Time is the greatest barrier, especially on busy ward services. Resident attitudes

toward EPs were equivocal, possibly due to differing attitudes toward EBP. The scoring rubric showed reasonable reproducibility with inter-rater reliability ranging from fair to substantial. Future studies are necessary to generalize the use of EPs in other settings and to substantiate the ability of EPs to assess resident EBP skills.

TEACHING MUSCULOSKELETAL PHYSICAL EXAMINATION: DEVELOPMENT, IMPLEMETATION AND EVALUATION OF A NOVEL LONGITUDINAL CURRICULUM K. Berg[1]; D.D. Berg[2]; J. Majdan[1]. [1]Jefferson Medical College, Philadelphia, PA; [2]Thomas Jefferson University, Philadelphia, PA. *(Tracking ID # 190551)*

BACKGROUND: As most patients first present with musculoskeletal problems to a primary care physician, s(he) must be proficient in the physical examaintion of the musculoskeletal system. It is of great import that such skills be taught and reinforced in medical school. Recent reports give evidence that students and residents have deficits in these skills. The Clinical Skills Center at Jefferson Medical College has developed, implemented and begun to evaluate a novel four year longitudinal curriculum to teach musculoskeletal exam skills to medical students.
METHODS: The longitudinal curriculum has components in all 4 years of medical school. The first year (M1) class receives several site specific surface anatomy sessions in the gross dissection laboratory. These provide a foundation for teaching and learning physical exam. Assessment of the M1 students is made during the anatomy practical exam; retention of skills is assessed one year later. The second year students (M2) receive a demonstration of musculoskeletal physical exam techniques, using a master checklist; followed by "hands-on" practice with standardized patients (SP) under the direct supervision of skills center faculty. This is followed by a half-day workshop on elbow, knee and shoulder physical exam. This fosters further refinement of skills for these specific sites. Senior level students further refine and evolve their skills with structured practice sessions that have been intergrated into the clinical years and, be enrolling in our 4th year Advanced Physical Diagnosis course. In order to assess the skills of the more senior level stduents, a case of medial collateral ligament (MCL) sprain was included in our 11 station, end-of-third year Objective Structured Clinical Examination (OSCE). A course evaluation survey for each component is given to the students.
RESULTS: All sessions have been well received by the students. Over 90% of M1 students (n = 198 studnets) correctly identified surface anatomy sites including the medial collateral ligament of the knee or the cubital tunnel of the elbow. One year retention rates for these surface anatomy sites was 98% (n=135 students). In the end-of-third year OSCE, over 80% of the students correctly diagnosed an MCL sprain in the OSCE station.
CONCLUSIONS: We describe here a curricular model in which there is a step-wise, longitudinal and graduated approach to teaching musculoskeletal physical examination skills, techniques and interpretation to medical students. This is a curriculum that can be exported to other programs. In order to further evolve our curriculum, we have used any deficits discovered in the end-of third year OSCE to refine our teaching and emphasize specific areas of deficit.

TEACHING THE COST OF HOSPITAL CARE TO MEDICAL STUDENTS D. Jackson[1]; R. Wagner[1]; M.A. Earnest[1]; E. Aagaard[1]. [1]University of Colorado at Denver School of Medicine, Aurora, CO. *(Tracking ID # 190043)*

BACKGROUND: Medical decisions have great financial impact on patients, their families, and society. Physicians significantly influence health care spending, yet little time is spent in medical education addressing financial costs. We sought to assess student perceptions of the educational environment regarding incorporation of costs into medical decision-making, and the impact of an instructional session on students' knowledge of and attitudes regarding health economics.
METHODS: During their Internal Medicine clerkship, 3rd year medical students at the University of Colorado took an anonymous pre-test survey to assess their perceptions of the educational environment regarding health economics and their knowledge of and comfort with integrating costs into health care decision-making. Questions regarding student perceptions used a 5 point Likert scale (1=strongly disagree and 5=strongly agree). Knowledge questions used a multiple-choice format. This survey was followed by a two-hour, case-based exercise exploring economic aspects of medical decision-making, using the experience of a patient hospitalized for pneumonia. After the instructional session, the students completed an anonymous post-test survey that reassessed their knowledge of health economics and comfort integrating costs into health care decision-making using the same questions as the pre-test survey, and also asked how they expected to use the knowledge in their future practice. Data were analyzed using descriptive statistics, t-test and chi-square tests.
RESULTS: Since April 2007, 96 students have completed the Internal Medicine Clerkship and 86% have completed surveys. Only 26.5% of students agreed or strongly agreed that when deciding to order a test their medicine team considers the cost. Moreover, only 20.5% agreed or strongly agreed that residents routinely discussed the cost of care as a component of patient management, and 34.9% felt that attendings did so. Students demonstrated significant knowledge deficits in heath economics with a mean score of 43% on the knowledge questions prior to the educational session. Following the session, students' knowledge of health economics improved with a mean score of 77% (CI for percent change 27.9–39%). The percentage of students selecting agree or strongly agree showed significant change from pre-test to post-test on attitude questions, including: considering a patient's ability to pay ($p<.001$), discussing costs with the patient ($p<.001$), discussing insurance status & ability to pay with the patient ($p<.001$), and weighing costs against diagnostic benefit ($p<.001$). On the post-test, 63% indicated the exercise will change their future practice, and 82% reported that they will incorporate cost into medical decision making.
CONCLUSIONS: Education on health economics appears to be an effective strategy for improving medical student awareness of the economic costs of care. We advocate incorporating health economics into medical education nationwide to increase awareness and encourage cost-effective practice. Future studies will need to assess the impact of such a curriculum on actual practice as residents and attendings.

TELEPHONE OBJECTIVE STRUCTURED CLINICAL EXAM (OSCE)—MULTI-TASKING IN NEEDS ASSESSMENT H. Whelan[1]; J.S. Cavanaugh[1]; M.D. Schwartz[2]. [1]NYU, New York, NY; [2]New York University, New York, NY. *(Tracking ID # 190335)*

BACKGROUND: Conveying diagnostic and therapeutic thinking to other members of the health care team is critical to ensuring continuity of appropriate care and patient safety. Despite the critical importance of resident documentation, few curricula exist to teach residents how to best document their clinical reasoning. Our objective was to observe how accurately and completely residents documented their clinical reasoning in a standardized clinical scenario when explicitly asked to do so.
METHODS: In one of eight stations in an Objective Structured Clinical Exam (OSCE), 22 second year Internal Medicine residents were asked to manage a patient over the phone who complained of diarrhea. They were then instructed to write a progress note to document their clinical impression and treatment plan with supporting evidence. Three trained faculty independently rated notes using a scoring tool we developed to assess the documentation of history, differential diagnosis, supporting evidence, and management plan. For the history, raters scored items as present or absent. Total history score and two history subscores for items that were most critical to forming a differential diagnosis and a management plan were calculated. The differential diagnosis documentation was scored on two aspects: "comprehensiveness," which is the proportion of a list of possible diagnoses offered in the differential, and"specificity" ranging from general (e.g. infection) to specific (e.g. E. coli). Raters scored the quality of documentation of supporting evidence for the differential diagnosis. Management was scored by the presence or absence of different elements, with more points given for more appropriate management strategies. We determined median scores and calculated intraclass correlation coefficients (ICC) to evaluate interrater reliability.
RESULTS: See table
CONCLUSIONS: In the setting of a telephone OSCE case, residents' documentation of their clinical reasoning was scant and of poor quality. This may reflect poor documentation of clinical reasoning or a belief that a telephone encounter does not require significant documentation. This study suggests that documentation of clinical reasoning is an area that requires more attention in our residency curricula, improvement in which might help us better identify and address residents' areas of uncertainty in both medical knowledge and diagnostic reasoning. An incidental finding was that residents tended to manage this case very

conservatively, often instructing the patient to come for immediate evaluation when this was not necessary. This choice may have limited the amount and quality of clinical data residents chose to gather, thereby altering the quality of documentation.

TELEPHONE OSCE NOTE SCORES

	Median Score	ICC
Total History	57%	.68
DiffDx History	71%	.86
Management History	40%	.73
DDx: Comprehensiveness (0 to 2)	22%	.68
DDx: Specificity (0 to 3)	1.7	.86
Supporting Evidence (0 to 3, least to most)	.17	.55
Management	44%	.46

THE "WEIGHT" OF PHARMACEUTICAL ADVERTISING D.W. Newman[1]; W.P. Newman[2]. [1]Hennepin County Medical Center, Minneapolis, MN; [2]University of North Dakota, Grand Forks, ND. *(Tracking ID # 190799)*

BACKGROUND: Physicians receive several medical journals each month, some more welcome than others. A substantial amount of these journals is pharmaceutical advertising, often consisting of multiple page cardstock inserts, which hinder normal reading and analysis. Our goal was to determine what percentage, by weight, of several publications was represented by pharmaceutical advertising.
METHODS: A convenience sample of several medical journals were assigned to a group. These consisted of core journals (Journal of the American Medical Association, Annals of Internal Medicine, Journal of General Internal Medicine, and the New England Journal of Medicine), unsolicited mail journals (American Family Physician, Federal Practitioner, Journal of Family Practice, and Musculoskeletal Medicine), and unsolicited "news" journals (Internal Medicine News, The Rheumatologist, and Clinical Endocrinology News). Using a paper scalpel the pharmaceutical advertisements were cut from the journal and weighed on a postal scale. If the add only covered one side of the page the total weight was divided by two. All pharmaceutical inserts were also weighed. When access to more than one copy of a journal was available the totals were averaged.
RESULTS: The core journals had an average percentage of pharmaceutical advertisements by weight of 15.0% (JAMA 10.5%, JGIM 0.0%, Annals 28.6%, NEJM 20.8%). The unsolicited journals had a percentage of advertising of 50.7% (AFP 50.7%, Federal Practitioner 56.8%, J of FP 40.5%, Musculoskeletal Medicine 55.0%). The newspaper journals consisted of 43.7% pharmaceutical advertising weight (IM News 56.3%, The Rheumatologist 38.5%, Endocrinology News 36.5%). ANOVA contrasts between the publication groups suggest that core journals differ in pharmaceutical ad weight ($p<0.05$) from the unsolicited publications which do not differ from each other.
CONCLUSIONS: A considerable amount of medical journals' weight, figuratively and literally, is consumed by pharmaceutical advertising, but the amount is drastically different between publications. These advertisements may bias readers' clinical decisions and cause increased frustration while reading.

THE ASSOCIATION BETWEEN CIGARETTES SMOKING, CANNABIS USE AND ALCOHOL CONSUMPTION IN A POPULATION OF YOUNG MEN: RESULTS OF A POPULATION-BASED SURVEY C. Willi[1]; J. Cornuz[2]; J. Gaume[3]; G. Gmel[3]; J. Daeppen[4]. [1]Department of Ambulatory Care and Community Medicine, Lausanne University, Lausanne,; [2]Department of Ambulatory Care and Community Medicine, University of Lausanne, 1011 Lausanne,; [3]Alcohol Treatment Center, Department of Community Medicine and Health, Lausanne University Hospital, Lausanne,; [4]Alcohol Treatment Centre, Department of Community Medicine and Public Health, University of Lausanne, Lausanne, . *(Tracking ID # 190541)*

BACKGROUND: Cigarette smoking is often initiated at a young age as well as other risky behaviors such as alcohol drinking, cannabis and other illicit drugs use. Some studies suggest that cigarette smoking may have an influence on other risky behaviors but little is known about the chronology of occurrence of those different habits. The aim of this study was to assess, by young men, what were the other risky behaviors associated with cigarette smoking and the joint prevalence and chronology of occurrence of those risky behaviors.
METHODS: Cross-sectional analyses of a population-based census of 3526 young men attending the recruitment for the Swiss army, aged between 17 and 25 years old (mean age: 19 years old), who filled a self reported questionnaire about their alcohol, cigarettes, cannabis and other illicit drugs habits. Actual smoking was defined as either regular smoking (¡Ý1 cigarette/day, on every day) or occasional smoking, binge drinking as six or more drinks at least twice a month, at risk drinking as 21 drinks or more per week, recent cannabis use as cannabis consumption at least once during the last month, and use of illicit drugs as consumption once or more of illicit drugs other than cannabis. Age at begin was defined as age at first use of cannabis or cigarette smoking.
RESULTS: In this population of young men, the prevalence of actual smoking was 51.2% (36.5% regular smoking, 14.6% occasionnal smoking). Two third of participamnts (60.1%) declared that they ever used cannabis, 25.2% reported a recent use of cannabis. 53.8% of participants had a risky alcohol consumption considered as either binge or at risk drinking. Cigarette smoking was significantly associated with recent cannabis use (Odds Ratio (OR): 3.85, 95% Confidence Interval (CI): 3.10–4.77), binge drinking (OR: 3.48, 95% CI: 3.03–4.00), at risk alcohol drinking (OR: 4.04, 95% CI: 3.12–5.24), and ever use of illicit drugs (OR: 4.34, 95% CI: 3.54–5.31). In a multivariate logistic regression, odds ratios for smoking were increased for cannabis users (OR 3.10,, 95% CI: 2.48–3.88), binge drinkers (OR: 1.77, 95% CI: 1.44–2.17), at risk alcohol drinkers (OR 2.26, 95% CI: 1.52–3.36) and ever users of illicit drugs (OR: 1.56, 95% CI: 1.20–2.03). The majority of young men (57.3%) initiated smoking before cannabis and mean age at onset was 13.4 years old, whereas only 11.1% began to use cannabis before smoking cigarettes and mean age at onset was slightly older (14.4 years old). 31.6% started both cannabis and tobacco at the same age (15 years old). About a third of participants (30.5%) did have a cluster of risky behaviours (smoking, at risk drinking, cannabis use) and 11.0% did cumulate smoking, drinking, cannabis and ever use of illegal drugs. More than half of the smokers (59.6%) did cumulate cannabis use and at risk alcohol drinking whereas only 18.5% of non-smokers did.
CONCLUSIONS: The majority of young smokers initiated their risky behaviors by first smoking and then by other psychoactive drugs. Smokers have an increased risk to present other risky behaviors such as cannabis use, at risk alcohol consumtion and illicit drug use compared to non-smokers. Prevention by young male adults should focus on smoking and also integrate interventions on other risky behaviors.

THE BRANDED PHYSICIAN'S OFFICE: EFFECTS OF EXPOSURE TO SMALL PHARMACEUTICAL PROMOTIONAL ITEMS ON PHYSICIAN TREATMENT PREFERENCES D. Grande[1]; D. Frosch[2]; A. Perkins[3]; B. Kahn[4]. [1]University of Pennsylvania School of Medicine, Philadelphia, PA; [2]University of California, Los Angeles, Los Angeles, CA; [3]Rice University, Houston, TX; [4]University of Miami, Coral Gables, FL. *(Tracking ID # 190761)*

BACKGROUND: The long-standing practice of pharmaceutical companies providing gifts to physicians has recently gained attention because of concerns over undue influence on prescribing decisions. This attention has primarily focused on gifts of relatively high value reflecting a belief that influence is proportional to economic value. We designed an experiment to measure the impact that exposure to small, branded promotional items has on physicians' clinical preferences.
METHODS: This is a randomized experiment with 180 third and fourth year medical students and internal medicine and family medicine residents at the University of Pennsylvania School of Medicine and its affiliated health system. Participants were randomized to branded exposure or no exposure. Participants in the experimental group were exposed to promotional items for Lipitor. The specific focus of the study was not revealed to participants until a post-study debriefing. The three study outcomes measured immediately following exposure included: implicit preferences, explicit preferences, and treatment preferences in clinical decisions – all focused on lipid management and Statins. Implicit attitudes were measured using the Implicit Association Test, a frequently used method to uncover implicit or socially undesirable

attitudes. Clinical preferences in lipid management were assessed through clinical vignettes with varying cardiovascular risk. Explicit preferences were measured on an eleven-point scale with Lipitor and Zocor on each end across a range of product attributes.
RESULTS: Participants exposed to branded promotional items for Lipitor paradoxically demonstrated weaker preferences toward Lipitor compared to Zocor on implicit measures ($p = 0.05$). Significant differences reflecting the same paradox were found on the moderate cardiovascular risk clinical vignette with 42.1% of controls choosing to initiate Lipitor therapy compared to just 26.1% of the subjects exposed to Lipitor promotional items ($p=0.03$). No significant effects were evident on the low and high cardiovascular risk clinical vignettes. Explicit preferences showed similar patterns among global attributes although not statistically significant ('product superiority': 48% of controls and 36% of exposed rated Lipitor over Zocor, $p=0.13$; 'product preference': 53% of controls and 41% of exposed rated Lipitor over Zocor, $p=0.10$). More specific attributes (efficacy, safety, cost and convenience) did not exhibit variation by exposure.
CONCLUSIONS: Trainees exposed to pharmaceutical branded promotional items exhibited a boomerang response with weaker preferences toward the marketed product when compared to controls. These findings were evident on implicit measures and in the most ambiguous clinical decision. A similar but non-significant pattern on the explicit measures lends support to these findings. Our study provides evidence that subtle branding within the environment can have significant effects on clinical decisions and treatment preferences. In this case, a boomerang effect was observed and is potentially explained by recent policies at the University of Pennsylvania that severely restrict pharmaceutical marketing. This suggests that strong institutional policies may affect attitudes underlying behavioral responses to marketing. Further studies are needed to assess responses at other institutions with varying policies.

THE BURDEN OF DECISION MAKING FOR HOSPITALIZED OLDER ADULTS A.M. Torke[1]; G.A. Sachs[1]; P.R. Helft[1]; S. Petronio[2]; C.M. Callahan[1]. [1]Indiana University School of Medicine, Indianapolis, IN; [2]Indiana University Purdue University Indianapolis, Indianapolis, IN. *(Tracking ID # 190719)*

BACKGROUND: In the hospital setting, physicians encounter many decisions that ethically and legally require discussion with the patient or his or her surrogate. We examined the frequency that several important decisions requiring informed consent arise in the care of hospitalized older adults.
METHODS: We conducted a retrospective electronic medical record (EMR) review of all adults age 65 and older admitted to the medical and surgical services of an urban, public hospital over a three-year period (2004–2006) in order to determine the frequency that such patients required informed consent for 3 major categories of decisions: do not resuscitate (DNR) orders, transfer to a skilled nursing facility, and procedures serious enough to require an informed consent document. Procedures were identified in the EMR by ICD-9 codes. All ICD-9 codes listed in the EMR were reviewed to eliminate both potential duplicates and codes for minor procedures such as peripheral intravenous lines. The electronic medical record also recorded whether the physician spoke with the patient or to a surrogate decision maker to gain consent for each DNR order.
RESULTS: There were 6,129 hospital admissions for 3472 patients (65% with more than one admission). Patients were 49% African American and 44% white, 61% female, and had a mean age of 74. We found that 3410 (55.64%) of admissions involved one of the three major categories of decisions. DNR orders were written in 957 (16%) of admissions, patients were transferred to a skilled nursing facility in 919 (11%), and patients underwent a procedure requiring consent 2634 (43%). The three most common procedures were: blood transfusions, mechanical ventilation, and upper GI endoscopy. In a random sample of 75 DNR orders, we found that patient provided consent in only 38% of cases. Surrogate decision makers related to the patients gave consent 45% of the time. In the remainder, consent was provided by: a state guardian; the physician; the patient and family together; or based on an order from an extended care facility.
CONCLUSIONS: Older adults and their providers face a high burden of decision making in the hospital. For DNR orders, a surrogate makes this important decision a majority of the time. Further research is needed to examine whether the decision making and consent processes differ for patients who make their own decisions compared to those for whom a surrogate makes decisions.

THE CAREER PLANNING PROCESS FOR INTERNAL MEDICINE RESIDENTS: SUCCESSES AND BARRIERS R. Garcia[1]; D.M. Windish[2]; J.R. Rosenbaum[2]. [1]Yale University School of Medicine, New Haven, CT; [2]Yale University, Waterbury, CT. *(Tracking ID # 190365)*

BACKGROUND: Residency programs provide training in their respective disciplines, but few have centralized resources or courses to prepare residents for their careers. Little is known about key factors that affect the job or fellowship application process of American internal medicine trainees. We surveyed recent internal medicine residency graduates to assess their perceived preparedness for career planning during residency.
METHODS: In the fall of 2007, we surveyed a group of recent graduates (N=50) from the Yale Traditional, Primary Care, and Medicine/Pediatrics Programs via Survey Monkey and mail. We included questions about demographics, stress of the process of finding a job or fellowship, satisfaction with the result, mentorship, and resources used in finding a position. We also included open-ended questions to assess barriers and frustrations during the application process and assess residents' further informational needs regarding career planning.
RESULTS: Of the 32 respondents (64% response rate), 17 (53%) applied for jobs and 20 (63%) applied for fellowship; 4 applied for both. Among job applicants, 10 applied for hospitalist positions, 3 applied for private practice jobs, and 5 chose academic positions. Overall, 86% of residents obtained their first choice position, however, only 65% reported being "very satisfied" with the application process. Although only one resident reported experiencing significant difficulty in finding a practice position compatible with career goals, 77% found career planning at least somewhat stressful, citing "I did not know what to look for in a position" as the main reason. There were no significant interactions between gender and stress or mentorship, stress and race or mentorship, or outstanding loan amount and stress. Fifty-nine percent had a career mentor who effectively counseled them about their career path during residency. However, the residents reported variable importance of this person in their planning. For information on finding a job, word of mouth/networking (31%) was the most common resource used, with even distribution of other resources (such as online job postings, recruiters, journal ads, guidance from faculty/program director, or other online resources). For obtaining a fellowship, word of mouth/networking (44%) and guidance from faculty/program director (34%) were the most common resources. All respondents felt that career planning should be structured into residency, with most stating that it should occur throughout residency. In the open-ended responses, many residents described learning about the application process early as crucial and poorly emphasized. Other key advice included having a mentor and networking within the field. Important barriers to career planning included lack of guidance on timelines for job application and licensure, lack of knowledge in negotiating contracts, and time pressure, including lack of time for interviewing.
CONCLUSIONS: Stress regarding career planning is common among residents even when placements are overall successful. A large percentage of information for career planning is gleaned from informal sources, mainly word of mouth/networking, with a strong desire for career planning to be structured into residency as early as possible. Designing more formal courses or resources, including practical issues such as negotiation and timelines, may increase satisfaction and ease the process for medical trainees.

THE COST-EFFECTIVENESS OF OSTEOPOROSIS SCREENING STRATEGIES FOR POSTMENOPAUSAL WOMEN S. Nayak[1]; S.L. Greenspan[1]; H. Liu[2]; K. Michaud[3]; D.K. Owens[4]; M.S. Roberts[1]. [1]University of Pittsburgh, Pittsburgh, PA; [2]Santa Clara Valley Medical Center, San Jose, CA; [3]University of Nebraska Medical Center, Omaha, NE; [4]Stanford University, Stanford, CA. *(Tracking ID # 190885)*

BACKGROUND: Osteoporosis affects approximately 10 million persons in the United States, and is associated with substantial morbidity and costs. Despite the availability of medical therapies that reduce fracture risk, most affected individuals are undiagnosed and untreated. The U.S. Preventive Services Task Force recommends that all women age 65 and older be screened for osteoporosis. Several screening tests are available to clinicians; however, there is disagreement regarding the best strategy for population screening. We performed a cost-effectiveness analysis of multiple osteoporosis screening strategies to determine the most cost-effective strategies for identifying 65 year old women at risk for osteoporotic fracture.
METHODS: We constructed a microsimulation model to compare ten osteoporosis screening strategies. The strategies that we evaluated included central DXA (hip and femoral neck), calcaneal quantitative ultrasound (QUS) as a pre-screening test prior to DXA, the Simple Calculated Osteoporosis Risk Estimation (SCORE) risk assessment tool as a pre-screening test prior to DXA, a Study of Osteoporotic Fractures (SOF)-based risk assessment tool (the FRACTURE Index risk assessment tool), and no screening (with osteoporosis treatment only if fracture occurs). We evaluated each of the above strategies using several different test cutoff thresholds to select individuals for treatment. We assumed that individuals who tested positive with a particular screening strategy or who sustained an osteoporotic fracture were offered alendronate treatment, and that compliance with therapy was 50%. We modeled occurrence of hip, vertebral, and wrist fractures, nursing home admission, medication adverse events, and death. We used a lifetime time horizon and societal perspective, presented results in 2005 U.S. dollars per quality-adjusted life year (QALY), and discounted costs and QALYs at a 3% annual rate.
RESULTS: All of the evaluated screening strategies resulted in more QALYs than no screening. The incremental cost-effectiveness ratios (ICERs) were similar for the FRACTURE Index, QUS pre-screening, and SCORE pre-screening strategies, ranging from $30,000 to $40,000 per QALY compared to no screening. Strategies using DXA alone resulted in more QALYs gained, but were also more expensive. The ICER for the DXA screening strategy using a T-score threshold of −2.5 was $48,000/QALY compared to pre-screening with SCORE. The ICER for DXA screening using a T-score threshold of −2.0 was $99,000/QALY compared to using a T-score threshold of −2.5. The ICER for DXA screening with a T-score threshold of −1.5 was $211,000/QALY compared to using a T-score threshold of −2.0.
CONCLUSIONS: Many screening strategies for identifying 65 year old postmenopausal women at risk for osteoporotic fracture are cost-effective. Screening using central DXA with a T-score cutoff threshold of −2.5 to select individuals for treatment results in more QALYs gained than strategies using calcaneal QUS or risk assessment tools, at an ICER of $48,000/QALY. Screening using DXA with T-score cutoff thresholds of −2.0 or −1.5 to select individuals for treatment results in more QALYs than DXA screening with a T-score threshold of −2.5; however, the ICERs for these strategies are above commonly cited thresholds for cost-effective care.

THE DENVER PRINCIPLES AND THE ORIGINS OF AIDS ACTIVISM, 1982–83 J. Wright[1]. [1]Beth Israel Deaconess Medical Center, Cambridge, MA. *(Tracking ID # 189662)*

BACKGROUND: In June of 1983, a small group of gay men living with AIDS attended a gay and lesbian health professionals' AIDS forum in Denver. These men wrote a manifesto now known as "The Denver Principles", which started: "We condemn attempts to label us as 'victims,' a term which implies defeat, and we are only occasionally 'patients,' a term which implies passivity, helplessness, and dependence upon the care of others. We are 'People With AIDS.'" The Denver Principles also outlined standards for healthcare professionals; rights and responsibilities of people with AIDS; and a plan for people with AIDS to organize politically and to play policymaking roles within AIDS organizations. The Denver Principles were the formal starting point of the extraordinary culture of mutual aid and activism by and for people living with HIV/AIDS, which has since become a global phenomenon.
METHODS: I examined the history of the Denver Principles, their authors, and their historical context, by using documents (especially focusing on gay newspapers of the time as well as other archival material) and existing oral histories, as well as the small number of secondary sources available.
RESULTS: Within the gay communities of San Francisco and New York, many of the first political responses to AIDS came from activists and leaders focused on gay community defense. The authors of the Denver Principles created the idea of activism focused on the specific needs of people with AIDS. The community defense agenda often emphasized the lethality of the new disease, in order to create a sense of urgency and alarm. The first AIDS activists discussed end-of-life issues, but emphasized living with the disease. If AIDS was defined only by death, people with AIDS would be dead in social and political terms before they died physiologically—a process which sociologists in other contexts have described as "social death". This process (illustrated in this case by several examples, including gay newspaper coverage and letters-to-the-editor exchanges) had the effect of excluding people with AIDS from community life and AIDS policy-making. Taking lessons from movements that preceded them, the authors of the Denver Principles invented AIDS activism. They emphasized the importance of their lived experience in AIDS policy decisions, and insisted that their diagnoses should not exclude them from social and political life. The Denver Principles became the formal starting point of the culture and politics of self-empowerment by people living with HIV/AIDS. The ideas of the document and its authors influenced later AIDS activists and today's HIV care programs and policies; and their legacy also influenced activists living with other conditions (for instance, breast cancer activists). The idea of emphasizing the needs of people with AIDS, as opposed to seeing AIDS primarily as a threat to the broader community, provided an important and often-used political tactic for people with HIV/AIDS in other communities.
CONCLUSIONS: The Denver Principles were originally presented to an audience of healthcare providers, and offer useful challenges for clinicians interested in making political and clinical alliances with their patients. In policy terms, their history also illuminates the potential importance of emphasizing the needs of people living with a disease, rather than focusing primarily on the potential worst outcomes of a disease.

THE DESIGN AND EVALUATION OF A LOW-LITERACY DISCHARGE MEDICATION EDUCATION TOOL K.M. Cordasco[1]; S.M. Asch[1]; J.J. Guterman[2]; S. Gross-Schulman[2]; L. Ramer[3]; D.S. Bell[4]; I. Franco[4]; C. M. Mangione[4]. [1]Veterans' Health Administration, West Los Angeles, Los Angeles, CA; [2]The Los Angeles Department Of Health Services, Los Angeles, CA; [3]LAC+ USC Medical Center, Los Angeles, CA; [4]University of California, Los Angeles, Los Angeles, CA. *(Tracking ID # 190050)*

BACKGROUND: Medication non-adherence is a risk factor for early readmission and poor clinical outcomes among cardiac patients. Given that medication knowledge is a precursor to adherence, we developed and evaluated, using a randomized-controlled clinical trial, a low-literacy picture and icon-based discharge medication education tool for teaching patients about their medications at the time of hospital discharge.
METHODS: To develop the tool, the research team partnered with an existing quality improvement committee focused on cardiac inpatient care at a large urban safety-net hospital. The research team, consisting of physician-researchers, nurses, hospital administrators, information technology specialists, and graphic designers, developed a prototype of a printable outpatient medication schedule, customizable for each patient, in English or Spanish, featuring instruction-specific icons and color pictures of the pills the patient receives at hospital discharge. This prototype was then shown to approximately 30 nurses in shift change meetings with feedback used to make rapid-cycle serial improvements to the tool until saturation was reached. Additionally, ten nurse-patient pairs pilot-tested the tool and provided feedback to the principal investigator. To evaluate the tool, we conducted a randomized-controlled clinical trial testing its effectiveness on post-discharge medication adherence. At two weeks post discharge, via telephone interview, we collected self-reported medication adherence. To validate this self-report, we again interviewed patients at four weeks post discharge and asked the participant to count the number of pills s/he had remaining for each medication. We also used automated pharmacy data to assess for delay in refilling each medication from the 30-day supply given at discharge. In a self-administered survey, we asked each discharging nurse to rate the acceptability of the tool and report time spent teaching the patient.

RESULTS: Average age of our participants was 56 (SD 12). The majority of our participants were Latino (75%); 13% were African-American. Most (62%) were uninsured, 46% had limited English proficiency, and 47% had inadequate health literacy. These characteristics did not vary significantly by randomization arm. Of the 210 participants randomized and eligible for the week 2 interview, 79% completed this assessment. Mean self-reported medication adherence at week 2 was 70% (95%CI: 62%-79%) among intervention participants compared to 78% (95%CI: 72%-84%) among controls (p=0.13). Week 2 self-reported adherence was significantly correlated with pill counts (p=0.008) and refill delays (p=0.048). Nurses implementing the intervention arm returned 66 of 135 distributed surveys. Of these, 74% indicated that if the tool were available routinely, s/he would use it for "every patient". There was a nonsignificant trend toward nurses spending less time teaching when the tool was utilized.
CONCLUSIONS: We developed a low-literacy icon and picture-based tool for teaching cardiac patients about their medications at the time of hospital discharge. The nursing staff found the tool to be very useful and there was a trend towards less time spent when using the tool. However, secondary to unexpectedly wide confidence intervals for self-reported adherence, and a high rate of adherence in the control group, we were unable to demonstrate the tool's effect on post-discharge medication adherence.

THE EFFECT OF A HYPERTENSION SELF-MANAGEMENT INTERVENTION ON THE UNINTENDED TARGETS OF DIABETES AND CHOLESTEROL CONTROL B.J. Powers[1]; M.K. Olsen[1]; E.Z. Oddone[1]; H.B. Bosworth[1]. [1]Durham VA Medical Center and Duke University, Durham, NC. *(Tracking ID # 189627)*

BACKGROUND: Patient self-management interventions improve some chronic disease outcomes; however, most interventions focus on a single disease. We evaluated the effect of a tailored hypertension self-management intervention and its effects on the unintended targets of glycosylated hemoglobin (Hb A1c) and LDL cholesterol (LDL-C).
METHODS: We examined patients enrolled in the Veterans Study to Improve the Control of Hypertension (V-STITCH). V-STITCH was a two year randomized controlled trial in which patients were randomized to either a hypertension self-management intervention delivered by a nurse over the telephone or usual care. All patients had a diagnosis of hypertension and received regular primary care through the Durham Veterans Affairs Medical Center. We collected results for Hb A1c and LDL-C from the medical records during the two-year study period and restricted our analysis to patients with these measurements both at study enrollment and conclusion. For each patient, we regressed the lab values on time to obtain an estimate of individual change over the two-year study period. This slope was the primary outcome variable for Hb A1c and LDL-C and was compared using t-tests between patients randomized to usual care or the tailored self-management intervention.
RESULTS: A total of 588 patients were enrolled in V-STITCH. The mean age of enrolled patients was 63 years (SD=11); 98% were men, 57% were white and 40% were diabetic (n=234). The baseline Hb A1c and LDL-C were 7.3% (SD=1.5%) and 110 mg/dl (SD=32 mg/dl), respectively. Of the 234 diabetic patients, 150 patients had an Hb A1c recorded both at baseline and at the conclusion of the study and were included in the analysis. In comparison to the control group, those receiving the intervention had a mean absolute reduction in Hb A1c of 0.4% (95% CI: 0.8% reduction to 0.06% increase; p=0.09). For LDL cholesterol, 320 patients had a LDL-C measurement both at baseline and conclusion. The mean LDL-C improved in both groups over the two year study period with a mean absolute reduction in the intervention group compared to control group of 0.3 mg/dl (95% CI: 4.9 mg/dl reduction to 4.3 mg/dl increase; p=0.90).
CONCLUSIONS: A tailored hypertension self-management intervention previously shown to improve blood pressure control was also associated with a trend toward clinically significant improvement in glycemic control among diabetic patients. LDL-C improved in both arms without any significant difference among patients who received the intervention. Self-management interventions may have the potential to simultaneously improve multiple chronic conditions and thereby compound their overall effectiveness; however further work is needed to determine if, when, and how much this "spill-over" effect applies to current disease specific interventions.

THE EFFECT OF RESIDENT PHYSICIAN CONTINUITY ON HGA1C, LDL CHOLESTEROL, AND BLOOD PRESSURE IN PATIENTS WITH DIABETES A.T. Dearinger[1]; J.F. Wilson[1]; C.H. Griffith[1]. [1]University of Kentucky, Lexington, KY. *(Tracking ID # 190558)*

BACKGROUND: Diabetes is a chronic disease with a high incidence of morbidity and mortality. Continuity of physician care may benefit patients with diabetes. A resident physician clinic is a unique type of practice where maintaining patient- physician continuity can be challenging. These clinics serve a patient population with a high percentage of individuals with multiple chronic illnesses. The purpose of this study was to determine if resident physician continuity is associated with an improvement in diabetic outcomes.
METHODS: This study was an analysis of data obtained from a medical record review of diabetic patients in a University based residency-training program. Clinic visits were reviewed from diabetic patients seen between January 1, 2004 and December 31, 2006. Seventy medical records met the criteria for the study. Using repeated measures ANOVA, we assessed the relationship between provider continuity and change in diabetes outcomes (HgA1c, LDL, blood pressure). The Usual Provider of Continuity (UPC) Index was used to measure provider continuity at both the attending physician and resident physician level. High and low resident continuity groupings were evaluated at UPC levels of 0.45 (median) and 0.65.
RESULTS: The overall change in HgA1c over the three year time period was −0.3. There was a statistically significant relationship between change in HgA1c and resident continuity, but not with attending physician continuity. In the high continuity grouping (UPC 0.65), the mean change in HgA1c was −1.08.There was no association between resident or attending continuity and change in LDL cholesterol or systolic/diastolic blood pressure.
CONCLUSIONS: Resident physician continuity is linked with an improvement in glycemic control in diabetic patients. Resident physicians have a greater opportunity to develop a personal relationship with their patients than supervising attendings. This interpersonal continuity may be of benefit in patients with illnesses that requires a significant amount of self- management behaviors. Medical training programs should focus efforts on improving continuity in resident primary care clinics.

THE EFFECT OF TRANSITIONING TO MEDICARE PART D DRUG COVERAGE IN SENIORS DUALLY ELIGIBLE FOR MEDICARE AND MEDICAID W.H. Shrank[1]; A. Patrick[1]; A. Pedan[2]; J. Polinski[1]; L. T. Varasteh[3]; R. Levin[1]; N. Liu[2]; S. Schneeweiss[4]. [1]Brigham and Women's Hospital, Boston, MA; [2]Adheris Inc, Woburn, MA; [3]Adheris Inc., Woburn, MA; [4]Harvard University, Boston, MA. *(Tracking ID # 190057)*

BACKGROUND: In January, 2006, patients dually eligible for Medicaid and Medicare (Dual Eligibles) were automatically enrolled in Medicare Part D prescription drug plans. This transition affected formulary coverage for many patients, causing widespread concern about compromised access to essential medications. We evaluated medication use, out-of-pocket spending and medication switching during the transition period for Dual Eligibles.
METHODS: We used patient-level pharmacy dispensing data from January 2005 to December 2006 from a large pharmacy chain with stores in 34 states. Changes in utilization, patient copayments, and medication switching were analyzed using interrupted time trend analyses. We evaluated utilization and spending for five study drugs: clopidogrel, proton pump inhibitors, warfarin, and statins (essential drugs covered by Part D plans) and benzodiazepines (not covered through Part D, but potentially covered through Medicaid).
RESULTS: Drug use for 13,032 Dual Eligibles was evaluated. There was no significant effect of the transition to Medicare Part D on use of all study drugs, including the uncovered benzodiazepines. Cumulative reductions were seen in copayments for all covered drugs after implementation of Part D, ranging from 25% annually for PPIs to 53% for warfarin. However, there was a larger increase in copay-

ments, 91% annually, for benzodiazepines after the transition. We found a 3.0 times greater rate of switching medications for the proton pump inhibitors, but no significant change in the other study drug classes.
CONCLUSIONS: These findings in a single, large pharmacy chain indicate that the transition plan for Dual Eligibles led to less medication discontinuation and switching than many had expected. The substantially increased cost-sharing for benzodiazepines highlights the importance of implementing a thoughtful transition plan when executing such a national policy.

THE EFFECTS OF A MEDICATION RECONCILIATION APPLICATION AND PROCESS REDESIGN ON POTENTIAL ADVERSE DRUG EVENTS: RESULTS OF A CONTROLLED TRIAL J.L. Schnipper[1]; C. Hamann[2]; C. Ndumele[3]; C. Liang[3]; M. Carty[3]; A.S. Karson[4]; I. Bhan[2]; C. M. Coley[5]; E.G. Poon[3]; A. Turchin[6]; S. Labonville[3]; E. Diedrichsen[2]; S. Lipsitz[7]; C. Broverman[8]; P. Mccarthy[2]; T. Gandhi[3]. [1]Society of General Internal Medicine, Boston, MA; [2]Massachusetts General Hospital, Boston, MA; [3]Brigham and Women's Hospital, Boston, MA; [4]Massachusetts General Hospital, Lexington, MA; [5]Harvard University, Chestnut Hill, MA; [6]Harvard Medical School, Wellesley, MA; [7]Brigham and Women's Hospital, Division of General Medicine and Primary Care, Boston, MA; [8]Partners Inforamation Systems Clinical Informatics Research and Development, Wellesley, MA. *(Tracking ID # 190672)*

BACKGROUND: Medication reconciliation at transitions in care is an important safety measure and a Joint Commission National Patient Safety Goal. The best ways to achieve medication reconciliation and its effects on important patient outcomes are unknown. Moreover, there are little data to suggest the types of medication reconciliation interventions that are most likely to be successful or the best ways to implement these interventions. The aim of this study was to determine the effects of a redesigned process for medication reconciliation at hospital admission and discharge, supported by information technology, on potential adverse drug events (PADEs).
METHODS: Cluster-randomized controlled trial conducted in May-June 2006 on general medical units at two academic medical centers in Boston, Massachusetts. We designed a multifaceted intervention consisting of an information technology-based medication reconciliation tool integrated into the computerized provider order entry systems at the two hospitals and process redesign involving physicians, nurses, and pharmacists. Patients admitted to certain randomly chosen teams and floors were assigned to the intervention, while patients admitted to different teams and on different floors were assigned to usual care. Study pharmacists took gold-standard medication histories of admitted patients and compared them with medical teams' medication histories, admission and discharge orders. Blinded teams of two physicians each adjudicated all unexplained discrepancies and judged each unintentional discrepancy as having potential for patient harm. The main outcome measure was the number of unintentional medication discrepancies per patient with potential for causing harm (PADEs). Propensity score-adjusted Poisson regression, also adjusted for clustering by admitting physician, was used to determine the association between study arm and the number of PADEs per patient.
RESULTS: Among 160 control patients there were 230 PADEs (1.44 per patient), while among 162 intervention patients there were 170 PADEs (1.05 per patient, adjusted relative risk (ARR) 0.72, 95% confidence interval (CI) 0.53–0.99, number needed to treat of 2.6 patients to prevent one PADE). The intervention was associated with a greater reduction in PADEs at discharge (ARR 0.68, 95% CI 0.48–0.97) than in those at admission (ARR 0.83, 95% CI 0.46–1.48). Differences in the effect of the intervention were seen by site (ARR 0.62, 95% CI 0.40–0.98 for Site 1 vs. ARR 0.85, 95% CI 0.57–1.26 for Site 2). Sites differed in the extent of involvement of nurses in verifying the accuracy of the medication history taken by residents and in the integration of the medication reconciliation tool into the computerized discharge medication order entry application.
CONCLUSIONS: An information technology-assisted medication reconciliation intervention was associated with a substantial decrease in unintentional medication discrepancies with potential for patient harm. Further research on the best ways to design and implement medication reconciliation interventions is warranted to optimize their benefits on patient safety during transitions in care.

THE EVOLVING PATTERN OF AMBULATORY HEALTHCARE VISITS FOR HEPATITIS C VIRUS INFECTION J.I. Tsui[1]; J. Maselli[2]; R. Gonzales[2]. [1]Society of General Internal Medicine, San Francisco, CA; [2]University of California, San Francisco, San Francisco, CA. *(Tracking ID # 190232)*

BACKGROUND: More than 3 million individuals are estimated to have chronic hepatitis C virus (HCV) infection in the U.S. Although HCV-related health-care utilization has been reported to be increasing overall, it is unclear whether groups at higher risk for HCV (such as poor individuals and minorities) are receiving care for their HCV. This study was conducted to analyze whether the national pattern of HCV-related ambulatory care visits differed by age, gender, race and insurance status over time.
METHODS: Data from the National Ambulatory Medical Care Survey (NAMCS) and the National Hospital Ambulatory Medical Care Survey (NHAMCS-outpatient) for years 1997–2005 were utilized, combining data for 3-year intervals. HCV-related visits were determined by ICD-9 diagnosis codes. Sampling weights were used to obtain national estimates of the number of HCV-related visits. Demographic factors within each time interval were compared using a chi-square test. In addition, multivariate logistic regression was performed to examine whether the likelihood of a visit being HCV-related (v. non-HCV) was independently associated with race and Medicaid status, and whether interactions existed (i.e. the effects of race and Medicaid status varied over time).
RESULTS: HCV-related ambulatory visits increased from 3,583,585 during 1997–99 to 8,027,166 during 2003–05. There was an increase in the proportion of non-whites (16% v. 33%, p=0.04) and Medicaid recipients (10% v. 25%, p=0.07) between the same intervals. Results from the logistic regression showed that there was a significant interaction between time and race (p-value=0.02) and Medicaid status (p=0.04). In the most recent years, there was an increased likelihood of a visit being HCV-related that was associated with being non-White and receiving Medicaid (Table).
CONCLUSIONS: HCV-associated ambulatory care visits are increasing over time, with a greater number of visits representing non-whites and Medicaid recipients. Whether these groups are proportionately receiving anti-HCV treatment through their care is unknown.

Adjusted Relative Odds for Visit Being HCV-Related Associated with Race and Medicaid Status

Covariate	1997–99	2000–02	2003–05
White	referent	ref	ref
Non-White	1.08 (0.60, 1.97)	1.40 (0.85, 2.33)	2.44 (1.56, 3.80)
Non-Medicaid	referent	ref	ref
Medicaid	1.40 (0.74, 2.65)	3.15 (2.16, 4.60)	3.03 (1.50, 6.12)

THE HEALTH OF US JAIL INMATES: GENDER DIFFERENCES IN CHRONIC MEDICAL CONDITIONS, PSYCHIATRIC DISORDERS AND SUBSTANCE DEPENDENCE I.A. Binswanger[1]; J.O. Merrill[2]; P.M. Krueger[3]; M.C. White[4]; R.E. Booth[1]; J.G. Elmore[2]. [1]University of Colorado Denver, Denver, CO; [2]University of Washington, Seattle, WA; [3]University of Texas School of Public Health, Houston, TX; [4]University of California, San Francisco, San Francisco, CA. *(Tracking ID # 190201)*

BACKGROUND: Approximately 9 million people spend time in U.S. jails each year. General internists often care for jail inmates during their incarceration and after release. Little is known about the chronic health problems of women in jail, even though the number of women in jail is growing faster than the number of men. We hypothesized that, among jail inmates, women had a higher prevalence of medical and psychiatric disorders than men, and that substance dependence mediates gender differences in these disorders.
METHODS: Data were analyzed from a nationally representative, U.S. Department of Justice survey of 6,982 inmates from 418 jails (response rate 84%). Weighted estimates of self-reported disease prevalence were calculated by gender for medical (cancer, hypertension, diabetes, heart problems, arthritis, asthma) and psychiatric (depressive, bipolar, psychotic, post-traumatic stress, and personality) conditions. Chi-

square tests were used for bivariate comparisons, and logistic regression was used to adjust for demographic and socioeconomic factors (age, race, marital status, education, homelessness, and employment) and drug and alcohol dependence (DSM-IV criteria).
RESULTS: Women represented 11.6% of the US jail population. Compared to men, women reported a significantly higher prevalence of most chronic medical conditions ($p<0.01$ for each), including some conditions (e.g. hypertension) found more commonly in men in the general population. Women reported a higher prevalence of psychiatric disorders ($p \leq 0.01$ for each). Drug dependence was also more common among women (45.7%) than men (34.5%, $p<0.001$) but alcohol dependence was less common (18.9% vs. 23.3%, $p<0.001$). The inclusion of drug and alcohol dependence variables attenuated some of the associations between gender and chronic conditions but did not eliminate them. After adjustment for demographic and socioeconomic factors and drug and alcohol dependence, women had higher odds of cancer, hypertension, diabetes, heart problems, arthritis and asthma (Table). After adjustment, women had higher odds of all psychiatric disorders except psychotic disorders.
CONCLUSIONS: Women in US jails reported chronic medical and psychiatric disorders more often than men. Cancer prevalence was notably increased among women, largely due to cervical cancer. Demographic and socioeconomic factors and substance dependence only partially mediated these differences. Targeted attention to the medical, psychiatric and drug treatment needs of women in jail is warranted to address these differences.

Association between female gender and medical and psychiatric disorders

Medical and Psychiatric Disorders	Adjusted Odds Ratio	95% Confidence Interval
Cancer	7.4	5.2, 10.7
Hypertension	1.2	1.0, 1.4
Diabetes	2.0	1.5, 2.7
Heart problem	1.3	1.0, 1.5
Arthritis	1.5	1.2, 1.7
Asthma	2.1	1.7, 2.4
Depression	2.2	1.9, 2.6
Bipolar	2.2	1.8, 2.7
Psychotic	1.1	0.8, 1.5
Post-traumatic stress	2.1	1.6, 2.7
Personality	1.6	1.2, 2.1

THE IMPACT OF ALCOHOL ON CHANGES IN DEPRESSIVE SYMPTOMS OVER 3 YEARS IN PATIENTS WITH AND WITHOUT HIV INFECTION L.E. Sullivan[1]; J. Goulet[2]; A.C. Justice[2]; D.A. Fiellin[1]. [1]Yale University, New Haven, CT; [2]Yale University, West Haven, CT. *(Tracking ID # 190459)*

BACKGROUND: Alcohol consumption may worsen depressive symptoms. The impact of varying levels of alcohol consumption, especially low levels of consumption, on depressive symptoms over time is not known. In addition, whether there is a differential impact of alcohol on depressive symptoms on patients with and without HIV infection is unclear.
METHODS: To evaluate the impact of alcohol consumption on depressive symptoms, we used data from the Veterans Aging Cohort Study (VACS), a longitudinal cohort of patients with and without HIV infection. Hazardous and binge drinking, along with alcohol abuse and dependence were defined according to standard criteria. We used the Alcohol Use Disorders Identification Test (AUDIT) to measure alcohol consumption and related harms. We used the Patient Health Questionnaire (PHQ-9) to measure depressive symptoms. We conducted linear mixed effects models to evaluate the association between AUDIT and PHQ-9 scores over a 3 year period of time.
RESULTS: The sample consisted of 3195 patients, 1669 with HIV infection. At baseline, their mean age was 50 years, 95% were male, 66% were black, 28% were hepatitis C (HCV) antibody positive. Four percent reported no alcohol use, 1% past but not current use, 60% non-hazardous use, 4% hazardous, 20% binge, and 10% abuse/dependence. The mean AUDIT score was 4.2 and mean PHQ-9 score was 5.5. Among those with HIV, mean CD4 was 402 and mean log10 HIV RNA was 3.1. HIV-positive patients were: younger (mean age of 50 vs. 51 years); more likely to be male (98% vs. 92%), black (61% vs. 54%), or HCV antibody positive (34% vs. 14%), lower AUDIT scores (4.3 vs. 4.5), and had higher PHQ-9 scores (5.8 vs. 5.0) (all comparisons $p<0.05$). Regression models revealed that increasing AUDIT scores were associated with an increase in PHQ-9 scores over time (beta for time*AUDIT interaction=0.07, $p=0.02$). There was no significant difference in the association of changes in AUDIT scores with changes in PHQ-9 by HIV status (3-way interaction was not significant).
CONCLUSIONS: Increasing levels of alcohol consumption were associated with increasing depressive symptoms over 3 years but there was no difference in this association based on HIV serostatus.

THE IMPACT OF CONSUMER-DIRECTED HEALTH PLANS AND PATIENT SOCIOECONOMIC STATUS ON PHYSICIAN RECOMMENDATIONS FOR COLORECTAL CANCER SCREENING C. Pollack[1]; G. Mallya[2]; D. Polsky[3]. [1]Philadelphia VA Medical Center, RWJ Clinical Scholars Program, University of Pennsylvania, Philadelphia, PA; [2]University of Pennsylvania, Philadelphia, PA; [3]Philadelphia VAMC/CHERP, Philadelphia, PA. *(Tracking ID # 189553)*

BACKGROUND: Consumer-directed health plans are increasingly common, yet little is known about their impact on physician decision-making and preventive service use. Preventive care can be costly and, in many cases, may not be covered until the deductible has been met. The objective of this study was to determine how patients' deductible levels and socioeconomic status affect primary care physicians' recommendations for colorectal cancer screening.
METHODS: Colorectal cancer screening recommendations were elicited using hypothetical vignettes from a national sample of 1500 primary care physicians. Physicians were randomized to 1 of 4 vignettes describing a patient with either low or high socioeconomic status (SES) and either a low or high-deductible plan. In the low-deductible plan, the patient needed to pay a $10 co-payment; in the high-deductible plan, the patient was responsible for the full price of the screening test. Further questions explored the potential effects of a medical savings account on physician recommendations. Bivariate and multivariate analyses were used to examine how recommendations varied as a function of SES and deductible. Outcome measures were the rates of recommendation for home fecal occult blood testing, sigmoidoscopy, colonoscopy, and inappropriate screening, defined as no screening or office-based fecal occult blood testing.
RESULTS: 528 (49%) of 1076 eligible physicians responded and appropriate randomization was achieved across the four vignettes. Overall, 7.6% of physicians recommended inappropriate screening. Patients with high SES in low deductible plans received inappropriate screening recommendations 3.1% of the time; patients with low SES in high-deductible plans, 12.0% of the time for an adjusted odds ratio of 0.20 (0.05–0.93). The odds of a colonoscopy recommendation were 10 times higher (AOR 10.98, 5.13–23.47) for patients with high SES in low-deductible plans compared to patients with low SES in high-deductible plans. Examining SES differences within plan types, the recommended rates of colonoscopy differed between high and low SES patients who needed to pay the same $10 co-payment (83% vs. 66% respectively) and between high and low SES patients who needed to pay the full price of the test (60% vs. 36%). Funds in medical savings accounts eliminated differences in inappropriate screening recommendations but differences in rates of colonoscopy remained.
CONCLUSIONS: Patient SES and deductible-level each affect physician recommendations for preventive care. Coverage of preventive services and funds in medical savings accounts may help to mitigate the impact of consumer-directed health plans on inappropriate recommendations. Differences in recommendations for patients with the same, low co-payment require careful investigation as to the unanticipated ways in which socioeconomic status may influence clinical decision-making.

THE IMPACT OF HIV-CARE APPOINTMENT ADHERENCE ON HIV OUTCOMES K.A. Phillips[1]; Y.K. Olsen[2]; J.C. Keruly[3]; R.D. Moore[3]. [1]National Institutes of Health, Baltimore, MD; [2]Harford County Department of Health, Bel Air, MD; [3]Johns Hopkins University, Baltimore, MD. *(Tracking ID # 190400)*

BACKGROUND: Studies have shown that antiretroviral adherence positively impacts HIV outcomes and slows disease progression.

However, initiation and continuation of antiretroviral medication, first requires HIV appointment adherence which is often poor. We assessed the impact of HIV-care appointment adherence on HIV outcomes.
METHODS: We randomly sampled 200 HIV-positive patients who completed at least one semi-annual computerized outpatient survey between January 1, 2002 and December 31, 2005. Individual appointment data was matched with HIV outcomes data. We defined appointment adherence (AA) as the number of HIV-care appointments completed out of the total number of HIV-care appointments scheduled during the study period. HIV outcomes included the number of CD4 tests performed, most recent, average, maximum, minimum, and first CD4 counts in the study period and missed doses of antiretroviral medication (ARV) in the last 3 days and last 24 hours. Chi-squared, Fisher's exact, Wilcoxon rank sum tests, and linear regression were used to analyze the relationship between AA and HIV outcomes.
RESULTS: The 200 patients had a total of 5760 scheduled visits (mean 28.8), of which 61% were completed (3510; mean 17.6). Of the total population, the mean age was 39 years; 59% were male; 86% were African-American; 50% reported intravenous drug use at baseline; and 47% were AIDS-defined. Greater AA was associated with greater number of CD4 tests performed ($p=0.00005$) and a higher most recent CD4 count (0.008), while average CD4 count ($p=0.21$) and first CD4 count ($p=0.93$) during the study period were unaffected. Greater AA was also associated with fewer missed ARV doses in the last 3 days ($p=0.01$) and in the last 24 hours ($p=0.04$) and with more advanced disease ($p=0.002$).
CONCLUSIONS: Greater HIV-care appointment adherence appears to have a positive effect on CD4 count over time which may in some part be a result of the direct relationship between improved HIV-care appointment adherence and ARV adherence. Tailoring interventions to improve HIV-care appointment adherence may result in improved HIV outcomes.

THE IMPACT OF OPEN ACCESS SCHEDULING: A SYSTEMATIC REVIEW K.D. Rose[1]; J.S. Ross[2]; L. Horwitz[1]. [1]Yale University, New Haven, CT; [2]Mount Sinai School of Medicine, New York, NY. *(Tracking ID # 190693)*

BACKGROUND: Open Access (OA) is a method for scheduling clinical appointments in which the majority of slots are unscheduled so that patients may be seen on the day of contact. This system has been promoted by the Institute for Healthcare Improvement and the UK's National Health Service as a means of decreasing appointment delays, increasing continuity of care, and improving patient satisfaction. Although there have been several anecdotal reports of success, there are fewer rigorous studies of OA, and its overall impact on patients and providers is uncertain. We performed a systematic review to investigate outcomes of OA scheduling systems.
METHODS: We searched OVID, Scopus, and Web of Knowledge with keywords "open access or advanc$ access or same-day" and "schedul$ or appoint$," as well as other practice organization-related keywords and MeSH terms. One investigator selected articles for full review based on title and/or abstract. These were then independently assessed by two investigators for inclusion. We included articles that described an OA intervention, reported outcomes for patients and/or providers, and used statistical methods to compare pre- and post-intervention data; disagreements were resolved by consensus. The following outcomes were abstracted for each study (when available): time to 3rd available appointment, no-show rates, continuity of care, clinical outcomes, patient and provider satisfaction, and provider fiscal outcomes.
RESULTS: A total of 41 articles described outcomes of OA interventions, but only 18 included statistical analysis. Of these, 3 described randomized control trials; the remainder described pre/post cohort (n=12) and cross-sectional (n=3) studies. The majority of studies were in primary care settings (n=16). Practice type ranged from individual practices to large health systems. Six studies assessed the time to 3rd available appointment. Pre-OA time ranged from 3.6 to 61.0 days. Post-OA, all studies reported a decrease in time to 3rd available appointment (post-OA range, 1.6–7.0 days). No show rates were evaluated in 9 studies, with pre-OA rates ranging from 4.3% to 43.0%. Post-OA, 5 studies reported a significant decrease in no show rate, while 3 reported no significant change and 1 did not included a statistical evaluation. Continuity of care was assessed in 6 studies, with 2 showing a significant increase in continuity after OA and 3 showing no change; 1 did not include a statistical evaluation. Only 2 studies examined clinical outcomes: pediatric immunization rates and health-related quality of life in inflammatory bowel disease patients. Although patient and provider satisfaction were examined in 7 and 5 studies respectively, each used different measures of satisfaction. Finally, provider fiscal outcomes were only examined among 3 studies. The poor quality of the trials, heterogeneity of outcomes evaluated and limited results reported precluded a meta analysis.
CONCLUSIONS: We identified a number of studies examining OA, most of which were small, non-randomized, and of poor quality. A small number of higher quality studies suggests that OA scheduling decreases the time to 3rd available appointment, which may indicate more timely access to health care for patients. Improvements in no show rates and continuity of care were less robust, and the effect on clinical outcomes remains uncertain. Our systematic review highlights the need for larger, randomized-controlled trials of OA that evaluate both patient and physician outcomes.

THE IMPACT OF ORGANIZATIONAL CHARACTERISTICS ON THE TRANSLATION OF THE DIABETES PREVENTION PROGRAM IN A COMMUNITY HEALTH CENTER: A CASE STUDY C. Santana[1]; M. Nunez-Smith[1]; E. Ruppe[2]; A. Camp[2]; E. Magenheimer[2]; G. Lucas[1]; D. Berg[1]; L. Curry[1]. [1]Yale University, New Haven, CT; [2]Fair Haven Community Health Center, New Haven, CT. *(Tracking ID # 189927)*

BACKGROUND: Little is known about the feasibility or the organizational implications of translating evidence-based practices in community health centers (CHCs). Further, the process of translational quality improvement (the application of clinical trial knowledge in a specific organizational context) has yet to be systematically examined in CHCs. Using the Diabetes Prevention Program (DPP) as a case study, we sought to: 1) understand the process of adapting evidence-based knowledge and developing system change in CHCs and 2) identify and describe the organizational context in which DPP is implemented and sustained.
METHODS: We used a community-based participatory research approach, establishing a collaborative research relationship with program staff at Fair Haven Community Health Center (FHCHC), who sought to fully integrate DPP into their clinical practice. We jointly developed a case study approach, using multiple sources of evidence, including: in-depth interviews with key staff, observation of program planning meetings and measurement of program process measures. This analysis focuses on the findings from the interview data. Members of the research team (C.S. and G.L.) performed 13 in-depth interviews with clinic administrators, clinicians and staff (length 60 mins). Interviews explored perceptions of program success and organizational characteristics that might present facilitators or barriers to program implementation and full integration into clinic activities. Interviews were transcribed and systematically analyzed by a team of coders including a member of the FHCHC program staff using the constant comparative method, facilitated by Atlas.ti software. Interviews are ongoing and will continue until thematic saturation is reached.
RESULTS: Our interviewees were all female, and have all worked at FHCHC for more than 10 years. Interviews were performed over a period of 6 months starting at the program planning stage in order to gather insights as the program evolved. The definitions of success are highly variable in scope and content, ranging from the continued existence of DPP, to lasting lifestyle changes in both patients and clinic staff, to changes in clinical outcomes. Participants identified a number of enabling structural features. For instance, the organization allows for new project ideas to flourish and previous programs have become sustainable through a combination of executive management commitment, outside funding, and widespread buy-in after an evaluation demonstrates success. Participants also described organizational barriers, such as the tension between a pilot program that benefits only a few and the ultimate goal of benefiting all FHCHC patients. Although participants are insightful about organizational characteristics that might affect DPP success, there is a consistent perception that the responsibility for negotiating systemic solutions lies at the individual level, with the DPP lead program staff. This lack of clarity around who is accountable for the process of change and how they are supported by the larger organization, could represent a significant hurdle to lasting quality improvement.
CONCLUSIONS: Understanding barriers and facilitators to adoption of evidence-based medicine in a community health setting will allow us to improve quality of care even in settings with limited resources. Similar organizations can derive insight into how to maximize their strengths and manage their own potential barriers to translating research into practice.

THE IMPACT OF QUALITY IMPROVEMENT INCENTIVES ON QUALITY OF CARE AND DISPARITIES AT SAFETY-NET HOSPITALS R. Werner[1]; L.E. Goldman[2]; R.A. Dudley[2]. [1]University of Pennsylvania, Division of General Internal Medicine, Philadelphia, PA; [2]University of California, San Francisco, Department of Medicine, San Francisco, CA. *(Tracking ID # 190118)*

BACKGROUND: Hospitals that serve low-income patients and racial and ethnic minorities (i.e. safety-net hospitals) often have lower quality of care than non-safety-net hospitals. While public reporting and pay-for-performance have the potential to improve quality of care at poorly performing hospitals, because many safety-net hospitals have limited financial resources, they may be unable to invest in quality improvement. As such, some have expressed concern that these incentives have the potential to worsen existing disparities. Despite the importance of this issue, we know of little prior empirical work examining the impact of public reporting and pay-for-performance on health care disparities. Therefore, in this study we examine how hospital quality improvement initiatives impact quality of care and disparities at safety-net hospitals.
METHODS: In 2004 the Centers for Medicare and Medicaid Services (CMS) instituted a near-universal performance measurement and public reporting system, Hospital Compare. We use these data on hospital performance at all acute care hospitals for three clinical conditions (acute myocardial infarction (AMI), heart failure (HF), and pneumonia), and evaluate whether changes in performance between 2004 and 2006 are related to the percent of patients insured by Medicaid at each hospital. We then estimate whether disparities in hospital quality between high- and low-Medicaid hospitals have changed and simulate how changes in performance under public reporting would impact hospital finances if CMS's Premier pay-for-performance demonstration were instituted across all U.S. hospitals.
RESULTS: Among the 3,674 acute care hospitals included in Hospital Compare, those with a high proportion of Medicaid patients had significantly worse performance in 2004. Changes in hospital performance between 2004 and 2006 were significantly associated with the percent of patients insured by Medicaid at each hospital. At hospitals in the lowest quartile of percentage Medicaid patients, performance gains were larger than at hospitals in the highest quartile (3.8 vs. 2.1 percentage points for AMI; p-value<.001; 7.9 vs. 6.3 percentage points for HF; p-value .001; 9.0 vs. 7.9 percentage points for pneumonia; p-value<.001). This resulted in a relative difference in performance improvement ranging from 12% to 46%. As a result, over time high-Medicaid hospitals had a lower probability of rating among the to 10% of all hospitals (10.1% in 2004 vs. 2.8% in 2006) while low-Medicaid hospitals were more likely to achieve this (13.6% in 2004 to 19.7% in 2006). Under the CMS's pay-for-performance demonstration, high-Medicaid hospitals would have had a larger decline in the percent of payment received as a bonus and in overall payments than low-Medicaid hospitals, thus potentially further exacerbating existing disparities and creating much larger differences over the long-term as poor financial performance could lead to smaller investments into quality improvement that, in turn, further worsen both clinical and financial performance at safety-net hospitals.
CONCLUSIONS: While public reporting and pay-for-performance are intended to improve quality for all, safety-net hospitals have smaller gains in quality and are less likely to be high-performing over time than non-safety-net hospitals. As these incentive programs are implemented, steps should be taken to ensure that the care of patients served by safety-net hospitals will not suffer.

THE IMPACT OF RACE/ETHNICITY ON MORTALITY IN SUBJECTS WITH OBSTRUCTIVE SLEEP APNEA D.N. Bartov[1]; R.H. Prostoop[1]; D. W. Appel[1]; R.J. Ostfeld[1]. [1]Albert Einstein College of Medicine, Bronx, NY. *(Tracking ID # 190212)*

BACKGROUND: Obstructive sleep apnea (OSA) increases the risk of death independently of confounding risk factors, including hypertension and heart failure. In terms of prevalence, OSA is a well-recognized cardiovascular risk factor affecting all ethnic groups equally, but ethnic differences in OSA severity, presentation, and genetics have been reported. Whether mortality differs by race/ethnicity in patients with OSA is unknown.
METHODS: We retrospectively identified a cohort of 235 patients consecutively diagnosed with OSA from 1998 to 2006 (mean follow-up of 4.7 +/- 1.7 years). The cohort consisted of patients who were referred to the Montefiore Medical Center sleep laboratory specifically for the evaluation of sleep-disordered breathing. Patients with an apnea-hypopnea index (AHI) of less then 5 were excluded. Clinical characteristics and mortality were compared by self-identified race/ethnicity.
RESULTS: We identified 36 White, 110 Black, and 89 Hispanic patients. The mean AHI in the White patients was 62.0, as compared with a mean AHI of 68.7 in the non-White group (p=0.44). Univariate comparisons between Whites and non-Whites are shown below (Table I). There was a trend towards increased body mass index, hypertension, and diabetes in the non-White group, but these were not statistically significant. All cause mortality was 16.7% and 8.0% for Whites and non-Whites, respectively (p=0.23). Multivariate time-to-event analysis adjusting for relevant covariates showed age (HR=1.06, p=0.002), and impaired left ventricular ejection fraction (< 45%) (HR=2.84, p=0.047), were independent predictors of mortality, while race/ethnicity was not (HR=0.41, p=0.081).
CONCLUSIONS: In a multi-ethnic cohort of subjects with OSA, mortality rates did not differ by race/ethnicity. Furthermore, race/ethnicity did not predict mortality independent of other known risk factors (including hypertension, systolic dysfunction, coronary artery disease, and diabetes). However, because the number of white subjects in this study was relatively low, further research is needed to determine the influence of race on mortality in patients with OSA.

Table I. Baseline Characteristics

	White (n=36)	Non-white (Black and Hispanic) (n=199)	p
Mean age (years)	52.7 +/- 12.4	51.5 +/- 12.3	Not significant (ns)
Female sex	41.7%	59.3%	0.05
Mean body mass index	40.5 +/- 11.3	44.2 +/- 11.8	ns
Mean apnea hypopnea index	62.0 +/- 50.3	68.7 +/- 47.0	ns
Hypertension	66.7%	76.9%	ns
Hyperlipidemia	55.6%	57.8%	ns
Coronary artery disease	27.8%	16.6%	ns
Atrial fibrillation	11.1%	11.6%	ns
Diabetes mellitus	47.2%	56.7%	ns
Systolic dysfunction (EF<45%)	13.9%	11.2%	ns

THE IMPACT OF STIGMA ON HIV TREATMENT AND CARE J.N. Sayles[1]; M.D. Wong[1]; W.E. Cunningham[1]. [1]University of California, Los Angeles, Los Angeles, CA. *(Tracking ID # 190219)*

BACKGROUND: The stigma of HIV-infection may profoundly affect the lives of persons living with HIV/AIDS (PLHA). However few studies have examined the impact of HIV related stigma on access to health care, having a regular source of HIV care, and adherence to antiretroviral therapy (ART).
METHODS: We conducted a cross-sectional survey of 202 diverse PLHA living in Los Angeles County in 2007. We used bivariate and multivariate analysis to examine the relationship of stigma with self-reported access to medical care, regular source of HIV care, and ART adherence in our sample. We developed a 28-item measure of HIV-related stigma (alpha = 0.93) based on our previously published qualitative work. Scores ranged from 0–100, with higher scores indicative of greater perceived and experienced stigma. Items tapped content in four key domains of stigma: (1) stereotypes of HIV, e.g. "People assume I have done something bad to get HIV"; (2) disclosure concerns, "If I go to the HIV clinic someone I know might see me"; (3) social relationship stigma "I feel abandoned by family members because I have HIV"; and (4) self-acceptance, "I feel ashamed when telling others I have HIV". We measured access to medical care with 6-items (alpha=0.72) previously

validated in HIV+ populations. Example items include "I am able to get medical care whenever I need it" and "If I need hospital care, I can get admitted without any trouble". Regular source of HIV care was assessed by the question: "Do you currently have a regular place to go for your HIV medical care?" A standard 7-day recall item "How often during the past week were you able to take your ART medications exactly as your doctor or nurse told you?" was used to assess ART adherence.
RESULTS: Fifty percent of the sample was female and the mean age was 43 years. Fifty-six percent were African American, 28% were White, and 10% were Latino/a. Over half the sample reported income below federal poverty level, and 70% reported a high school education or less. Seventy-one percent of participants were currently on ART and 32% reported high levels of HIV related stigma. Fifty one percent reported poor access to care, 10.5% reported no regular source of HIV care, and 42% reported suboptimal adherence to ART. In multivariate logistic regression greater perceived and experienced stigma was associated with poor access to care (OR=5.6, 95% CI 2.5–12.4), suboptimal ART adherence (OR=2.3, 95% CI 1.0–5.2), and trended toward significance for no regular HIV care (OR=2.5, 95% CI 0.89–7.0) when controlling for gender, race/ethnicity, age, education, income, insurance status, HIV risk group and CD4 cell count.
CONCLUSIONS: Our results suggest that HIV related stigma is prevalent and is an important barrier to both accessing medical care and adherence to ART for PLHA. Future studies to better define the relationship between HIV stigma and care seeking behavior are needed to inform interventions to optimize HIV treatment and care for PLHA.

THE IMPACT OF SUBSTANCE USE ON COMMUNICATION QUALITY
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(Tracking ID # 189734)

BACKGROUND: Patient-centered communication is associated with increased antiretroviral adherence and viral suppression in HIV-infected patients. Little is known, however, about how substance use affects the patient-provider communication. The objective of this study was to compare perceptions of the quality of communication among HIV-infected patients with and without co-existing substance abuse. We hypothesized that patients reporting active substance use would report lower ratings of provider communication.
METHODS: In 2007, we interviewed 437 HIV-infected patients receiving longitudinal care at 4 geographically diverse HIV clinics participating in the Enhancing Communication and HIV Outcomes (ECHO) study. Patients were asked about substance use and rated the quality of communication during a visit with their usual HIV provider. We defined current drug use as any illicit cocaine, amphetamine, non-prescription opiates, heroin, or marijuana use in the past 30 days and former use as any past use, but not in the last 30 days. Current and former problematic alcohol use were defined as drinking to intoxication in the past 30 days and in the past but not within 30 days, respectively. Quality of communication was assessed by patient response to previously-validated multi-item measures (scale 1–5) of overall communication, HIV-specific communication, and adherence communication. Communication scales were dichotomized at the top tertile to indicate optimal communication. We assessed associations between substance use and optimal communication quality using logistic regression, adjusting for patient characteristics and site.
RESULTS: Subjects were predominantly male (66%), African American (57%), high school graduates (77%), and taking antiretrovirals (79%). Median age was 45 years (range 20–77) and 33% had been seeing their HIV provider for more than 5 years. Drug use was common with 29% reporting current, 47% former, and 24% never having used illicit drugs. Fewer patients reported current (11%) and former (49%) problematic alcohol use. Participants ranked provider communication highly with mean overall communication score 4.48 (SD 0.67), HIV-specific communication score 4.04 (SD 1.01), and adherence communication score 4.46 (SD 0.77). See table for adjusted associations between optimal communication and substance use.
CONCLUSIONS: Problematic alcohol use may be an important barrier to optimal HIV-specific and adherence communication for HIV-infected patients. Interventions that improve patient-provider communication offer a potential target for improving key aspects of HIV care in patients with co-existing substance use disorders.

Optimal Communication and Substance Use (aOR, 95% CI) *

	Overall	HIV-Specific	Adherence**
Illicit Drug Use			
Current	0.76 (0.41, 1.40)	1.19 (0.61, 2.30)	0.65 (0.32, 1.34)
Former	0.83 (0.48, 1.44)	1.47 (0.82, 2.63)	0.71 (0.37, 1.33)
Never	1.0	1.0	1.0
Alcohol Use			
Current	0.50 (0.22, 1.13)	0.38 (0.16, 0.92)	0.40 (0.17, 0.97)
Former	0.70 (0.42, 1.16)	0.52 (0.31, 0.89)	0.67 (0.38, 1.20)
Never	1.0	1.0	1.0

*adjusted for sex, race, age, idu, employment, education, duration with provider, ARV use, and site.
**Limited to only those on ARV

THE IMPORTANCE OF TRUSTED PROVIDERS AND PRIMARY CARE: THE EXPERIENCE OF SEXUAL MINORITY WOMEN WITH BREAST CANCER
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(Tracking ID # 189403)

BACKGROUND: Women whose sexual partners are women, or who identify themselves as lesbian or bisexual, are uniquely vulnerable to adverse outcomes from breast cancer. These women face an elevated risk for breast cancer, are more likely to experience discomfort with the healthcare system and are less likely to use health care. Primary care physicians, often the first contact with women diagnosed with breast cancer, may enhance the cancer care and decision-making experience of sexual minority women (SMW). Little research to date has investigated the breast cancer decision-making experiences of these at-risk women. We employed qualitative methods to describe factors that affect the decision-making process for SMW with early stage breast cancer.
METHODS: We conducted qualitative analyses of individual interviews with SMW who had a history of breast cancer and surgical treatment. Participants were recruited through community-based, purposive sampling. Using principles of grounded theory, the transcriptions were analyzed with focus on themes related to the decision-making experience for breast cancer treatment. We employed constant comparisons methods to identify themes related to treatment decision, patient factors, and patient-reported physician behaviors involved in their experiences.
RESULTS: A total of thirty eligible women were interviewed. The mean age of participants was 51, 90% were of white race, 96% reported college degrees or higher, and 96% reported having health insurance. The mean number of months since breast cancer diagnosis was 23.7 (SD15.9), and the mean number of months since treatment was 16.7 (SD16.5). Three themes dominated discussions of the decision-making process: 1) assimilating vast amounts of information on treatment choices; 2) limited time for gathering information, second opinions and making a decision; and 3) depression. Overall, the participants described the most positive decision-making experiences when they had relationships with trusted health care providers. Some women made decisions after consulting their primary care providers, others felt comfortable after meeting with a variety of cancer providers from multiple disciplines. They felt less stressed when providers were clear about how much time was available to make decisions, and provided support with referrals for second opinions. Women who reported their providers addressed the possibility of depression described facing their treatment with more optimism.
CONCLUSIONS: Despite high educational attainment, our sample of SMW had difficulty managing large amounts of information, felt pressured by the limited time available for decision-making, and worried depression

would not be addressed and managed throughout their cancer treatment experience. The involvement of trusted providers may ameliorate such concerns. Aspects of their experiences may be universal to all women. The prevalence of depression is higher in SMW and should be monitored for symptoms throughout the cancer care process. Primary care doctors are uniquely suited to assist the needs and support for these women.

THE LABEL OF "DNR": WHAT TREATMENTS ARE APPROPRIATE?
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BACKGROUND: Healthcare providers often have differing opinions about the appropriateness of certain treatments for patients designated as Do-Not-Resuscitate (DNR). This term may be used by physicians to symbolize a broader plan of care. It is important to understand these assumptions as they may affect the use of certain therapeutic interventions in this patient population.
METHODS: We adapted an existing instrument to evaluate physicians' beliefs about the care provided to patients with a DNR order. Respondents rated the appropriateness of 12 therapeutic interventions on a 4-point Likert scale from not at all appropriate to very appropriate. Respondents were also asked which level of care they saw most often provided to patients labeled DNR. Response choices included four textual descriptions of care including various use of intravenous fluids, analgesia, and highly technical care. The anonymous survey was administered to physicians who provide care for seriously-ill adult inpatients including trainees and attendings from surgery, internal medicine, neurology, family medicine, cardiology, critical care and oncology. Surveys were delivered at departmental conferences or via mail. Data were analyzed using descriptive statistics and rotational factor analysis using SAS.
RESULTS: 125 physicians completed the survey for a response rate of 60%. This sample included 72% trainees and 28% attendings; 62% were male. The vast majority of respondents felt that it was probably or very appropriate for patients with DNR orders to receive intravenous fluids (94%) and antibiotics (92%). Tube feeding (79%) and transfusion (78%) were highly but not universally endorsed. Only half of respondents felt that transfer to the ICU was probably or very appropriate. The treatment modalities rated least appropriate were elective mechanical ventilation (29%) and vasopressor medications (33%). Principal component factor analysis revealed that physicians' ratings clustered in two dimensions of care: supportive measures versus invasive procedures. When asked about the most common level of care provided to patients with a DNR order, half of respondents selected the scenario that avoided care in the intensive care unit and emergency surgery. Trainees were significantly more likely to endorse use of advanced treatment modalities than attending physicians (p=0.02).
CONCLUSIONS: Physicians' beliefs differ greatly regarding the appropriate level of care provided to patients labeled DNR. They report frequently observing care that limits other treatments in addition to cardiopulmonary resuscitation. Educating physicians on ways to convey a patient's preferences for life-sustaining treatment may improve the care provided to patients near the end-of-life.

THE MANY MISSED OPPORTUNITIES FOR EARLIER DIAGNOSIS WHICH OCCUR IN PATIENTS DIAGNOSED WITH COLORECTAL CANCER
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BACKGROUND: A growing literature has identified that abnormal results, and failing to receive the anticipated clinical response, represent a significant threat to patient safety. Colorectal cancer (CRC) is a slowing growing cancer, for which patients over the age of 50 are routinely screened using fecal occult blood tests (FOBT), flexible sigmoidoscopy, or colonoscopy. Because of the large number of screening exams completed, and the slow-growing nature of the disease, a cohort of CRC patients represents an opportunity to study the issue of clinically abnormal findings that do not receive the anticipated response. We sought to identify what opportunities for earlier diagnosis of CRC were missed, and the system or patient factors that may have contributed to missing the earlier opportunity for diagnosis.
METHODS: This was a retrospective review of new CRC cases between 1/1/2000 and 3/1/2007. Inclusion criteria were a new diagnosis of CRC. Setting was a rural Veterans Administration healthcare system, spanning a large geographical area over two states. Data sources were progress notes, nurse notes, orders, pathology, laboratory, and imaging results contained with the VA electronic medical record between 1/1/1995 and 12/31/2007. Opportunities for earlier diagnosis included positive CRC screen, anemia, or other CRC signs or symptoms. CRC screening was defined as a completed FOBT, flexible sigmoidoscopy (within 5 years) or colonoscopy (within 10 years), and delay as greater than 6 months. A board-certified gastroenterologist (GI) reviewed the medical record and created a summary abstract of the antecedent clinical care. A board-certified internist and a board-certified GI physician jointly reviewed and coded the abstracts by joint consensus.
RESULTS: One hundred fifty CRC cases met study inclusion criteria. Mean age was 69.04 (range 35 to 91); 99 (66%) were discovered in the evaluation of symptoms. Ninety-seven had either delay in the evaluation of symptoms 69 (46%), or had a prompt evaluation but lacked prior CRC screening 28(19%). Two hundred twelve system factors were identified in 61 of 69 (88%) cases, of which 57 cases had abnormal findings with a delayed evaluation. Fifty-six patient factors were identified in 32 of 69 (46%) cases with delay. In the 57 cases with abnormal findings with delayed evaluations, 33 (22% of all CRC cases) had no associated mitigating patient factors identified. Forty cases in which the subject was age-appropriate for screening had no documentation of either completed or offered CRC screening; 21 of which had no associated patient factors identified that would justify lack of screening.
CONCLUSIONS: Nearly a quarter of all CRC cases had a delay in the evaluation of abnormal findings without identifed factors which may have contributed to delayed evalution. Nearly a fifth of all CRC cases had received a prompt evalulation of symptoms but had no documentation of prior completed or offered CRC screening and no associated patient factors which may have contributed to the absence of CRC screening. Additional study is needed of the underlying reasons for lack of timely evaluation of abnormal findings and the absence of docmentation of completion or offers of CRC screening.

THE NATIONAL WOMEN VETERANS HORMONE REPLACEMENT THERAPY SURVEY: FACTORS ASSOCIATED WITH CONTINUING HORMONE THERAPY
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BACKGROUND: Background: The release of the 2002 and 2004 Women's Health Initiative reports changed the practice of hormone therapy (HT) for post-menopausal women. Currently, HT is recommended only for the treatment of menopausal symptoms at the lowest dose and for the shortest duration possible. Within these practice guidelines, we explored patient-reported factors associated with women continuing to use HT after 2004.
METHODS: Methods: In the Department of Veterans Affairs, we previously identified a retrospective cohort of 36,222 women veterans using HT in 2001 and found that 66% of them stopped HT by 2004. In 2004 a random sample of 4000 of these HT users were mailed a letter inviting them to participate in the National Women Veterans Hormone Therapy Survey. Those who agreed to participate were sent a self-administered survey to be returned by mail.
RESULTS: In bivariate analysis, demographic factors associated with continuing HT included younger age (mean age 58 vs. 63 for continuers vs. discontinuers, p<0.001), and higher education (46% vs 38% college education, p= 0.01). Medical factors associated with continuing HT included hysterectomy (16% vs. 8%, p= 0.0002), oophorectomy (16% vs. 10%, p= 0.01), bipolar disorder (8% vs. 4%, p= 0.02) and substance abuse (12% vs. 7%, p= 0.01). Those with CAD/MI (14% vs 7% p= 0.01), or breast cancer (0% vs 4% p= 0.001) were less likely to continue HRT. Users of HT more often reported discussing menopause (72% vs 57% p= 0.0001) or HT 87% vs 58% p= 0.001) with their VA primary care provider and more often had a pap smear at the VA (versus non VA provider). No significant difference occurred between users seen in VA Women's Clinics versus VA Primary Care Clinics. (30% vs 32% p= 0.75). In multivariate analysis, factors significantly associated with continuing

HT included age less than 45 (OR=4.11, 95% CI 1.07,15.79), history of a hysterectomy (OR=2.46, 95% CI 1.21, 4.99), discussion of HT with a primary provider (OR=5.85, 95% CI 3.30,10.38), and higher education (OR 1.20, 95% CI 1.02,1.41)
CONCLUSIONS: Conclusions: Women veterans who chose to use HT after 2004 were younger, more highly educated, and more likely to have surgical menopause, obtain general gynecological care at the VA, or report a mental health condition. The population of menopausal age women is rapidly growing in the VA system. Our data suggests that VA providers input is important in younger women's decisions to continue hormone therapy for menopausal symptoms.

THE OUT-OF-POCKET COST OF CHRONIC ILLNESS CARE: BEFORE AND AFTER HEALTH CARE REFORM IN MASSACHUSETTS P.C. Smith[1]; M.K. Paasche-Orlow[2]. [1]Boston University, Boston, MA; [2]Boston University, Newton, MA. *(Tracking ID # 190370)*

BACKGROUND: Changes to the health insurance system in Massachusetts, including the introduction of state-subsidized private insurance for low-income patients, have been cited as a national model for health care reform. Less often mentioned is the system of free and reduced-cost care provided by safety net hospitals and community health centers, which the new programs have replaced. Many patients will now pay premiums and co-payments for previously free services, raising the concern that some low-income patients with multiple chronic illnesses will forgo needed care. We compared the out-of-pocket costs to patients with multiple chronic illnesses before and after these policy changes.
METHODS: We considered a hypothetical 50 year old male with diabetes, COPD, depression and glaucoma obtaining guideline-recommended outpatient care and medications from a safety-net hospital in Boston, MA. Calculations were repeated with patient income varying between 0% and 400% of the federal poverty level (the range covered by the old system). We calculated the annual cost to the patient for these services under the old system, the Massachusetts Uncompensated Care Pool; services were, depending on income, either free or capped at a sliding-scale deductible. We also calculated the annual cost to the patient after health reform: using Commonwealth Care, the new subsidized health insurance product for those earning less than 300% of the federal poverty level, and using the unsubsidized Commonwealth Choice plan (for those earning > 300% of the FPL). For both Commonwealth Care and Commonwealth Choice, we chose the least expensive of the various plans available. Premium, co-payment and deductible information was obtained from health plan websites.
RESULTS: The annual out-of-pocket cost of routine and preventive care for a patient with multiple chronic illnesses is presented in the accompanying table.

	<100% FPL		100–150% FPL		151–200% FPL		201–250% FPL		251–300% FPL		301–400% FPL	
	Before	After	Before	After	Before	After	Before	After	Before	After	Before	After
Premium	$0	$0	$0	$0	$0	$420	–*	$1104	–*	$1524	–*	$6078
Office Visits	0	0	0	190	0	190	–*	190	–*	190	–*	220
Medications	0	220	0	920	0	920	–*	920	–*	920	–*	2020
Total	0	220	0	1110	0	1530	0–2042	2214	2042–4084	2634	4084–8168	8318
%Income	0%	2+%	0%	7–11%	0%	8–10%	0–8%	9–11%	8–13%	9–10%	13–20%	20–27%

Charges exceeded annual deductible. Total cost to patient was the annual deductible.

Annual Out-Of-Pocket Cost of Chronic Illness Care Before and After Health Care Reform.

CONCLUSIONS: Many low-income patients will see increases in the cost of medical care, especially in the cost of medications, due to health care reform in Massachusetts.

THE PREVALENCE AND OVERLAP OF SELECT CARDIOVASCULAR COMORBIDITIES AMONG DYSLIPIDEMIC US ADULTS AGED 65 YEARS OR OLDER, STRATIFIED BY LIPID-LOWERING MEDICATION USE S.D. Candrilli[1]; A. Kuznik[2]. [1]RTI Health Solutions, Durham, NC; [2]Pfizer Inc, New York, NY. *(Tracking ID # 189756)*

BACKGROUND: Using the combined 1999–2000, 2001–2002, and 2003–2004 (99–04) National Health and Nutrition Examination Surveys (NHANES), we generated current estimates of the prevalence and overlap of cardiovascular comorbidities among dyslipidemic US adults aged 65 years or older, stratified by lipid-lowering medication.
METHODS: We analyzed 1331 NHANES 99–04 respondents aged 65 years or older with complete data for a number of clinical and self-reported parameters. Respondent-specific, self-reported and laboratory data were used to assess the prevalence and overlap of dyslipidemia, congestive heart failure (CHF), coronary heart disease (CHD), history of stroke, and diabetes, all stratified by use/non-use of lipid-lowering medication. NHANES sampling weights scaled to the US Census' 2007 projected US population aged 65 years or older were used to generate nationally representative estimates.
RESULTS: Using the 99–04 NHANES, we estimated that among the 32.6 million (M) US adults aged 65 years or older, 22.7 M (69.4%) have dyslipidemia, of which only 8.5 M (37.4%) are receiving lipid-lowering therapy. The prevalence of CHF, CHD, history of stroke, and diabetes in both treated and untreated dyslipidemic patients, are shown in the table below.
CONCLUSIONS: Nearly half (47.0%) of elderly US citizens with dyslipidemia have more than one of the cardiovascular conditions studied. Among those who are on a lipid-lowering medication, 52.2% report having comorbidities that put them at high risk for new or recurring cardiovascular events. Even more noteworthy is that a high proportion (43.8%) of dyslipidemic patients aged 65 years or older with significant co-morbidities are not receiving lipid-lowering therapy, which highlights a critical unmet medical need for this growing population.

	Dyslipidemia	Dyslipidemia–Receiving lipid-lowering therapy	Dyslipidemia–Not receiving lipid-lowering therapy
Total population	22.7 M	8.5 M	14.1 M
CHF	1.9 M (8.6%)	0.6 M (7.0%)	1.4 M (9.6%)
CHD	5.8 M (25.8%)	2.7 M (31.8%)	3.1 M (22.2%)
History of stroke	2.2 M (9.6%)	1.0 M (12.1%)	1.1 M (8.0%)
Diabetes	4.7 M (20.9%)	2.1 M (24.9%)	2.6 M (18.5%)
1 of these comorbidities	10.6 M (47.0%)	4.4 M (52.2%)	6.2 M (43.8%)

THE PREVALENCE OF DELAYED CLINICIAN RESPONSE TO ELEVATED PROSTATE-SPECIFIC ANTIGEN VALUES K.G. Nepple[1]; F.N. Joudi[2]; S.L. Hillis[2]; T.L. Wahls[3]. [1]University of Iowa Carver College of Medicine, Iowa City, IA; [2]University of Iowa, Iowa City, IA; [3]VA Iowa City VAMC /University of Iowa, Iowa City, IA. *(Tracking ID # 189222)*

BACKGROUND: A growing body of literature demonstrates the abnormal test results lost to follow-up are increasingly a recognized source of diagnostic delay. The true rate of clinically significant abnormal test results, which are lost to follow up, i.e., missed results, is unknown.
METHODS: Main objective was to asses the frequency of delayed response to an abnormal prostate-specific antigen (PSA) value. Secondary objective was the identification of patient, clinic and provider attributes associated with delayed response. Design, Setting and Participants: Retrospective review of prostate cancer cases diagnosed between 2000 and 2005 in a rural Veterans Administration healthcare system serving 44,000 veterans across two states. Clinician response was defined as a reference to the elevated PSA result in clinical notes, orders for further evaluation, or a urology visit/referral. Inclusion criteria were an initial diagnosis within the VA, and antecedent abnormal PSA. Main Outcome Measure: Days between an abnormal PSA and clinician response.

RESULTS: Results: Three hundred twenty-seven men met inclusion criteria with an abnormal PSA prior to prostate cancer diagnosis. At first PSA elevation, median age was 64 years; 94% were under 75 years old. Two hundred fifty-three (77.4%) cases had a timely (¡Ü30 days) response to an abnormal PSA. Twenty-three (7.0%) had between 31¨C180 days, 24 (7.3%) between 181¨C360 days, and 27 (8.3%) more than 360 days between an abnormal PSA and clinician response. The presence of urologic symptoms, abnormal rectal exam, higher PSA, and higher PSA velocity ($P < 0.05$) were associated with timely clinician response to an abnormal PSA.
CONCLUSIONS: A significant proportion of patients had a prolonged time between an abnormal PSA and documentation of clinician awareness, suggesting the result had been lost to follow up. These findings add to the growing body of literature that problems with the follow up and management of abnormal test results represent a threat to patient safety. Further study is needed.

THE PSYCHOLOGICAL IMPACT OF A BLACK BOX WARNING DRUG-WARFARIN C. Garner[1]; C. Evans-Molina[2]; C. Shea[3]; L. Henault[1]; E. Hylek[1]. [1]Boston Medical Center, Boston, MA; [2]University of Virginia, Charlottesville, VA; [3]Massachusetts General Hospital, Harvard Medical School, Boston, MA. *(Tracking ID # 189496)*

BACKGROUND: Warfarin is very effective for stroke prevention in atrial fibrillation. Its narrow therapeutic index and variable dose response mandate frequent monitoring. The risk of serious hemorrhage was highlighted with a Black Box warning in October 2006. Few medications in routine care require such vigilance. Patient perspectives and behavioral modifications related to warfarin use have not been well studied.
METHODS: Consecutive patients starting warfarin were identified and followed for 1 year. Patients had to be 65 years of age, have ECG documentation of AF, and have their warfarin managed on-site. Patients were interviewed at enrollment and during their first year of therapy. Questions were open-ended and included quality of life changes and views about warfarin.
RESULTS: Of 337 patients identified, 285 met criteria and were interviewed. The mean age was 76 years (29% age >=80) and 46% were female. Most patients (64%) had 2 or more risk factors for stroke: prior stroke (6%), hypertension (74%), diabetes (22%), and heart failure (25%). Overall, 39% (112/285) expressed a sense of security with taking warfarin. The majority of patients (220/285 or 77%) expressed reservations that were dominated by fear of bleeding, need for frequent blood tests, and loss of spontaneity. One in four patients used the words “dangerous”, “frightened”, “afraid”, or “worried” to describe taking warfarin. Twelve percent of patients had significantly altered their lifestyle due to fear of hemorrhage, an increased sense of vulnerability, and need for frequent blood tests. Specific changes cited included: curtailed exercise to prevent falls and shortened trips closer to home. Three patients knew someone who “died on a blood thinner” and ten patients had sustained a bleed on warfarin in the past.
CONCLUSIONS: The psychological implications of taking warfarin are under-appreciated in clinical care. Fear of bleeding, fear of stroke, loss of spontaneity, and need for frequent blood tests dominate patients’ concerns. The degree to which negative sentiments contribute to warfarin’s under use warrants further investigation.

Type and Prevalence of Negative Concerns on Warfarin

Stated Negative Concerns	N	% of 285
Blood Tests	101	35%
Fear of bleeding	100	35%
Diet restrictions	41	14%
Loss of freedom	35	12%
Don’t like taking meds	34	12%
Excessive bruising	24	8%
Limits alcohol use	21	7%
Remembering to take it	19	7%
Interactioin w/ other meds	16	5%
INR variability	15	5%
Dose changes	13	5%
Limits pain med use	12	4%

THE PULMONARY EMBOLISM SEVERITY INDEX (PESI): PROSPECTIVE VALIDATION OF A CLINICAL PROGNOSTIC MODEL FOR PULMONARY EMBOLISM J. Donzé[1]; J. Cornuz[1]; G. Le Gal[2]; M. Righini[3]; P. Roy[4]; O. Sanchez[5]; F. Verschuren[6]; G. Meyer[5]; A. Perrier[7]; D. Aujesky[1]. [1]Division of Internal Medicine, University of Lausanne, Lausanne,; [2]Department of Internal Medicine and Chest Disease, University of Brest, Brest,; [3]Division of Angiology and Hemostasis, Geneva University Hospital, Geneva,; [4]Emergency Center, Angers University Hospital, Angers,; [5]Department of Respiratory and Critical Care Medicine, Hôpital Européen Georges Pompidou, Paris,; [6]Department of Emergency Medicine, St-Luc University Hospital, Brussels, Brussels; [7]Division of General Internal Medicine, University of Geneva, Geneva, . *(Tracking ID # 189675)*

BACKGROUND: Using data from U.S. patients, we previously derived the Pulmonary Embolism Severity Index (PESI), a clinical prognostic model that accurately identifies patients with pulmonary embolism (PE) who are at low-risk of mortality and who are potential candidates for outpatient care. Our objective was to externally validate the PESI in a European patient sample with PE.
METHODS: We prospectively validated the PESI in 357 patients objectively diagnosed with PE at 6 European emergency departments. All patients received an initial treatment with heparin, followed by a vitamin K antagonist for at least 3 months. We used baseline data for the model’s 11 prognostic variables to stratify patients into 5 risk classes (I–V) of increasing risk of mortality. The study outcome was overall mortality at 3 months after presentation. We calculated the proportion of patients classified as low-risk (classes I and II) based on the PESI. To assess the accuracy of the PESI to predict overall mortality, we estimated the sensitivity, specificity, predictive values and likelihood ratios for low (risk classes I and II) versus higher-risk patients (risk classes III–V). We assessed the discriminatory power of the PESI to predict overall mortality using the area under the receiver operating characteristic curve.
RESULTS: Overall mortality was 5.9% (21/357). Fifty-two per cent of patients (186/357) were classified as low-risk (PESI classes I and II). Low-risk patients had a mortality of only 1.1% (2/186). When dichotomized as low (classes I and II) versus higher-risk (classes III–V), the PESI had a high sensitivity (91%, 95% confidence interval [CI]: 71–97%) and a very high negative predictive value (99%, 95% CI: 96–100%) and negative likelihood ratio (0.20, 95% CI: 0–0.70) for predicting overall mortality. Because this cutoff point was specifically chosen to identify low-risk patients (i.e. to rule out short-term mortality), the specificity (55%, 95% CI: 49–60%) and the positive predictive value (11%, 95% CI: 7–17%) were low. The area under the receiver operating characteristic curve for overall mortality was 0.78 (95% CI: 0.70–0.86).
CONCLUSIONS: The PESI reliably identifies low-risk patients with PE who are potential candidates for outpatient treatment or a brief hospital stay. The effectiveness and safety of an outpatient treatment strategy of low-risk patients based on the PESI should be evaluated in a randomized trial.

THE RELATIONSHIP BETWEEN HEALTH LITERACY, KNOWLEDGE IMPROVEMENT, AND KNOWLEDGE RETENTION AFTER A MULTIMEDIA TYPE 2 DIABETES EDUCATION PROGRAM N. Kandula[1]; P.A. Nsiah-Kumi[2]; G.T. Makoul[1]; J. Sager[1]; C. Zei[1]; J. Thompson[1]; S. Glass[1]; Q. Stephens[1]; D. Baker[1]. [1]Northwestern University, Chicago, IL; [2]University of Nebraska Medical Center, Omaha, NE. *(Tracking ID # 190509)*

BACKGROUND: Diabetics with low health literacy have less knowledge about their disease and worse health outcomes. Multimedia diabetes education programs (MDEP) have the potential to improve communication and education of those with low health literacy, but few studies have examined the relationship between health literacy and the amount of new information learned after viewing a MDEP. In addition, low literacy is associated with worse short-term memory, and to our knowledge no studies have examined the association between literacy and long-term knowledge retention. We examined the effect of a multimedia diabetes education program (MDEP) targeted to patients with low literacy on knowledge improvement. We also assessed the association between literacy, knowledge improvement, and knowledge retention at 2 weeks. We hypothesized that lower literacy would be associated with less knowledge improvement and retention, independent of baseline knowledge.
METHODS: 90 patients with type 2 diabetes and 100 patients without diabetes were recruited from primary care clinics at a federally qualified

health center and an academic health center. Health literacy was measured using the Short Test of Functional Health Literacy in Adults (S-TOFHLA), and categorized as "inadequate" (0–16), "marginal" (17–22) and "adequate" (23–36). Patients were interviewed using a pre-test, post-test design to measure diabetes knowledge before and after viewing the MDEP. Patients viewed Module 1 of the MDEP, called "Understanding Diabetes," followed by the Module 1 post-test. Next, patients viewed Module 2, "The Ups and Downs of Blood Sugar," followed by the Module 2 post-test. Open-ended knowledge questions were asked by the interviewer and patients were allowed to answer in their own words, and the interviewer then coded whether the response was correct. Knowledge retention of Module 1 and 2 was measured by telephone interview approximately 2 weeks later. Differences in knowledge gained and lost by literacy were compared by paired t-tests. Multivariate linear regression was used to examine differences by literacy after adjusting for baseline knowledge, age, gender, race/ethnicity, and history of diabetes.
RESULTS: Diabetics had a mean TOFHLA score of 29.6 and non-diabetics of 28.8. Both diabetic and non-diabetic patients had significant improvements in their knowledge scores for Modules 1 and 2 following the MDEP (P<0.001), independent of baseline scores. Individuals with inadequate health literacy had smaller increases in post-test scores than those with adequate health literacy for Module 1 (Beta-coefficient= −2.4, P-value<0.001) and Module 2 (Beta-coefficient= −1.2, P-value <0.01), independent of baseline knowledge, age, gender, race/ethnicity, and history of diabetes. At the 2 week follow-up, patients with inadequate health literacy had worse retention of information from both modules than patients with adequate health literacy (Beta-coefficient for Module 1= −2.4, P-value<0.01; Beta-coefficient for Module 2= −1.6, P-value= 0.07).
CONCLUSIONS: Patients with inadequate health literacy learn less and forget more than those with adequate literacy when viewing a MDEP. More research is needed to understand how to improve learning and knowledge retention in patients with low literacy.

THE RELATIONSHIP BETWEEN HOSPITAL ORTHOPEDIC SPECIALIZATION AND PATIENT OUTCOMES: AN ANALYSIS OF MEDICARE CLAIMS DATA
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BACKGROUND: Hospital specialization is a continuous measure representing the proportion of a hospital's admissions that fall within a given disease category. Yet previous studies have uniformly treated hospital specialization as a dichotomous variable with hospitals categorized as specialty or general hospitals. Our objectives were to assess: 1) the degree and distribution of orthopedic specialization among US hospitals; and 2) the characteristics and outcomes of patients who underwent total knee arthroplasty (TKA) and total hip arthroplasty (THA) in more and less specialized hospitals.
METHODS: We used Medicare inpatient data to identify all hospitals that performed and beneficiaries who underwent TKA and THA using relevant ICD-9-CM codes during 2001–2005. We created a measure of each hospital's orthopedic specialization for each year: the proportion of each hospital's Medicare admissions categorized as major diagnostic category 8 (MDC 8: diseases of the musculoskeletal system). We calculated each hospital's mean orthopedic specialization for 2001–05, reviewed the distribution of values for all hospital's, and then, based upon this distribution, stratified hospitals into those with low (<30% orthopedic), moderate (30%-79%) and high (≥80%) specialization. We compared the demographics, comorbidity, and 90-day mortality rates of patients treated in hospitals with low, medium and high specialization. We used logistic regression models calculate odds of death for hospitals with moderate and high specialization (with low specialization serving as the reference) after adjusting for patient demographics, comorbidity and hospital THA and TKA volume.
RESULTS: 3990 hospitals performed 1,711,519 joint replacements during the study period. The mean and median orthopedic specialization of all hospitals was 12.4% and 10.3% respectively. Hospitals with low specialization (N=3871; 97% of all hospitals) performed 1,630,572 joint replacements (95.3% of all procedures); hospitals with moderate specialization (N=73; 1.8%) performed 46,197 (2.7%); and hospitals with high specialization (N=46; 1.2%) performed 34,750 (2%). Patients admitted to low specialization hospitals were older (mean age 75.1 years) than patients admitted to hospitals with intermediate (74.3 years) and high (74.1) specialization (P<.001). Patients in high specialization hospitals were less likely to be female and black than patients in low specialization hospitals (P<.001). Patients in low specialization hospitals were more likely to have diabetes than patients in moderate and high specialization hospitals (16.0% vs 14.0% vs 11.8%; P<.001). Similarly, patients in low specialization hospitals were more likely to have renal failure than patients in moderate and high specialization hospitals (1.1% vs 0.7% vs 0.4%; P<.001) and CHF (4.8% vs 3.4% vs 2.3%; P<.001). Adjusted 90-day mortality was lower in the moderately (OR 0.575; 95% CI, 0.505–0.655) and highly (OR 0.537; 95% CI, 0.458–0.630) specialized hospitals when compared to the least specialized hospitals.
CONCLUSIONS: Hospitals with low, medium and high degrees of specialization differ with regards to both patient characteristics and procedural volume. Risk adjusted mortality appears to decrease with increasing hospital specialization even after accounting for hospital volume. This suggests that greater hospital specialization may be associated with better patient outcomes.

THE RELATIONSHIP BETWEEN HOSPITALIST PREVALENCE AND QUALITY PERFORMANCE AMONG CALIFORNIA HOSPITALS
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BACKGROUND: Hospitalists improve efficiency, but their effect on quality of care is not well characterized. We analyzed data from a sample of California hospitals to assess the relationship between prevalence of hospitalists and the frequency of missed quality measures at hospital discharge.
METHODS: Between 2006 and 2007 we identified which of the 326 non-federal, general acute care hospitals in California (N=326) had hospitalist services by 1) phone, email, and fax surveys of hospital administrators (e.g. chief medical officer) 2) phone, email, and fax surveys of hospitalist leaders already identified, 3) confirmation from emergency room admitting physicians or medical staff offices, or 4) the hospital's website. We then linked hospitalist prevalence data with quality data from 191 hospitals participating in the California Hospital Assessment and Reporting Taskforce (CHART). Using CHART data, we confirmed the frequency of missed quality measures at hospital discharge for three medical conditions: 1) Acute myocardial infarction (AMI), 2) Congestive heart failure (CHF), 3) Pneumonia. We then built regression models assessing the relationship between hospitalist prevalence and the frequency of missed quality measures using generalized linear models, adjusting for hospital characteristics (e.g. bed size, ownership, teaching status, patient census) as well as patient-mix factors (e.g. case mix index and annual percent of admissions by race, age, payer, and do-not-resuscitate status). Because the outcome measure distribution was right-skewed, models employed Gaussian distributions with log-link functions. The results are reported as the percent difference in missed quality measures; thus, a negative difference would correspond to the percent fewer measures missed by hospitalists compared to non-hospitalists.
RESULTS: 69% (N=226) of all hospitals had a hospitalist service. 83% (N=159) of the 191 hospitals participating in CHART had hospitalists. Regression models suggested that hospitals with hospitalists had fewer missed quality measures (higher quality) for care of acute myocardial infarction or congestive heart failure, but similar quality in the care of pneumonia patients (see Table).
CONCLUSIONS: California hospitals with hospitalist physicians demonstrated fewer missed quality measures among standard cardiac process measures. Our results suggest the benefits of hospitalists may extend beyond efficiency. Prospective data is needed to further confirm these observations.

Adjusted Percent Difference in Missed Quality Measures Among Hospitals with Hospitalists (N = 191)

Quality Measure Assessed at Discharge	% Difference in Missed Quality Measures	95% CI
AMI		
Aspirin	−51	−67 to −26
Beta Blocker	−37	−58 to −5
ACE-I/ARB	−32	−56 to 6
CHF		
Ejection Fraction Measured	−54	−66 to −38

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Quality Measure Assessed at Discharge	% Difference in Missed Quality Measures	95% CI
ACE-I/ARB	−16	−36 to 10
Pneumonia		
Pneumovax	1	−22 to 31
Flu Vaccine	−3	−24 to 23

THE RELATIONSHIP BETWEEN ORGANIZATIONAL FACTORS AND HIGH PERFORMANCE AMONG HOSPITALS PARTICIPATING IN THE CMS, PREMIER HOSPITAL QUALITY INCENTIVE DEMONSTRATION PROJECT E.R. Vina[1]; D.C. Rhew[2]; S.R. Weingarten[2]; J.B. Weingarten[2]; J.T. Chang[2]. [1]Cedars Sinai Medical Center, Los Angeles, CA; [2]Zynx Health, Los Angeles, CA. *(Tracking ID # 189514)*

BACKGROUND: The Centers for Medicare & Medicaid Services (CMS), Premier healthcare alliance Hospital Quality Incentive Demonstration (HQID) project aims to improve clinical performance through a pay-for-performance program. Participating hospitals in the top decile for a given clinical focus were rewarded an additional 2% bonus on their Medicare payments for patients in that clinical area. This study aims to identify the key factors associated with higher performance in hospitals participating in the CMS-Premier HQID project.
METHODS: An investigator-blinded prospective study through a structured telephone survey of hospital quality improvement (QI) leaders participating in the HQID project in the top and bottom two deciles across five clinical conditions from October, 2004 to September, 2005 (N=92 hospitals) was conducted. The survey covered topics including QI interventions, data feedback, physician leadership, support for QI efforts, and organizational culture. Survey data was linked to HQID quality performance data (decile ranking based on overall composite quality score (O-CQS)) for hospitals submitting performance data for at least three of the following conditions or procedures: acute myocardial infarction (AMI), heart failure, pneumonia, total hip or knee replacement (THR/TKR) and coronary artery bypass graft (CABG); and hospital characteristic data, including number of beds and teaching status. Continuous data were presented as means, and means were analyzed by the student t-test. For categorical variables, the significance of observed differences was assessed by the chi-squared test or Fisher's exact test.
RESULTS: 91% of hospitals included in the study completed the survey. More top performers than bottom performers used order sets that required physician signatures for the treatment of THR/TKR (91% vs. 64%, $p<0.01$). More top performers used clinical pathways for the treatment of AMI (49% vs. 15%, $p<0.01$), heart failure (44% vs. 18%, $p<0.01$), pneumonia (38% vs. 13%, $p<0.01$) and THR/TKR (56% vs. 23%, $p<0.01$) and more top performers had multidisciplinary teams with the goal of improving care for AMI (93% vs. 77%, $p<0.05$) and heart failure (93% vs. 69%, $p<0.01$). More top performers have implemented computerized physician order entry in the hospital than bottom performers (24.4% vs. 7.9%, $p<0.05$). Finally, more top performers had organizational support and cultural factors for quality improvement including recruiting physician champions (82% vs. 69%, $p<0.05$); having adequate human resources for QI projects ($p<0.01$); nursing staff support for adherence to quality indicators ($p<0.01$); and an organizational culture that supports coordination of care ($p<0.01$), pace of change ($p<0.01$), willingness to try new QI projects ($p<0.01$) and a focus on system errors rather than blaming individuals ($p<0.05$).
CONCLUSIONS: Organizational structure, support, and culture are associated with high performance among hospitals participating in the CMS, Premier HQID project. This analysis provides evidence that organizational factors remain an important aspect for optimizing clinical care and pay-for-performance reimbursement.

THE RELATIONSHIP BETWEEN SERUM LONG-CHAIN OMEGA-3 FATTY ACIDS AND BLOOD PRESSURE IN A LARGELY NORMOTENSIVE COMMUNITY SAMPLE J.C. Liu[1]; S. Iyer[1]; S. Conklin[2]; S.B. Manuck[3]; M. Muldoon[1]. [1]University of Pittsburgh School of Medicine, Pittsburgh, PA; [2]Allegheny College, Meadville, PA; [3]University of Pittsburgh, Pittsburgh, PA. *(Tracking ID # 189750)*

BACKGROUND: Evidence from recent clinical trials suggests that dietary supplementation with long chain, omega-3 fatty acids modestly reduces blood pressure (BP) in individuals with clinically-defined hypertension. However, cardiovascular disease risk varies across the full range with BP, and whether omega-3 fatty acid intake affects normative, between-person, BP variability is unknown.
METHODS: The current cross-sectional study examined this issue in a sample of 248 largely normotensive and generally healthy adults residing in the Pittsburgh metropolitan area (9% black, 50% female). Enrolled subjects ranged between 30 and 54 years old (M=45) and completed standardized assessments of both clinic and 24-hour ambulatory BP. Mean clinical BP was 114/77 (S.D.= 12.4/8.8). Dietary salt was estimated from two 24 hour recalls, and serum phospholipid levels of docosehaxaenoic acid (DHA) and eicosapentaenoic acid (EPA) was measured by capillary gas chromatography. Linear regression analyses were conducted using age, gender, race, BMI and self-reported salt intake as covariates.
RESULTS: DHA was inversely associated with clinical (beta=−40.121, p= .035) and awake ambulatory diastolic BP (beta= −0.152, p= .01). In addition, serum DHA was inversely associated with resting HR (beta= −.224, $p<.001$) and average ambulatory HR (beta= −.142, p= .025). Eicosapentaenoic acid (EPA) was not related to BP or heart rate. Compared to those in the lowest quintile, participants in the highest quintile of serum DHA had a lower diastolic BP by an average of 3.1 mm Hg (p for linear trend= .009).
CONCLUSIONS: These results indicate that long-chain omega-3 fatty acids correlate with BP across the normotensive range and are a potential target for intervention to prevent the development of hypertension and its clinical sequelae. Additionally, the inverse association with heart rate suggests that DHA may affect autonomic cardiovascular control.

THE RELIABILITY OF PHYSICIAN COST PROFILING A. Mehrotra[1]; E. A. Mcglynn[2]; W. Thomas[3]; J. Adams[4]. [1]University of Pittsburgh, Pittsburgh, PA; [2]RAND Corporation, Santa Monica, CA; [3]University of Southern Maine, Portland, ME; [4]RAND, Santa Monica, CA. *(Tracking ID # 190654)*

BACKGROUND: In an effort to dampen rising health care costs, health insurers are increasingly using physician cost profiles based on episodes of care. These profiles are being publicly reported, used as a basis for-performance incentives, or physician tiering. In physician tiering patients pay a higher co-payment to see a high cost physician. Despite their growing popularity, little is known about the reliability of these cost profiles. We assessed the reliability of the cost profiles most commonly used by health plans.
METHODS: We used an aggregated claims dataset using 2004–05 data from four health plans in Massachusetts to create cost profiles for all non-pediatric physicians in the state. The cost profile compares a physician's care (observed costs) to their peers within their specialty (expected costs). Symmetry's Episode Treatment Groups software was used to aggregate claims for enrollees aged 18–65 into clinically related episodes of care. An episode of care was composed of all services (e.g., visits, laboratory tests, imaging studies, hospitalizations, pharmaceuticals) for a patient's condition. Because reimbursement varies across health plans, we applied standardized prices to each unit of service. Patient episodes were attributed to the physician with the highest proportion of evaluation and management visits (minimum 30%) in the episode. An episode's observed costs were the sum of all the units of service within the episode. An episode's expected costs were the average costs across similar episodes among physicians of the same specialty and adjusted for level of illness. The physician's summary profile was the ratio across all assigned episodes of the sum of observed costs divided by the sum of expected costs. We excluded physicians with less than 20 assigned episodes. Reliability of each physician cost profile were calculated using an adaptation of the Spearman-Brown Prophecy formula.
RESULTS: Our analyses focused on 8,920 physicians (49% of practicing physicians in Massachusetts) who were attributed an average of 299 episodes. Overall, the median reliability of the physician-level composite cost profile across all specialties was 0.47. Conceptually this can be interpreted as meaning that for performance scores at the median, 47% of the variance in physicians' cost profiles is attributable to real differences in provider practice (signal) and 53% of the variance is attributable to measurement error (noise). Median reliability varied by specialty ranging from 0.03 for infectious disease to 0.90 for dermatology. Only 34% of the physician cost profiles had a reliability greater than the commonly expected cut-off of 0.70.

CONCLUSIONS: We find that the reliability of a commonly used method of physician cost-profiling is well below commonly expected cut-offs. Our findings raise concerns about the use of these profiles for public reporting, pay-for-performance incentives, and physician tiering.

THE RESIDENT CONTINUITY CLINIC EXPERIENCE: A NATIONAL SURVEY M. Nadkarni[1]; C. Bates[2]; B. Fosburgh[3]; E. Holmboe[4]. [1]University of Virginia, Charlottesville, VA; [2]Beth Israel Deaconess Medical Center, Boston, MA; [3]Massachusetts General hospital, Boston, MA; [4]Yale University, Philadelphia, PA. *(Tracking ID # 189868)*

BACKGROUND: Education in ambulatory internal medicine providing longitudinal continuity care remains a vital component of residency training. Little has been documented regarding the actual practice and clinical educational environments that resident continuity clinics (CC) provide.We present a description of the nature of CC training across the nation which can serve as a first step in enhancing ambulatory education for IM residency programs.
METHODS: Representatives from ABIM, APDIM, ACGIM, and SGIM jointly developed and administered a 132 question web based survey (Grapevine) to medical residency CC directors at accredited IM residency training programs in the USA. Data was analyzed using SPSS software.
RESULTS: Survey response rate was 174 out of 378 (46%) programs and captured data from 205 individual clinics. Patient Population Most clinics (61%) were urban with 20% suburban and 2% rural. On average, 46% (range 30–80%,25th/50th/75th quartile(40/41/50%) of patients were male, 33%(5–80%, 20/30/40%) were over 65 years and 5% (0–40%, 2/5/5%) under 21. The avg percentage of minority patients was 59%(0–80%,40/60/80%), and 17% (3–80%,3/10/25%) required translators. Payor mix varied widely. The Medicare mean was 31% (0–85%20/30/40%), Medicaid 35% (0–95%, 20/35/50%) Private 18% (0–71%, 3/11/27%) and Self pay 25% (0–91%,9/18/36%). No show rates were high. (avg 20%,15/20/30%) The Avg annual patient visits was 9,255 (100–105,000, 5,855/9,200/11,625) Clinic Characteristics 57% were hospital based,17% Hospital supported, 6% VA and 7% other .Nearly all clinics had support staff consisting of clerical, LPNs, RNs, but 80% had social workers, 83% office managers, 52% pharmacists, 57% nutritionists, 32% NPs and 29% case managers. One half the programs had chronic disease management programs primarily DM (88%),Anticoagulation (58%) and CHF (41%) Trainees: Clinics had average 13 PGY1, 12PGY2 and 12 PGY3 residents Most PGY1 residents had 1 session/ week with average of 42 sessions /year seeing 3 patients/session; PGY2 averaged 1 session/week with 45 sessions /year seeing 4 patients/session PGY3 had 1–2 sessions per week with 48 sessions per year seeing 5 pts per session. Educational Structure: 22% of clinics were organized into a "Firm" system, 40% a partial firm system and all but 3 programs assigned residents their own patient panel. 31% of clinics had a fixed day clinic session, 46% cancelled clinic on call and post call days, 9% cancelled clinics on call only and 13% had no fixed sessions. Faculty supervised a median 2 sessions per week (rg 1–4) and median 3.7 residents per session.The majority (66%) of core clinic faculty also saw their own patients in the same clinic with median work RVU expectations of 4200. Organizational Culture: 44% of clinic directors felt interns have significant stress at clinic and 11% are not "able to handle" this stress. 27% of clinic directors often feel overwhelmed in their role and 52% reported they did not feel they could make changes at clinic easily.
CONCLUSIONS: These data provide a summary view of the clinical and educational environment from the largest national sample of resident continuity clinics to date. Programs demonstrate wide variability in patient populations, operational structure, support, and educational systems . This survey may form the basis for programs to compare experiences and disseminate best practices to improve educational and clinical outcomes in this vital facet of medical training.

THE RISING PREVALENCE OF CHRONIC DISABLING LOW BACK PAIN T.S. Carey[1]; L. Castel[2]; R.P. Agans[1]; J. Darter[1]; J.K. Freburger[2]; M. Holmes[1]; A.M. Jackman[1]; W.D. Kalsbeek[1]; A.S. Wallace[1]. [1]University of North Carolina at Chapel Hill, Chapel Hill, NC; [2]Sheps Center for Health Services Research, UNC Chapel Hill, Chapel Hill, NC. *(Tracking ID # 189738)*

BACKGROUND: Chronic low back pain (LBP) is a common, disabling and expensive illness. Health care utilization, including surgery, has risen markedly, with associated rising costs. Less clear is whether the rising utilization is due to more visits and procedures among the same numbers of patients, or whether the prevalence of back pain is rising. Previous work has been hindered by lack of consistency of categorization of chronic, disabling back pain, leading to variable estimates. Using the same definition of the illness, we compared 1992 and 2006 estimates of the prevalence and care seeking of chronic back pain in North Carolina.
METHODS: The definition of chronic LBP was identical in the two surveys: Pain had to last >3 months and be functionally impairing, or the respondent had to have > 24 functionally impairing episodes of low back pain in the previous year. Both surveys utilized random telephone samples in North Carolina, used computer assisted telephone interviewing, and were weighted for sampling design and non-response in order to generate population estimates. The previous 1992 survey contacted 4,437 households (8,067 individuals), with a household response rate of 79%. The larger 2006 survey sampled 5,307 households (9924 individuals), with a household response rate of 65%. Adults in the households were rostered for the presence of LBP, and one candidate was sampled for a detailed survey of pain and care utilization. 269 Individuals had chronic back pain in 1992; 732 in 2006.
RESULTS: The prevalence of chronic, impairing LBP rose markedly over the 14 year interval, from 3.9% (3.4–4.4) in 1992 to 10.2% (9.3–11.0) in 2006. Acute back pain episodes in the previous year also rose from 7.3% (6.6–8.1) to 15.5% (14.4–16.5). The prevalence of chronic LBP was greater in women in 1992 (4.8 vs 2.9%); prevalence rose in both genders to 12.2% in women, 8% in men in 2006. Increases in prevalence were seen for all adult age strata, and in both white and black races. LBP symptom severity and impact on functioning were overall similar between the 1992 and 2006 surveys: years with chronic pain: 5.9 (4.8–7.0) vs 9.8 (8.9–10.7); pain severity in the past 3 months (0–10 scale): 7.2 (6.8–7.5) vs 6.8 (6.6–7.0); percent with spine surgery in the past: 22.3 (16.8–28.9) vs 24.8 (21.5–28.5); proportion in self described poor health 22.2% (16.8–28.6) vs. 17.1% (14.2–20.4). The Roland back disability scale (0–23) was obtained only for the 2006 survey and was 14.9 (14.3–15.4), indicative of moderately severe disability. The proportion of individuals who sought care from a health professional, however, increased from 73% (65.2–79.8) in 1992 to 84% (80.8–86.8) in 2006.
CONCLUSIONS: The prevalence of chronic, impairing back pain has markedly risen, with continuing high levels of disability and care utilization, and increased care seeking. A significant portion of the rise in LBP care costs may be related to this rising prevalence. The reasons for the rise are unclear and probably multifactorial, representing a substantial challenge to providers and payers.

THE ROLE OF COMMUNICATION SELF-EFFICACY IN PATIENT COMFORT DISCUSSING SUBSTANCE USE ISSUES P.T. Korthuis[1]; S. Saha[2]; R.D. Moore[3]; J.A. Cohn[4]; V. Sharp[5]; M.C. Beach[3]. [1]Oregon Health & Science University, Portland, OR; [2]Oregon Health & Science University, and Portland VA Medical Center, Portland, OR; [3]Johns Hopkins University, Baltimore, MD; [4]Wayne State University, Detroit, MI; [5]Saint Luke's and Roosevelt Hospitals, New York, NY. *(Tracking ID # 189728)*

BACKGROUND: HIV-infected patients who discuss substance use issues with their providers are more likely to receive addiction treatment services. Little is known, however, about patient characteristics that influence substance use discussions. The objective of this study was to assess the association of patient communication self-efficacy with patient comfort in discussing these issues with their providers. We hypothesized that patients reporting high communication self-efficacy would be more comfortable discussing substance use issues with their providers.
METHODS: In 2007, we interviewed 437 HIV-infected patients receiving longitudinal care at 4 HIV clinics participating in the Enhancing Communication and HIV Outcomes (ECHO) study. Patients were interviewed regarding substance use and communication self-efficacy in the context of a visit with their usual HIV provider. We defined current drug use as any illicit cocaine, amphetamine, non-prescription opiates, heroin, or marijuana use in the past 30 days. We defined former drug use as any use, but not in the last 30 days. Problematic alcohol use was defined as drinking to intoxication in the past 30 days (current) or past years (former). We asked patients to report how comfortable they were talking about

drug use with their providers and assessed communication self-efficacy using a previously-validated 5-item scale. We assessed the association between communication self-efficacy and patient comfort discussing substance use issues and using staged logistic regression, adjusting for substance use, sex, race, age, employment, education, length of time with provider, and site.
RESULTS: Subjects were predominantly male (66%), African American (57%), high school graduates (77%), and taking antiretrovirals (79%). Median age was 45 years (range 20–77) and 33% had been seeing their HIV provider for more than 5 years. Substance use was common with 29% reporting current, 47% former, and 24% never having used illicit drugs, while 11% reported current problematic alcohol use. 68% of current users reported feeling very comfortable discussing substance use issues with their providers compared with 81% of former and 81% of never users (p=.019). 53% of current users reported high communication self-efficacy compared with 61% of former and 70% of never users (p=.033). 86% of subjects reporting high communication self-efficacy reported being highly comfortable discussing substance use issues with their providers vs. 64% of those who did not (p<.001). Those with high communication self-efficacy had over 3 times the odds of being comfortable discussing substance use issues compared with those with lower self-efficacy (Table).
CONCLUSIONS: HIV-infected patients reporting current drug and alcohol use have lower levels of self-efficacy in communicating with their providers and are less comfortable discussing their substance use. Those with high communication self-efficacy are more comfortable discussing substance use issues. Interventions to improve patient communication self-efficacy offer a potential target for facilitating patient-provider discussions of substance use issues.

Multivariate Association with Comfort Discussing Substance Use Issues with Provider

	aOR (95% CI)
Comm self-efficacy	
High	3.28 (1.99, 5.42)
<High	1.0
Illicit Drug Use	
Current	0.50 (0.24, 1.04)
Former	0.89 (0.45, 1.77)
Never	1.0
Problematic Alcohol Use	
Current	0.64 (0.27, 1.52)
Former	1.43 (0.78, 2.63)
Never	1.0

THE ROLE OF DISCORDANT AND CONCORDANT COMORBIDITIES IN HYPERTENSION SELF-MANAGEMENT C.C. Keirns[1]; R.M. Frankel[2]; C. Robinson[3]; E.A. Kerr[4]; J. Forman[5]. [1]University of Michigan School of Medicine, Department of Internal Medicine, Ann Arbor, MI; [2]Indiana University Purdue University Indianapolis and Richard Rodebush VA Medical Center, Indianapolis, IN; [3]Ann Arbor VA Medical Center Heath Services Research & Development, Ann Arbor, MI; [4]University of Michigan & Ann Arbor VA Medical Center, VA Health Services Research & Development, Ann Arbor, MI; [5]Ann Arbor VA HSR&D, Center for Practice Management, Ann Arbor, MI. *(Tracking ID # 189921)*

BACKGROUND: Most VA patients have 2 or more chronic conditions. As a result, there is great interest in understanding how comorbid conditions influence patients' chronic disease self-management (SM). Researchers have done this quantitatively by examining the role of concordant (sharing pathophysiology and/or clinical management strategies) and discordant comorbid conditions on patients' self-management. This disease-based approach does not consider how patients with comobidities perform SM tasks in their daily lives. We used qualitative methods to explore how the characterization of comorbid conditions as concordant and discordant compared with patients' views and actions related to SM for hypertension (HTN).
METHODS: As part of a larger study of HTN management among 1169 patients with diabetes in 9 VA facilities, we conducted structured, open-ended phone interviews with a purposeful sample of 37 patients. Interviews covered comorbidities, disease prioritization, medication management, and several aspects of self-management. We analyzed the data using 2 different qualitative techniques: content coding and a case-based approach. For each case, we triangulated interview data with survey data and medical records. A clinician and social scientist produced structured case summaries and developed within-case, then higher level abstractions based on cross-case themes.
RESULTS: Although content coding was useful in exploring barriers and facilitators of HTN control, the case-based approach offered richer insights into the complexities of overall management burden and conflicting priorities among management of comorbidities. Using the case-based approach, we found that some patients viewed particular SM tasks for diabetes and cardiovascular disease as discordant with HTN, even though they are pathophysiologically concordant. For example, several patients focused on sugar and carbohydrate intake to control diabetes to the detriment of reducing saturated fat, cholesterol, calories and salt important for HTN and cardiovascular disease SM. Stroke and heart disease were often concordant with HTN SM in patients early in their course or with mild symptoms; these patients described being more aware that it was important to control diabetes and HTN. SM for patients with more severe stroke or heart disease symptoms eclipsed SM efforts for HTN. HTN medication management was made more difficult by the presence of both concordant and discordant comorbidities, due to large numbers of medications, complex regimens and side effects. Discordant conditions such as pain, obesity, sleep disturbance, and mental health problems affected the energy, motivation, and insight needed for HTN SM. Finally, both discordant and concordant conditions affected motivation and ability to exercise.
CONCLUSIONS: The current characterization of comorbid diseases as clinically concordant or discordant does not adequately describe the complex ways that comorbidity influences SM in patients' daily lives. The disease-by-disease approach commonly used by physicians leaves the patient to translate clinical recommendations into workable and effective self-management regimens, with little guidance on how to combine management of different diseases. Physicians and patients need to work together to triangulate clinical recommendations into self-management plans organized around patients' understanding of their diseases and daily tasks such as diet, medications, and exercise.

THE ROLE OF HEALTH CARE TRUST IN CONTRACEPTIVE PRACTICES AMONG LOW-INCOME AFRICAN-AMERICAN WOMEN O.J. Blackstock[1]; A. Mba-Jonas[1]; H.V. Kunins[1]; G.M. Sacajiu[1]. [1]Albert Einstein College of Medicine/Montefiore Medical Center, Bronx, NY. *(Tracking ID # 190328)*

BACKGROUND: Previous studies suggest that low levels of trust in one's health care provider are associated with a decreased likelihood of continuity of care and diminished acceptance of health care recommendations. The role of health care trust in contraceptive practices has not been specifically studied. This hypothesis-generating qualitative study explores participant narratives about the relationship between trust in one's health care provider and contraceptive practices among low-income African-American women.
METHODS: This study at an urban community health clinic enrolled 20 African-American women who declared they were heterosexual or bisexual, between 18 and 39 years old, sexually active but not actively trying to become pregnant. Individuals were excluded if they were currently or recently pregnant, or unable to become pregnant. Consecutive patients were approached as they waited to be seen in our Internal Medicine practice. In semi-structured interviews, we operationalized trust by exploring themes including communication, patient comfort and disclosure, and perceptions of provider competence and compassion. Interviews were audio-taped, transcribed, and coded using N-vivo software. Qualitative analysis using grounded theory elicited common themes and developed a typology for trust and contraceptive practices.
RESULTS: Of the eligible women approached, 77% agreed to participate. Mean age was 26 years old (range 18 to 37). Eighteen participants were in monogamous relationships. Seventeen participants were employed. Fourteen participants had at least a high school diploma and six had not completed high school. Three participants had never been pregnant. All participants had health care providers who they saw routinely for care. Most participants stated they were satisfied with their relationships with their current health care providers, although some reported negative experiences with previous providers. Participants expressed high satisfaction with providers who were compassionate, communicated well and with whom they felt comfortable. Some participants expressed that their

perceived income adversely affected the quality of care they had received in the past. Conversely, participants infrequently believed that race and gender affected care. Reported adverse effects of perceived differential treatment based on income included poor communication and misdiagnosis. Participants said that planning pregnancy was usually discussed only when the participants themselves raised the subject with their providers. In contrast, the topic of contraception was frequently raised by both the participants and providers. Participants who reported high levels of satisfaction with providers, and felt that providers acted in their best interest, also reported extensive conversations about planning pregnancy and contraception with their providers.
CONCLUSIONS: Our participants reported high levels of satisfaction with current providers. Negative experiences with providers were perceived to be influenced by income as opposed to race or gender. Our results suggest that among participants who believe their providers act beneficently, discussions about planning pregnancy and contraception may be more extensive. This may indicate that patient-provider trust enhances discussions about these issues. Perceptions of differential treatment may undermine this trust. Further research is needed to elucidate the relationship between health care trust and contraceptive practices.

THE ROLE OF HOMELESSNESS IN SEEKING OR DELAYING HEALTH CARE AMONG SUBSTANCE ABUSING ADULTS T.P. O'Toole[1]; R. Pollini[2]; D.E. Ford[3]; G.E. Bigelow[3]. [1]Brown University/Providence VA Medical Center, Providence, RI; [2]University of California, San Diego, San Diego, CA; [3]Johns Hopkins University, Baltimore, MD. *(Tracking ID # 189774)*

BACKGROUND: Health seeking behavior by homeless persons is influenced by illness-driven need, predisposing and enabling factors; however, some of these factors can also act in the converse, contributing to delayed health care by addressing competing sustenance needs. We sought to identify factors among medically ill homeless substance-using adults associated with both early and delayed health care following illness onset.
METHODS: Face-to-face survey of sequential homeless substance abusing admissions to an inpatient medicine service. Study subjects were queried on the effect their homelessness had on seeking health care for this acute presentation as (1) causing them to seek care earlier; (2) delayed their seeking care; or (3) had no effect. Demographics, medical and mental health co-morbidities, substance use history (ASI), Likert-scaled extrinsic and intrinsic motivations for wanting substance abuse treatment (SAT), and readiness for behavior change (URICA) were assessed. Those persons citing physical health concerns as a motivation for SAT were also asked to rate different reasons for a physical health concern related to immediate, short, and long term consequences of an illness.
RESULTS: Overall 151 respondents were surveyed: 49.7% reported that being homeless delayed their seeking medical attention; 27.2% sought medical treatment earlier and 23.2% reported their homelessness had no effect. Those persons reporting they sought care earlier were more likely to have bipolar disorder (31.7% vs. 12.7%; p=0.01) and tended towards being more likely to have HIV/AIDS (p=0.09). In contrast, those reporting delayed care were significantly more likely to have had paid employment during the previous 30 days (36.0% vs. 19.7%; p=0.03) and trended towards higher rates of hepatitis B/C (p=0.06) and a systemic bacterial infection upon admission (p=0.08). There was no difference in composite URICA scores for the early versus delayed groups or in their proportions in precontemplative, contemplative or action stages. Those delaying care were more likely to report physical health concerns as a motivation for substance abuse treatment (89.3% vs. 77.6%; p=0.05) and the fear of dying as a specific physical health concern (97.0% vs. 84.8%; p=002). They trended towards being more likely to state that homelessness (p=0.08) and the physical health concern of contracting a chronic illness (p=0.06) were motivators for SAT. In the multiple logistic regression model, paid employment (AOR 2.85; 95% CI: 1.29, 6.32), having hepatitis B/C (AOR 2.38; 95% CI: 1.04, 5.43) and, paradoxically, citing physical health concerns as a motivation for drug treatment (AOR 3.42; 95% CI: 1.28, 9.12) were all independently significantly associated with delaying medical attention.
CONCLUSIONS: Delaying needed health care is very prevalent among homeless substance abusing adults and appears to be in part paradoxically driven by concerns about adverse consequences to the health care event. Proactive outreach and education prior to the health care episode may be needed to alter misperceptions about health needs and the consequences of seeking medical attention and drug treatment.

THROMBOLYTIC THERAPY AND MORTALITY IN PATIENTS WITH ACUTE PULMONARY EMBOLISM D. Aujesky[1]; R.A. Stone[2]; M. Geng[2]; D.S. Obrosky[2]; M.J. Fine[2]; S.A. Ibrahim[2]. [1]University of Lausanne, Lausanne,; [2]VA Pittsburgh Health Care System and the University of Pittsburgh, Pittsburgh, PA. *(Tracking ID # 189351)*

BACKGROUND: In the management of acute pulmonary embolism, the prevalence of thrombolytic therapy outside of research intense academic health care settings is uncertain, and its benefits compared to standard anticoagulation remain a subject of debate.
METHODS: We used data from 15,531 patient discharges with a primary diagnosis of pulmonary embolism from 186 acute care hospitals in Pennsylvania (1/2000–11/2002). The study outcomes were in-hospital mortality and mortality within 30 days of presentation. We used propensity score analysis to compare outcomes between patients who received thrombolytic therapy and those who did not. To calculate a propensity score, we modeled the receipt of thrombolysis using baseline demographic and clinical variables that were statistically significantly related to thrombolysis or likely to influence a decision for or against thrombolysis. We used Poisson regression models to estimate in-hospital mortality and logistic regression models to estimate 30-day mortality. In both analyses, we adjusted for the propensity of thrombolysis as a categorical variable.
RESULTS: Overall 2.4% of patients received thrombolysis. In-hospital mortality rate was 5.6% for those who did not receive thrombolytic therapy and 16.5% for those who did. The 30-day mortality rate for patients who did not receive thrombolytic therapy was 8.6% compared to 17.4% for those who received the treatment. After adjustment for the propensity of thrombolysis, patients who received thrombolytic therapy had a higher in-hospital mortality (RR=1.60, 95% CI: 1.21–2.13) and 30-day mortality (OR=1.62, 95% CI: 1.20–2.19) relative to patients who did not receive thrombolysis. Among hemodynamically unstable patients who received thrombolysis (n=803), in-hospital and 30-day mortality were not statistically significantly higher compared to those who did not (RR 1.56, 95% CI=0.92–2.65 and OR=1.44, 95% CI=0.78–2.64, respectively).
CONCLUSIONS: In this large, population-based sample of unselected patients with acute pulmonary embolism, use of thrombolytic therapy was uncommon and was associated with a significantly higher risk of in-hospital and 30-day mortality.

TRANSITIONING FROM BUPRENORPHINE TREATMENT IN JAIL TO THE COMMUNITY: FEASIBILITY AND EFFECTIVENESS VS. METHADONE MAINETNANCE J.D. Lee[1]; E. Grossman[1]; D. Dirocco[1]; M.N. Gourevitch[1]; J. Hershberger[2]; H. Joseph[3]; L. Marsch[4]; N. Santana[4]; C. Shropshire[4]; A. Glick[5]; A. Rosenblum[4]; S. Magura[6]. [1]New York University, New York, NY; [2]New York City Department of Health and Mental Hygiene, NY, NY; [3]National Development & Research Institutes, Inc., Ne, NY; [4]National Development & Research Institutes, Inc., New York, NY; [5]Prinson Health Services, Inc., New York, NY; [6]Western Michigan University, Kalamazoo, MI. *(Tracking ID # 190738)*

BACKGROUND: Buprenorphine (BPN) has never been systematically administered as an opioid agonist maintenance therapy in a correctional setting as well as upon release. This study's primary aim is to determine the feasibility of initiating BPN maintenance in jail and transitioning to community BPN maintenance, and compare it to traditional methadone maintenance jail-to-community treatment. A secondary aim is to compare treatment outcomes among the BPN patients referred from jail to non-jail-referred BPN patients at a public hospital outpatient setting in NYC.
METHODS: Opioid-dependent adult men not enrolled in community methadone treatment at incarceration, sentenced to 10–90 days in NYC Rikers Island jails, and interested in opioid agonist treatment were randomly assigned to BPN maintenance or methadone maintenance. At release, all were referred to community based opioid agonist treatment. While in jail, research staff monitored induction and maintenance outcomes (adverse events, treatment discontinuation, maintenance doses). Subjects were interviewed at 3 months post-release, and community programs were contacted for initial visit and retention outcomes.
RESULTS: Patient characteristics are: mean age 40 years; 63% Hispanic, 25% Black, 12% White; mean number lifetime arrests = 21; drug injection in past 30 days = 40%. 59 patients were assigned to BPN and 55 to methadone, medicated in jail, and released. Daily maintenance dose in jail (median): 12 mg buprenorphine/naloxone, 30 mg methadone. Days of treatment in jail (median) = 22. To date, 49% of BPN

and 15% of methadone patients have reported for maintenance treatment of the same type in the community (p<.001). Among the 10 released BPN patients referred to intensive outpatient clinics for BPN, 4 (40%) reported but none returned after the initial visit; among 45 released BPN patients referred to a single public hospital primary care site, 24 (53%) reported and 14 returned after their initial visit (difference in rate of return, p=.05). Within the primary care BPN practice, treatment retention at 12 and 24 weeks was similar among jail- vs. non-jail-referred BPN patients: week 12, 71% vs. 63% (p=0.6, Fisher's exact); week 24, 67% vs. 46% (p=0.3). Rates of opioid-positive urine tests among jail- vs. non-jail-referred patients were also similar: week 12, 43% vs. 39% (p=0.2); week 24, 46% vs. 43% (p=0.2).
CONCLUSIONS: Among opioid users not in methadone treatment when incarcerated, BPN was more likely to be continued as maintenance treatment in the community, particularly when offered in a primary care setting. Within the public hospital practice receiving the majority of primary care BPN jail referrals, jail-referred subjects have equivalent rates of treatment retention and opioid abstinence as do other patients.

TRANSLATING RESEARCH INTO PRACTICE: FACILITATORS AND BARRIERS OF IMPLEMENTING BUPRENORPHINE IN THE VETERAN HEALTH ADMINISTRATION A.J. Gordon[1]; G. Kavanaugh[2]; S. Paidisetty[1]; R. Ramgopal[3]; J.G. Liberto[2]. [1]VA Pittsburgh Healthcare System, University of Pittsburgh, Pittsburgh, PA; [2]VA Maryland Healthcare System, University of Maryland, Baltimore, MD; [3]VA Pittsburgh Healthcare System, Pittsburgh, PA. *(Tracking ID # 190009)*

BACKGROUND: Buprenorphine opioid agonist therapy (B-OAT) has been underutilized and non-uniform in the Veteran Health Administration (VHA) for the diagnosis of opioid dependence (DOD). In 2005, only 739 veterans were prescribed B-OAT, despite 26,818 veterans diagnosed with opioid dependence (DOD), and 170 B-OAT prescribing VHA physicians. Striking regional variations in the implementation of buprenorphine occurred: six large VHA networks were without any B-OAT and two networks accounted for 31% of VHA national prescriptions. We examined patient-, provider-, and system-level facilitators and barriers of B-OAT within the VHA.
METHODS: From June '06 to October '07, we conducted semi-structured telephone interviews of key administration and clinical personnel at a national sample of VHA facilities with a high prevalence of DOD and which lacked an OAT (e.g., methadone) program. Sites were categorized based on the number of B-OAT prescriptions: Early implementers (EI,>40 prescriptions, 5 sites), modest implementers (MI, 5–40 prescriptions MI, 3 sites), and non implementers (NI, 0–5 prescriptions, 9 sites). Interviewees were associated with administration, pharmacy, clinical care, or substance use treatment programs. Interviews were taped, transcribed, coded by 3 reviewers, consensus was reached, and data was evaluated using structured grounded theory framed by patient, provider, and system themes.
RESULTS: 101 VHA personnel were contacted to participate, of which 62 agreed to be interviewed (67% physicians including 8 primary care providers) at 17 VHA facilities. 88% of facilities had B-OAT-certified clinicians; 47% had no B-OAT prescribing physicians. 53% of facilities had access to non-VA OAT programs. Patient, provider, and practice level facilitators and barriers varied between EI vs. MI and NI sites. For NI sites, patient level barriers cited most were perceived lack of need and attitudes/stigma associated with DOD. EI and MI sites were more concerned with diversion of buprenorphine. Provider barriers at NI-sites included lack of staff interest, lack of education about buprenorphine, and "abstinence-based" philosophies. System barriers were common across all sites consisting of lack of support, time, staff and coverage and continuity of care/integration issues. In general, pharmacy barriers were not prominent. Prominent B-OAT facilitators at EI sites were established need and perceived reduced stigma (patient-level), having B-OAT waivered physicians, integrated and coordinated care (provider-level), and having administrative and pharmacy support (practice-level). Having a champion/role-model of B-OAT care and enabling B-OAT in non-traditional settings (e.g., primary care) greatly facilitated B-OAT at EI and MI sites. Barriers of care at NI sites did not necessarily correlate with facilitators at EI and MI sites.
CONCLUSIONS: Some VHA sites have successfully integrated B-OAT into clinical care. Factors that enable or impede B-OAT vary greatly by VHA facilities. Strategies and policies to implement B-OAT in the VHA should be unique and targeted to each VHA facility.

TREATMENT DECISIONS FOR COMPLEX PATIENTS: DIFFERENCES BETWEEN PRIMARY CARE PHYSICIANS AND MID-LEVEL PROVIDERS U. Subramanian[1]; E.A. Kerr[2]; M.L. Klamerus[3]; B.J. Zikmund-Fisher[4]; T.P. Hofer[2]. [1]Roudebush VAMC and Indiana University School of Medicine, Indianapolis, IN; [2]Ann Arbor VA COE and University of Michigan, Ann Arbor, MI; [3]Ann Arbor VA COE, Ann Arbor, MI; [4]Veterans Affairs Health Services Research & Development Center of Excellence and University of Michigan, Ann Arbor, MI. *(Tracking ID # 190121)*

BACKGROUND: The role of mid-level providers (nurse practitioners [NPs], physician assistants [PA]) in primary care has expanded. While studies have found few differences in delivery of routine primary care between mid-level providers and physicians, few studies have examined differences in more complex decision making for patients with multiple chronic conditions. We therefore examined whether treatment change for diabetic patients presenting with an elevated blood pressure [BP] differed between physicians and mid-level providers.
METHODS: We conducted a prospective cohort study of 1169 diabetic patients of 92 primary care providers (PCPs) in nine Midwest VA facilities. Patients were enrolled if their triage BP prior to a PCP visit was>=140/90. We included data from five sources in our analysis. First, all PCPs completed a baseline survey that assessed BP management practice style, general provider characteristics, and number of patients seen in clinic. Second, PCPs completed a brief visit survey for each enrolled patient, after the same clinic session in which they saw the patient (completion rate 99%), on whether medications were changed, and topics discussed during the visit. Third, patient characteristics were obtained from baseline patient survey (91% completion rate). Fourth, review of electronic medical record (EMR) documented actions taken at the enrollment visit. Finally, patient age, prescribed medications and their dosages, BP values and comorbidity (ICD-9 codes in the year prior to the enrollment visit), were obtained from Veterans Health Administration automated data sources. We constructed a three-level multivariate model (with patients clustered within provider clustered within site). Using two-stage logistic regression models, we examined the association of provider type (physician vs. mid-level) with treatment change (BP medication intensification at the visit or planned prompt follow-up to reassess BP). In the first model, we controlled for enrollment visit BP and mean SBP in the prior year, and clinical and sociodemographic patient characteristics (e.g., age, race, number of chronic conditions, number of BP medication classes). In the second model, we additionally controlled for provider and visit factors (e.g., years in practice, provider prioritization of BP and BP goals, patients seen per half day; discussion of med adherence or discordant health condition at visit;) that could further explain differences by provider type. We calculated odds ratios and confidence intervals.
RESULTS: Among the PCPs, 64 were physicians, 21 were NPs, and 7 were PAs. Patients cared for by physicians and mid-level providers did not differ in their mean enrollment BP, number of chronic conditions, age or number of BP medications. Controlling for current and past BPs and patient characteristics, physicians were significantly more likely than mid-level providers to initiate a treatment change at a visit for an elevated BP (OR 2.1 CI 1.4–3.1; p<.001). After adding visit specific and provider factors, physicians were still more likely to initiate a treatment change (OR 1.9; CI 1.2–2.8, p=.004).
CONCLUSIONS: Mid-level providers were significantly less likely to change BP treatment for diabetic patients with multiple chronic conditions. Given the expanding role of mid-level providers in primary care settings, greater attention needs to be paid to supporting appropriate clinical decision making for complex patients.

TREATMENT OF COMMUNITY ACQUIRED PNEUMONIA WITH DOXYCYCLINE IN A PREDOMINANTLY AFRICAN AMERICAN POPULATION M.G. Whitbeck[1]; W. Wiese-Rometsch[2]; B. Dalal[2]; M. Cho[2]; N. Quezada[2]; N. Mina[2]. [1]Wayne State University, Farmington Hills, MI; [2]Wayne State University, Detroit, MI. *(Tracking ID # 190880)*

BACKGROUND: Doxycycline (DOX) for selected patients is included the in the American Thoracic Society (ATS) recommendations for treatment of community acquired pneumonia (CAP. We sought to examine the use of doxycycline with ceftriaxone (CTX) in a predominantly African American urban population
METHODS: We conducted a retrospective chart review of immunocompetent patients, with CAP hospitalized at an academic medical center

between January 2006 and December 2006. Patients were divided into two groups based on treatment strategies; CTX with DOX versus CTX with AZX (oral and intravenous). Patients were included if symptoms of acute infection were present, accompanied by an acute infiltrate on a chest radiograph(with in 48 hrs) or examination auscultatory findings and treated with CTX and AZX or CTX and DOX as in-patients. Outcomes were adjusted for age, gender and comorbidities to account for differences in patient characteristics. Illness severity between groups was determined by the Pneumonia Severity Index (PSI) and the CURB-65 score. We focused on length of stay, days to afebrile, readmission in 30 days, admission to the medical intensive care unit (ICU), and in hospital and 30 day mortality

RESULTS: A total of 95 patients met our inclusion criteria, of those 89 (93%) patients were African American. After adjustment for age, gender, and other comorbitities no statistical difference was observed between the two groups for length of stay (4.32 days for both groups, p=0.998), readmission in 30 days (3 for DOX vs. 5 for the AZX group, p=0.645), average days to afebrile (1.20 +/- 1.76 days for DOX vs. 0.80 +/ −1.04 day for AZX, p=0.173). In the AZX group 3 patients were admitted to the ICU and 2 patients died, none of the DOX group were admitted to the ICU or died but this difference was not statistically significant. The average drug acquisition cost savings with DOX was $12.57 per patient (p= 0.003) per stay and overall average cost savings for hospital stay was 1821.60 per patient (p= 0.3354). Patients who underwent a change in antibiotics (based on microbiological data) had increased length of stay compared to those who did not require change in antibiotics (7.80 days vs. 3.91 days, p=0.004), the DOX group had 7 patients require change of antibiotics and the AZX group had 3 patients required change of antibiotics (p=0.097)

CONCLUSIONS: In a predominantly African American urban population, DOX with CTX had no significant difference in outcomes compared to CTX and AZX and provided a safe cost effective treatment for community acquired pneumonia.

Baseline Characteristics

	Doxycycline N=43	Azithromycin N= 52	P - Value
Age (Mean Years)	52.6 +/- 12.4	51.2 +/- 16.2	0.623
Gender			
Male	25	35	0.356
Female	18	17	0.356
Race (AA)	40 (93%)	49 (94%)	0.214
CURB-65	1.13	1.13	0.969
PSI (Mean)	2.32	2.34	0.194
	Doxycycline N= 43	**Azithromycin N= 52**	**P-Value**
BMI (Mean)	28.8 +/- 8.57	28.2 +/- 8.75	0.751
Pneumo Vax	8	17	0.121
Flu Vax	6	10	0.494

TRENDS IN ANNUAL US SALES OF HERBS, VITAMINS, AND SUPPLEMENTS BEFORE AND AFTER PUBLICATION OF RESEARCH RESULTS: DOES THE EVIDENCE TRANSLATE? J. Tilburt[1]; E. Emanuel[2]; F.G. Miller[2]. [1]Mayo Clinic, Rochester, MN; [2]National Institutes of Health (NIH), Bethesda, MD. *(Tracking ID # 189724)*

BACKGROUND: Despite a considerable federal research investment in evaluating herbs, vitamins, and other supplements, it is unknown whether publication of new data showing inefficacy or harm results in changes in supplement sales. The objective of this study was to describe supplement sales trends for five popular supplements published in the general medical literature in recent years and examine whether publication is temporally associated with changes in the publics' use of these agents.

METHODS: We identified key supplements that had been the subject of at least one study published in a major US general medical journal from 2001–2005. We plotted annual sales of supplements in $US (y-axis) versus time (x-axis) and annotated graphs with time points indicating study publication dates, looking for changes in sales trends in the year immediately subsequent to the date of publication. We extrapolated linear estimates and 95% confidence intervals for sales trends from pre-publication levels to the post-publication period. Actual sales that fell outside of the 95% confidence interval in the post-publication period were considered significant.

RESULTS: 5 supplements represented in 9 separate research publications were identified. Two large studies of St. Johns Wort for major depression published in 2001 and 2002 cast doubt on its effectiveness for major depression. Changes in sales after publication of the study results in April 2001 and April 2002 were gradual and consistent with the trend prior to publication. Two prominent studies, one in December 2003 and one in July 2005 showed no benefit in treatment and prevention of colds. US annual sales of all Echinacea products exceeded $200 million in 2000 and 2001. From 2003 to 2004, sales dropped modestly from $177 million to $153 million (down 14%). Sales between 2004 and 2005 reached a plateau and then dropped further in 2006 from $154 to $129 million (down 16%). The largest US study to date published in February 2006 reported that while well tolerated, Saw Palmetto was no better than placebo in improving symptoms of BPH. Annual sales dropped only slightly from $137 to $134 million between 2005 and 2006 (down 2.5%). In February 2006, results from a large federally funded trial showed that Glucosamine alone or in combination with Chondroitin did not improve symptoms of osteoarthritis more than placebo. However, a pre-planned secondary analysis suggested that the Glucosamine/Chondroitin combination was more beneficial than placebo in a subgroup with moderate-to-severe osteoarthritis. After publication of the study sales did not substantially change. In January 2005 a meta-analysis of major Vitamin E trials raised concerns about higher mortality rates among study participants who took >800IU of Vitamin E per day. In March and July of 2005, two additional studies reported little or no effect of Vitamin E in preventing cancer and cardiovascular disease. After the 2005 publications, annual sales dropped sharply (down 33%) from previous sales levels and continued to decline at an accelerated pace the following 2 years. Among the 5 supplements studied only changes in vitamin E sales were significant.

CONCLUSIONS: These data suggest that research publications related to supplements can at least occasionally translate into public behavior changes. Although the factors associated with the impact of supplement research are not well understood, study results indicating harm may have a greater impact than those demonstrating lack of efficacy.

TRENDS IN CLINICIAN PERCEPTIONS OF A NEW ELECTRONIC HEALTH RECORD R. El-Kareh[1]; T. Gandhi[1]; E.G. Poon[1]; L.P. Newmark[2]; J. Ungar[1]; J. Orav[1]; T. Sequist[3]. [1]Brigham and Women's Hospital, Boston, MA; [2]Partners HealthCare System, Wellesley, MA; [3]Harvard Vanguard Medical Associates, Boston, MA. *(Tracking ID # 189474)*

BACKGROUND: The successful implementation of an electronic health record presents many immediate challenges, and the benefits may only be realized in the longer term. We assessed primary care clinician perceptions of the impact of a new electronic health record (EHR) on quality of care throughout the 12 months following implementation.

METHODS: We surveyed 104 primary care clinicians (88 physicians, 13 nurse practitioners, and 3 physician assistants) in four medical groups at 1, 3, 6, and 12 months following implementation of a common EHR. The survey instrument employed 8 items to assess clinician perceptions regarding the impact of the EHR on overall quality of care, patient safety, communication, and efficiency (Table 1). Each item used a 5-point Likert scale, and we classified responses of "strongly agree" and "agree" as indicating clinician support of the EHR's impact on that domain. We fit multivariable logistic regression models with generalized estimating equations to assess changes in perceptions over time after adjusting for repeated measures among clinicians as well as clinician sex, years since professional school graduation, number of weekly clinic sessions and reported number of patient visits per clinic session.

RESULTS: Response rates for months 1, 3, 6, and 12 were 93%, 94%, 91%, and 69% respectively. The median number of weekly clinic sessions was 8.0 (interquartile range [IQR] 6.0–8.0) and the median number of reported patient visits per session was 12.0 (IQR 10.0–13.0). There were significant increases in the proportion of clinicians agreeing that the EHR improved overall quality, reduced medication-related errors, improved test result followup, and improved communication among clinicians. There were significant decreases in the proportion of those reporting that patient visits take longer and of those reporting a decrease in the quality of patient interactions.

	Month since implementation				
Proportion Agreeing, %	1	3	6	12	p value
Improves overall quality of care	63.8	69.1	77.4	84.5	0.003
Patient Safety					
Reduces medication-related errors	72.2	70.7	78.5	81.9	0.04
Improves followup of test results	62.8	60.3	81.3	83.3	<0.001
Communication					
Improves communication among clinicians	72.5	75.6	80.6	91.7	0.002
Decreases quality of patient interactions	49.4	48.1	40.9	29.2	0.04
Efficiency					
Patient visits take longer	68.8	67.1	62.4	52.1	0.004
Spend more time on documentation	78.8	80.5	77.2	72.2	0.35
Improves access to clinical information	92.5	95.1	93.5	95.8	0.50

CONCLUSIONS: Clinicians report increasing support for electronic health records over time. Health systems and clinicians should consider the longer term benefits of implementing such technology when confronting initial challenges.

TRENDS IN PATIENT EDUCATION AND COUNSELING SKILLS DURING RESIDENCY C. Gillespie[1]; A.L. Kalet[1]; M. Lipkin[1]; K. Hanley[1]; D.L. Stevens[1]; L.A. Regan[1]; M. Hochberg[1]; S. Zabar[1]. [1]New York University, New York, NY. *(Tracking ID # 190722)*

BACKGROUND: Effective patient education and counseling (PE&C) and relationship building (RB) skills are learnable, linked with patient compliance, behavioral change, satisfaction and outcomes yet less is known about how PE&C skills develop over training. Using 7 years of performance-based data (a 10-station OSCE) we assess the relationship between PE&C and RB skills as it changes through Primary Care Internal Medicine (PCIM) residency (from PGY1 through PGY3) and over time (2001–2007). In addition, we examine this relationship cross-sectionally in residents from other specialties (Emergency Medicine, n=15; Surgery, n=25) and in 3rd year medical students (n=160).
METHODS: Data are from 7 years (2001–2007) of a 10-station faculty observed and rated annual OSCE required for all PGYs in a PCIM Residency program (n=161, 22–24 residents/ year, 7–8 residents/ PGY). Many of the same cases were used from year to year. Across cases, communication skills were assessed using a behaviorally anchored checklist in 3 main domains: RB (5 items, e.g., communicated concern, acknowledged patient's emotions, was accepting/ non-judgmental), PE&C (3 items, asked questions to see what patient understood, provided clear explanations, collaborated with patient in identifying next steps), and information gathering (IG) (6 items, e.g., started with open-ended questions, elicited story using appropriate questions, did not interrupt). These same items were used in the OSCEs assessing communication skills with the other specialties and medical students. Scores derived from these checklist items have moderate to high reliability (Cronbach's alpha=.60–.90, inter-rater reliability=.70 to .89).
RESULTS: PE&C skills are highly correlated with RB skills (r=.96, p<.001). On average, however, PE&C are 10% lower than RB skills (mean differential=-10.10%, SD 11.22%, paired t-test=1.97, p=.05). RB and IG are not significantly different (mean=−0.66%, SD 10.16%). The difference between PE&C and RB scores varied significantly by year (F=11.09 df 6, 161, p<.001) ranging from 2.8% lower in 2005 (SD 10.50%) to 21.9% lower (SD 16.49%) in 2007, and by PGY (F= 3.26 df 2, 161, p=.041) with PGY1s PE&C scores on average 12.71% (SD=11.84%) lower than their RD scores, PGY2 s= 8.12% (SD 10.43%) and PGY 3s=9.6% (SD 10.98%). The interaction of year and PGY was not significant. This same overall, albeit more extreme, pattern was found among Emergency Medicine (mean difference= -31.8%, SD 30.4%) and Surgery (mean difference=-53.4%, SD 28.6%) residents and also with 3rd year medical students (mean difference= -48.3%, SD 14.2%).
CONCLUSIONS: Patient education skills are critical to clinical competence in Primary Care and do develop over training although remain consistently lower than relationship development skills. The gap was greatest among PGY1s and decreases during residency suggesting residents either gain skills and/or become efficient enough to accomplish more in a 10-minute case. While this finding can be explained in many ways (e.g. curriculum change, cohort effects, differences in cases, or unreasonable expectations), the PE&C items capture provider behaviors necessary for patients to fully understand and participate in their care–and there is room for improvement.

TRUST AND DISTRUST OF HEALTH CARE INSTITUTIONS AMONG AFRICAN AMERICANS, HISPANICS AND NON-HISPANIC WHITES E. Mendenhall[1]; I. Rolle[2]; A.S. Mcalearney[3]; R.B. Warnecke[2]; C.E. Ferrans[2]; E. Jacobs[4]. [1]Northwestern University, Chicago, IL; [2]University of Illinois at Chicago, Chicago, IL; [3]Ohio State University, Columbus, OH; [4]Stroger Hospital of Cook County & Rush University Medical Center, Chicago, IL. *(Tracking ID # 190265)*

BACKGROUND: African Americans, Hispanics and non-Hispanic whites in the United States are likely to have different levels of trust in health care given differences in their experience of care. Despite the likelihood of these differences, few studies have examined how trust and distrust in health care varies across diverse groups. The objective of this study was to better understand what contributes to trust and distrust of health care institutions and how these contributors might vary across these three racial/ethnic groups.
METHODS: We conducted 17 focus groups: 9 with African American (n=66), 5 with Hispanic (n=38) and 3 with non-Hispanic white (n=13) participants. The numbers of participants differed by racial/ethnic groups because it took fewer participants in the non-Hispanic White group to reach theme saturation. Discussions were audio taped, transcribed and coded for interpretation using grounded theory analysis. Latino focus groups were conducted in Spanish and translated verbatim before transcription.
RESULTS: Across racial groups, institutional trust was fostered by quality of care, physician competence, staff treatment, and care delivery in not-for-profit and teaching hospitals (see Figure). Distrust was cultivated by poor quality of care, poor treatment by physicians and staff, institutional for-profit motivation, and access barriers such as long waiting periods (see Figure). African American and Hispanic respondents discussed discrimination based on cultural, racial and linguistic differences as additional contributors to distrust. African Americans also distrusted institutions that they perceived as experimenting on patients without their consent (see Figure). Across groups trust and distrust in healthcare institutions played a major role in care-seeking behavior.
CONCLUSIONS: Contributors to trust and distrust in health care institutions vary in some important ways across racial/ethnic groups. This variation should be taken into account when working to improve trust in health care institutions.

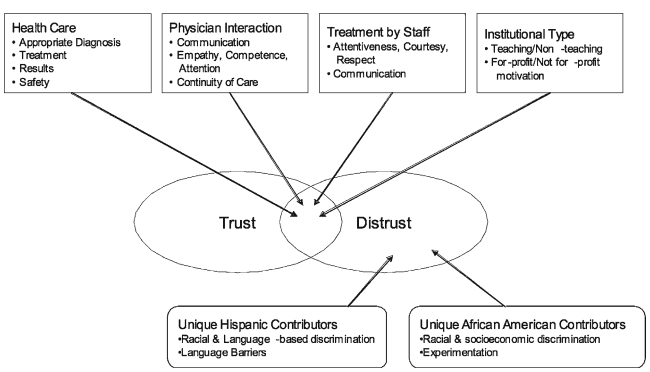

Figure: Factors Influencing Trust and Distrust in Institutions

TUBERCULOSIS SCREENING AMONG IMMIGRANTS IN NEW YORK CITY REVEALS HIGHER RATES OF POSITIVE TUBERCULOSIS TESTS AND LESS HEALTH INSURANCE AMONG AFRICAN IMMIGRANTS H.D. Venters[1]; S. Tay[2]; J.M. Ramirez[2]; M.D. Schwartz[3]; F. Gany[3]. [1]New York University, Manhattan, NY; [2]NYU, New York, NY; [3]New York University, New York, NY. *(Tracking ID # 190702)*

BACKGROUND: African immigrants represent the fastest growing group of immigrants in New York City. Between 1990 and 2000, the number of African-born New Yorkers doubled. Current estimates put the African-born population in New York City (NYC) at 400,000–500,000. One of the primary public health concerns for immigrants arriving from Africa is screening for, and treatment of, tuberculosis (TB). While African immigrants are often over-represented among cases of identified TB, the rate of latent tuberculosis infection (detected by either TB skin tests, PPD, or blood quantiferon) of African-born New Yorkers has not been reported.
METHODS: The New York University (NYU) Center for Immigrant Health, in partnership with the NYC Department of Health and Mental Hygiene and various community-based organizations, has conducted a TB screening program among NYC immigrants that has yielded approximately 8,000 screenings over 8 years. These screenings occur at community centers, religious institutions and schools and are scheduled with the cooperation of community leaders and service organizations. At each screening, personnel from both the NYU Center for Immigrant Health and the NYC Department of Health and Mental Hygiene collect information on persons to be screened, conduct a PPD or blood quantiferon test, and conduct follow-up on persons returning for test results. Persons with positive tests are referred to a NYC TB clinic for further evaluation.
RESULTS: These results, obtained at community centers and religious institutions, have been analyzed to compare African-born adults (n= approximately 350) and adolescents (<19 years of age, n= approximately 350) to their non-African immigrant cohort (n= approximately 4700 adults and <19 years of age). Of those screened, adult gender was 58% female for non-African and 51% for non-African immigrants while for adolescents, the two groups were 45% and 44% female respectively. Mean age (38) and time in the United States (8–9 years) were similar for both African and non-African adult immigrants and adolescent immigrants (14–15 years of age, 2–3 years in the United States). Although 65% of African immigrants in this population reported working (compared to 59% for non-Africans), only 25% reported having any health insurance (as compared to 31% for non-Africans). Prior diagnosis with TB was reported by 2.8% of African and 2% of non-African adults. Latent tuberculosis infection was detected in 49% of African adults and 40% of non-African adults despite lower rates of reported prior BGC vaccination among African adults (39% vs. 52%). In adolescents, non-African immigrants had a higher rate of positive screening tests for TB (30% vs. 25%). Analysis of follow-up data, including clinical outcomes, is ongoing.
CONCLUSIONS: These results indicate a higher prevalence of prior TB exposure among African immigrants in New York City as compared to other immigrant groups. Given the rapid increase in this segment of the immigrant population, as well as apparently lower rates of health insurance among African immigrants, increased public health outreach to the African immigrant community is vital, both for the control and treatment of TB, as well as for other infectious and chronic diseases. Future analysis of these data will shed light on clinical follow-up and treatment outcomes.

TWENTY YEARS OF FOSTERING THE DEVELOPMENT OF CARING, BALANCED PRACTITIONERS FOR THE UNDERSERVED: MAJOR RESULTS OF AN IN-DEPTH SURVEY OF GRADUATES OF A HUMANISTIC PRIMARY CARE RESIDENCY PROGRAM R. Laponis[1]; C. Gillespie[2]; S. Zabar[2]; A.L. Kalet[2]; J.G. Adams[2]; N.R. Shah[2]; M. Anderson[2]; M. Lipkin[2]. [1]University of California, Davis, Sacramento, CA; [2]New York University School of Medicine, New York, NY. *(Tracking ID # 190878)*

BACKGROUND: Maintaining and enhancing humanistic values during and after residency is critical to ensuring high quality care. This study reports on the impact of one primary care residency program's efforts to teach and promote core primary care values and principles in concert with an emphasis on skill development in its graduates over the 20 year history of the program.
METHODS: The NYU Bellevue Primary Care Residency Education Program (PCR), designed in 1982, fosters humanistic values and skills for leadership, education, and scholarship in care for the underserved. It uses intensive learning blocks based on utilizing Lipkin's learner centered, task oriented teaching model, and nestles the learner in a coherent, caring community. Curriculum contained outpatient and inpatient care and consultation, primary care subspecialties (women's health, dermatology, ophthalmology, ENT, geriatrics, and neuromusculoskeletal), learning to teach, and higher order skills taught in depth of psychosocial medicine (PM), evidence based medicine (EBM), and health policy. PM was taught in small groups over ten weeks using real patients, process and video review and focusing on communications, diagnostic and therapeutic skills for common problems. EBM taught critical appraisal, quantitative statistical evaluation, and how to ask clinical questions. Health Policy taught about the health care system and advocacy skills. We assessed impact through an in-depth, comprehensive survey of the 125 graduates. The data include both quantitative and qualitative elements, the former reported here.
RESULTS: Response rate was 85% (104 of 122 reachable). Respondents averaged 39 years of age, 63% were female, 61% had an average of 2 children, and 35% were non-white. After residency, 47% did a fellowship of which 88% were generalist. 87% practice as primary care physicians, 83% teach, 90% work with the underserved, 54% do research, 36% actively advocate and 30% write. PM and EBM were considered the most useful curricular components. Psychosocial and patient-centered skills were the most durable contribution of the residency to their practice. Alumni reported that these skill sets distinguish them from other physicians by allowing them to effectively and compassionately care for patients whom their colleagues felt too uncomfortable or frustrated to care for. Over 70% strongly enjoy their work and 15% felt burnt out (compared to 35% nationally). Graduates leading values included time with family and friends, seeing ambulatory patients, teaching, self maintenance, and leadership.
CONCLUSIONS: A residency education program with a focus on caring skills, using learner centered teaching and a caring community of engaged, scholarly role models dedicated to promoting psychosocial and evidence-based skills and equipping graduates to lead and advocate can produce humanistic doctors who appreciate, develop, and utilize these skills during and after residency. Graduates care for psychosocially complex and difficult patients and have higher levels of job satisfaction and less burnout.

UNDERSTANDING LEARNING STRATEGIES OF MEDICAL STUDENTS ASSOCIATED WITH BETTER ACADEMIC ACHIEVEMENT H. Song[1]; A. L. Kalet[1]; V.M. Ort[1]; M. Hochberg[1]; J. Plass[1]. [1]New York University, New York, NY. *(Tracking ID # 190505)*

BACKGROUND: Highly self-regulated (SR) learners are aware of their academic strengths and weaknesses, have a repertoire of learning strategies, attribute their successes or failures to factors within their control, and have a high sense of self-efficacy as learners. SR is related to academic success especially in computer-mediated learning environments (CMEs), which are being rapidly embraced in medical education. To understand the modifying effect of individual learner characteristics on the effectiveness of web-based medical education we sought to describe the SR behaviors of medical students by experience level and academic achievement.
METHODS: We studied 1st and 3rd year medical students and modified the Self-Regulated Learning Interview Schedule (SRLIS) (validated in children and adolescents) for medical students and CMEs. The SRLIS identifies the presence and frequency of 10 positive (self-evaluation, organizing and transforming, goal setting and planning, seeking information, keeping records and monitoring, environmental structuring, self-consequences, rehearsing and memorizing, seeking social assistance, reviewing records) and 2 negative (reactive- "I just do what I am told" or will power- "I just work harder") learning strategies. Our instrument, delivered as a web-based survey which took 7 minutes to complete, asks students to list learning strategies used in 4 computer-mediated learning contexts: lecture, independent study before or after lecture, preparation of tests, and learning environment. Student responses were grouped, by a trained rater into SRLIS categories. We used a recent anatomy exam score for MS1's (median score 81%) and USMLE Step I Board scores for MS 3's (median score 245) to assess relationship between SR and academic achievement. This project is IRB approved.

RESULTS: We received responses from 101 of 160 (63%) MS1's and 28 of 38 (74%) MS3's. Overall MSs reported using a mean of 6.23 (2.99) positive and .20 (.48) negative learning strategies with only MS1's reporting any negative strategies. Overall higher academic achievers (above the median) reported higher numbers of SR strategy use (7.04 vs. 5.78, p=.03). While medical students used all strategies the most common were seeking additional information (mean = 1.55), reviewing notes and records (mean =.97), and keeping records and monitoring (mean= .85). The least common were imposing self-consequences (mean=.14) and memorizing and rehearsing (mean=.18).
CONCLUSIONS: This description of the SR strategies of medical student in CMEs confirms that awareness and diversity of strategies for learning is associated with higher academic achievement independent of experience. This data has implications for web-based instructional design, remediation, and fostering life long learning strategies all of which are critical components of efficient and effective medical education.

UNDERSTANDING READMISSIONS: HOW MUCH DO WE REALLY KNOW? N. Allaudeen[1]; A. Vidyarthi[1]. [1]University of California, San Francisco, San Francisco, CA. *(Tracking ID # 190815)*

BACKGROUND: Readmission rates are an increasingly important indicator of quality hospital care. Understanding the characteristics of readmissions may help reduce unnecessary readmissions. We evaluated characteristics of readmissions to our general medicine service and reviewed case management readmission assessments to inform efforts to improve the discharge process and reduce avoidable readmissions.
METHODS: We retrospectively reviewed 6 months of readmission data for the general medical service and conducted a focus group of the care coordinators. We analyzed readmission rates, number of days from discharge, payer status, and length of stay. For each readmission, case managers assessed if it was avoidable and the reason for readmission. The focus group posed questions related to readmission characteristics and potential interventions.
RESULTS: Seventeen percent of general medicine patients were readmitted within thirty days. Of the 429 readmissions to the medicine service, 26% were originally admitted to a different service. Nearly half of patients were covered by Medicare; 25% by Medi-Cal or Medicaid; 23% by private insurance. Forty-five percent were readmitted within ten days of discharge. There was no difference in payer status between the groups readmitted within or after ten days of discharge. Average length of stay for initial admission was similar for patients readmitted within ten days (7.8+/-13SD days) versus after ten days (7.1+/-14SD days) (p=0.56). The most common reasons for readmission included failed outpatient treatment (25%), new diagnosis (23%), and normal progression of disease (16%). Case managers categorized only 2% of readmissions as avoidable. From the focus group, several key contributors to readmissions were identified: a culture of dependency on inpatient care, patients' skepticism about outpatient management, and the hospital as a surrogate caretaker for those with limited social support. Strategies for decreasing readmissions focused on increasing patient autonomy, improving outpatient chronic disease management, and bridging care with the county hospital.
CONCLUSIONS: This study identified baseline characteristics of medicine readmissions. Case management assessments revealed several areas for potential interventions to reduce readmission rates. These initial findings will inform our future research, which will analyze readmissions using a multidisciplinary prospective approach.

UNIFIED SPIROMETRY REFERENCE EQUATIONS FOR ADULTS IN A MULTI-ETHNIC US POPULATION E.M. Kiefer[1]; J. Hankinson[2]; R.G. Barr[1]. [1]Columbia University, New York, NY; [2]Hankinson Consulting, Inc., Valdosta, GA. *(Tracking ID # 189883)*

BACKGROUND: The presence and severity of major respiratory diseases are defined by lung function as measured by spirometry compared to "predicted" values based on height, age, gender and race/ethnicity. These "predicted" values are obtained from reference values derived from non-smoking population samples without lung disease. The American Thoracic Society (ATS) recommends separate spirometry reference equations for whites, African-Americans, and Mexican-Americans derived from the National Health and Nutrition Examination Survey (NHANES III). We evaluated statistical justification for race/ethnic-specific spirometry reference equations by evaluating if relationships of age and height to lung function varied across four race/ethnic groups in the Multi-Ethnic Study of Atherosclerosis (MESA)-Lung Study.
METHODS: The MESA-Lung Study assessed pre-bronchodilator forced vital capacity (FVC), forced expiratory volume in one second (FEV1), and forced expiratory volume in six seconds (FEV6) among 3,871 participants age 49–90 years following to ATS standards. We excluded participants without two reproducible tests (n=227), with any smoking history (n=1,919), diagnosed pulmonary disease (n=288), respiratory symptoms (n=284), and BMI>35 (n=70). We modeled equations for FEV1, FVC and FEV6 following the NHANES approach with age, age2, height2, plus three-way interaction terms of each race/ethnic group. We tested the significance of these interaction terms in nested models using the −2 log likelihood test. We defined justification for separate race/ethnic equations by the presence of a statistically significant ($p < 0.05$) interaction term for each race/ethnic group. We examined statistical significance of main effects for each race/ethnicity with the Wald test.
RESULTS: Of 1,083 healthy, never smoking participants with valid spirometry, there were 273 whites (25%), 212 African-Americans (20%), 254 Hispanic-Americans (23%), and 344 Chinese-Americans (32%). We found no interaction term for African-Americans, Hispanic-Americans or Chinese-Americans to be statistically significant for any measure of lung function (FEV1, FVC, FEV6) among men and women. Relationships of age and height to lung function was therefore similar across all four race/ethnic groups, suggesting that a unified reference equation was justified among men and women in this sample. Nonetheless, terms for some race/ethnic groups remained significant in these unified equations. For example, the mean FEV1 was lower for African-American women (−293 mL, [95% CI −358, −229]) and Chinese women (−277 mL, [95%CI −334, −220]) compared to white women. Similar findings were observed for the FEV1 among men, and for FVC and FEV6. Among Hispanics, Mexican-American women had a similar mean FEV1 (51 mL, [95% CI −35, 137]) to white women but Hispanic women of non-Mexican ancestry had a lower mean FEV1 (−145 mL, [95%CI −224, −68]). Similar findings were observed for the FEV1 among men, and for FVC and FEV6.
CONCLUSIONS: Our results suggest that the relationships of age and height to lung function are similar across four US race/ethnic groups in adults age 49–90 years old, obviating the need for separate (different) age and height coefficients for each race/ethnic group. Mean lung function values were lower among African-Americans, Chinese Americans and Hispanics of non-Mexican origin, but not Hispanics of Mexican origin, compared to whites in this large sample of healthy never smokers. Reasons for these mean lower lung volumes require further investigation.

UNMET NEEDS WITHIN ALLOPATHIC THERAPY: PATIENTS SEEKING INTENSIVE MEDITATION M. Goyal[1]; D.M. Levine[1]; J.A. Haythornthwaite[1]; D.M. Becker[1]; F. Hill-Briggs[1]; D. Vaidya[1]; D.E. Ford[1]. [1]Johns Hopkins University, Baltimore, MD. *(Tracking ID # 190078)*

BACKGROUND: It is currently not possible to adequately treat all patients' pain and symptoms. We examined the percentage of patients who reported persistent pain and distressing symptoms despite being followed in chronic disease clinics. Among these, we also examined the percentage who were interested in participating in intensive meditation to ameliorate their symptoms. Intensive meditation may help mitigate pain and symptoms through increased awareness and reduced reactivity.
METHODS: We conducted a cross-sectional anonymous survey among consecutive adult patients in six different chronic disease clinics at Johns Hopkins including Headache, General Rheumatology, Lupus, Chronic Kidney Disease, Renal Transplant Recipients, and Crohns patients. Our sample size is 800 with a response rate of 73%. Subjects were asked how globally symptomatic they were despite ongoing treatment for their health problems, pain over the past 6 months, and how interested they would be in attending an intensive meditation retreat. The retreat was described as a training camp where they would

train 10 hours a day for 10 days continuously. They were also asked how many medicines they were taking and completed the 4 item Perceived Stress Scale. For proportions, we used a one sample test of proportions to obtain 95% confidence intervals. Logistic regression identified subject characteristics that were associated with interest in attending an intensive meditation retreat.
RESULTS: Even for the 57% who were taking five or more medicines, 55% (95% CI, .50 to .60) reported being moderately to extremely symptomatic from their disease and 41% (.36 to .46) reported at least moderate levels of pain (>5 on 10 point scale) for the past 6 months. Overall 39% of respondents were interested in the meditation retreat. Among the 55% who reported being symptomatic, 45% (.39 to .51) reported being moderately to very interested in attending the intensive 10 day meditation retreat. Among those who reported at least moderate levels of pain, 51% (.44 to .58) reported being moderately to very interested in attending the meditation retreat. Patients in lupus, general rheumatology, and headache clinics had the highest proportion of subjects with pain (range 39% to 66%) and global symptomatology (range 50% to 66%). In 5 of 6 clinics, subjects with pain or distressing symptoms reported high levels of interest in meditation (range 35% to 78%) while chronic kidney disease patients reported the lowest levels of interest (range 7 to 8%). In a univariate analysis, all variables except number of medicines were significant in being associated with interest in intensive meditation. We found no significant interactions between medication usage and symptoms, pain, or stress. Our final logistic regression model suggested that female gender (OR 1.6, 95%CI 1.1–2.3), nonworking/ unemployed/ disabled status (OR 1.7, 1.1–2.7), higher education (OR 2.9, 1.9–4.4), higher symptomatology (OR 1.2, 1.0–1.5), higher pain (OR 1.3, 1.0–1.7), and higher levels of stress (OR 1.5, 1.1–2.0) were associated with interest in an intensive meditation intervention.
CONCLUSIONS: A large proportion of patients treated in chronic disease clinics have significant symptoms and pain despite the efforts of their physicians. This indicates a large unmet need for treatment of pain and symptoms. About half of these patients are interested in investing significant time and effort into modalities such as meditation that may give them greater self control.

UNMET SOCIAL SERVICE NEEDS OF HIV-INFECTED PATIENTS IN A MULTI-CENTER COHORT P.T. Korthuis[1]; J.S. Josephs[2]; G. Chander[2]; R. Conviser[3]; K.A. Gebo[2]; -. For The Hiv Research Network[2]. [1]Oregon Health & Science University, Portland, OR; [2]Johns Hopkins University, Baltimore, MD; [3]Retired, Missoula, MT. *(Tracking ID # 189736)*

BACKGROUND: HIV disproportionately affects vulnerable populations. The Ryan White CARE Act has historically supported social services to facilitate engagement in HIV care but funding has decreased. The objective of this study was to assess the prevalence and correlates of unmet need for social services among HIV-infected patients.
METHODS: A cross-sectional sample of 951 HIV-infected patients receiving care at 14 adult HIV Research Network sites were interviewed about social services in 2003. Patients were asked about their need for and receipt of housing, financial, transportation, employment, and legal assistance in the past 6 months. We defined unmet need as self-reported need for services that were not received. We used descriptive statistics to report prevalence and multivariate logistic regression to estimate associations between unmet need and patient characteristics, adjusting for visits and site.
RESULTS: The sample was predominantly male (68%), African American (52%), unemployed or disabled (60%). 10% were uninsured or receiving Ryan White funded HIV care. 53% of 951 respondents reported needing at least 1 social service in the last 6 months. Of these, 86% reported receiving social services. Patients reported needing assistance with housing (18%), financial (25%), transportation (23%), employment (14%), and legal assistance (18%). 30% of respondents reported at least 1 unmet service need, ranging from 34% for transportation to 64% for employment. The table reports need and multivariate associations with unmet need.
CONCLUSIONS: Unmet social service needs remain high among HIV-infected patients. Despite greater need for these services among patients who were African American, disabled, unemployed, or drug users, these groups were at greatest risk of not having them met. Our study suggests the need persists for direct funding of social services to those most vulnerable.

	% Reporting Service Needs	Unmet Need, Adjusted OR (95% CI)
Gender*		
Female	60	Ref
Male	50	0.81 (0.58–1.12)
Race*		
White	42	Ref
Black	59	1.66 (1.07–2.57)
Latino	56	1.54 (0.88–2.71)
Other	50	1.33 (0.55–3.21)
Age*		
< = 45	57	Ref
> 45	48	0.91 (0.66–1.26)
Insurance		
Any	52	Ref
Uninsured/Ryan White	60	3.35 (1.92–5.82)
Illicit Drug Use*		
Never	48	Ref
Former	52	1.04 (0.69–1.56)
Current	58	1.64 (1.09–2.46)
Employment *		
Employed	36	Ref
Retired	53	1.16 (0.66–2.02)
Disabled	56	1.82 (1.17–2.83)
Unemployed	81	7.54 (4.12–13.8)
Disease Severity		
AIDS	53	Ref
Non-AIDS	53	1.09 (0.78–1.51)

*Chi $p<0.05$

UNRAVELING THE RELATIONSHIP BETWEEN LITERACY, ENGLISH PROFICIENCY, AND PHYSICIAN-PATIENT COMMUNICATION R. Sudore[1]; C.S. Landefeld[1]; E.J. Perez-Stable[1]; D. Schillinger[1]. [1]University of California, San Francisco, San Francisco, CA. *(Tracking ID # 190900)*

BACKGROUND: Limited literacy and limited English proficiency are barriers to communication that are common and often co-exist. Prior research has tended to study these barriers in isolation. We examined whether the effects of literacy on physician-patient communication vary with language proficiency or across dimensions of communication.
METHODS: This descriptive study involved ambulatory care patients with diabetes or cardiovascular disease. Data was pooled from three studies performed in two San Francisco Bay Area public hospitals (N=771) with on-site interpreter services. We measured two domains of physician-patient communication using items from the validated Interpersonal Processes of Care instrument: explanatory communication and patient-centered (elicitation) communication. We asked subjects: "In the past 12 months, did you (usually/always) feel confused about your medical care because your doctor did not explain things well?" (explanatory domain) and "did your doctor (rarely/never) let you have a say about what you thought was important?" (elicitation domain). We assessed literacy with the s-TOFHLA (scores 22/36 considered limited). Language categories included: native English-speaker, Spanish-speakers who reported their physicians spoke Spanish (Spanish-concordant), and Spanish-speakers whose physicians did not speak Spanish (Spanish-discordant).
RESULTS: Mean age of subjects was 56 years, 51% had limited literacy, 53% spoke English, 23% were Spanish-concordant, and 24% were Spanish-discordant. Overall, 30% reported poor explanatory communication and 28% reported poor elicitation communication. In multivariate analyses adjusted for demographics and language, subjects with limited literacy vs. adequate literacy were more likely to report poor explanatory communication (OR 1.75; 95% CI, 1.18–2.60) and less likely to report optimal elicitation communication (OR 0.61; 95% CI 0.40–0.91). In stratified analyses, the effect of literacy on communication varied by language status and communication domain. Among English-speakers (n=412), limited literacy was associated with poor communication across explanatory (34% limited literacy vs. 21% adequate, p=.003) and elicitation domains (27% limited literacy vs. 18% adequate, P<.03). Among Spanish-concordant subjects (n=176), limited literacy affected elicitation-type communication only (30% limited literacy vs. 11% adequate, P=.01). Because Spanish-discordant subjects of all literacy levels reported physi-

cian-patient communication as poor, literacy was not associated with either communication domain, P>.05. The relationships between limited and adequate literacy and explanatory communication differed between English-speakers and Spanish-discordant subjects (P for interaction=.03).
CONCLUSIONS: The effect of limited literacy on the quality of physician-patient communication appears to vary with patients' English proficiency, Spanish language concordance with their physician, and by the type of communication process. Among language discordant physician-patient dyads, language barriers may supersede the effects of literacy in impeding communication. These results suggest that future health communication interventions designed to address limited literacy in diverse populations must not only focus on increasing patient understanding and patient-centered communication, but also aim to achieve physician-patient language concordance and/or improve the communication process among physicians, patients, and interpreters.

UNWARRANTED VARIATION IN LOUISIANA: OPPORTUNITIES FOR REBUILDING D. Berkson[1]; K.B. Desalvo[2]; D.E. Wennberg[3]. [1]Health Dialog, Boston, MA; [2]Tulane University, New Orleans, LA; [3]Maine Medical Center, Portland, ME. *(Tracking ID # 189988)*

BACKGROUND: Hurricane Katrina created an unprecedented opportunity to redesign a state health system. To provide an evidence-based foundation for decision-making, we built a state-wide, multi-payer claims data warehouse to assist Louisiana health care leaders with post-Katrina rebuilding and reform efforts.
METHODS: Using data from 2004/5, we created a multi-payor claims Data Warehouse from Louisiana's largest payers. We analyzed the integrated dataset for unwarranted variation patterns in utilization, cost and quality within geographic regions by payer, chronic disease status, and by demographic characteristics. In addition, encounter data for the uninsured from Louisiana's public hospital system (Charity) was analyzed.
RESULTS: The Warehouse included claims for 2.3 million individuals in Louisiana (60% of the population). There were 977,000 Medicaid, 584,000 Medicare, 100,000 dually eligible for Medicaid and Medicare, and 591,000 individuals from Blue Cross Blue Shield of Louisiana. Separate from the Data Warehouse were 200,000 uninsured patients. Average Medicaid expenditures were $3,294, Medicare $6,773, Dual-eligible $23,961, and Private $1,980. 20% of the adult population had 1 or more chronic diseases. Prior to the hurricanes, significant geographic variation in healthcare existed within Louisiana for all types of healthcare services. Effective care (e.g., beta blocker treatment for patients with coronary artery disease) varied by over 40 percent across regions. Preference sensitive care (e.g., back surgery rates) varied by over six-fold across regions. Supply sensitive care (e.g., hospitalizations among chronically ill) varied by over 50 percent across regions. These variations could not be explained by population health status, insurance type, race/ethnicity and gender. Higher costs did not correlate with higher quality. Finally, emergency room utilization rates for the chronically ill uninsured population was extremely high suggesting issues with access to primary care.
CONCLUSIONS: This Data Warehouse allowed the documentation of significant geographic variation in care utilization, cost and quality exists within Louisiana that was not explained by patient race, gender, chronic disease status or payer. The type of care delivered to populations in regions of Louisiana is likely driven by local factors such as: a) The supply and mix of providers and resources (eg hospital beds); b) the idiosyncratic decisions and the cultural environment in which physicians and other caregivers practice. The Data Warehouse, now managed by the Louisiana Health Care Quality Forum, will serve as an important decision-making tool for rebuilding efforts, as well as an ongoing asset to be updated with current data to inform programs and plans to improve health and healthcare in Louisiana as an example for other poorly performing states.

USAGE OF DIGITAL MEDIA AMONGST MEDICAL TRAINEES: PERCEPTIONS ON POLICY AND PROFESSIONALISM J.M. Farnan[1]; J. Higa[2]; J. Paro[1]; S. Reddy[1]; H.J. Humphrey[1]; V.M. Arora[1]. [1]University of Chicago, Chicago, IL; [2]New York Medical College, New York, NY. *(Tracking ID # 190052)*

BACKGROUND: Although use of digital media, such as social networking sites, media sharing, or blogging, has increased in popularity among the millennial generation, medical educators have little guidance on preventing misuse and ensuring standards for professional conduct. This study aims to assess frequency of use of digital media and perceptions regarding misuse and professional standards among varying levels of medical trainees.
METHODS: A 17-item anonymous survey was developed and distributed to first and third year medical students, housestaff and sub-specialty fellows to assess familiarity, usage patterns and standards of conduct. The paper-based survey was developed by three faculty members and one student leader. Familiarity with various forms of digital media [social networking and media share sites, blogs] was assessed using yes/no items. Frequency of usage for routinely used types of digital media was measured on a Likert-type scale: never; 1–2 times/yr; 1–2 times/mo; 1–2 times/week and 1–2 times/day. Perceptions regarding regulation and misuse were also measured on a Likert-type scale ranging from "strongly disagree" to "strongly agree." Descriptive statistics and chi-squared tests were used to describe the association between level of training and familiarity, usage pattern, and perception of regulation/misuse regarding digital media. Multivariate logistic regressions, adjusting for training level, was used to test the effect of frequent use ("superuser" defined as use more than 1–2x per week) on perceptions of regulation and misuse.
RESULTS: 83% (85) first year medical students (M1), 60% (63) third year medical students (M3), 86% (108) new interns (R1), and 77% (58) new resident/fellows (R/F) completed surveys at required orientations in summer 2007. Students, regardless of level of training, are more familiar with both social networking sites (100% $p<0.001$) and blogs (100% M1, 88% M3, 88% R1, 71% R/F; $p<0.001$). In addition, medical students are more likely to post personal information on social networking sites (91% M1, 63% M3, 39% R1, 20% R/F; $p<0.001$). Greater than 60% of all trainees, regardless of level of training, agree that physicians have an obligation to represent themselves professionally in material that is intended for public consumption. Students were more likely to oppose implementation of institutional-based regulation of their personal digital media usage (73% M3, 67% R1, 54% R/F; $p<0.009$) and were less concerned about representation in the public domain (52%M1, 46%M3, 73%R/F; $p<0.001$). Greater than 50% of trainees, regardless of level of training, voiced concerns regarding perceptions of potential employers, colleagues, superiors and patients if they were to view posted content. More frequent usage of digital media was associated with the perception that institution-based regulation of personal use patterns is a privacy infringement (super-user 74% vs. non-super-user 49%; $p<0.001$). However, more frequent users were also more likely to state that physicians should represent themselves professionally (super-user 66% vs. non-super-user 44%; $p<0.003$).
CONCLUSIONS: Medical students have increased familiarity and usage of digital media, particularly social networking sites and blogs. More frequent use is associated with increased opposition to institution-based regulation, but greater support for representing one's self professionally. Educators should be informed about the increasing use of these technologies and their implications for medical trainees.

USE OF "HASTY PHRASES" DURING THE CLINICAL ENCOUNTER: ARE WE VERBALLY CONVEYING A RUSHED ATMOSPHERE TO OUR PATIENTS? K.L. Lundberg[1]; L. Bernstein[1]; S. Higgins[1]; J.P. Doyle[1]. [1]Emory University, Atlanta, GA. *(Tracking ID # 190825)*

BACKGROUND: Medical education is placing a growing emphasis on the development of strong patient-physician relationship-building skills. These skills often focus on creating a comfortable and non-rushed environment throughout the clinical encounter. The purpose of this project was to determine if Internal Medicine (IM) PGY-1 residents are using language during their patient encounters that may convey a hasty or rushed atmosphere.
METHODS: During baseline Objective Standardized Clinical Examinations (OSCE's) conducted during orientation week in 2007, 65 IM PGY-1 residents were videotaped examining 2 different Standardized Patients (SP's), one with acute chest pain and one with fatigue. A single reviewer evaluated each of the 130 encounters for use of hasty phrases. Examples of hasty phrases include: "I'm just going to do a quick physical exam", "I'm just gonna ask a bunch of questions here, quickly" or "I'd like to wash my hands briefly." The number of times a hasty phrase was used was recorded for each part of the clinical encounter. Statements of haste were tallied in each of 4 areas: hand washing, history, physical exam, and wrap-up.
RESULTS: See Table 1. For those residents who used a hasty phrase, the average number of times was 2.5. A hasty phrase was used more than once in 26 (67%) of the fatigue cases and 21 (55%) of the chest pain cases.

CONCLUSIONS: Our data based on SP encounters suggest that a majority of residents use statements of haste during their patient encounters. Residents were most likely to make a statement of haste during the physical exam portion of the encounter. Based on our data, we cannot determine if these phrases are more commonly used in the OSCE setting rather than the real clinical setting. Given the influence of verbal and non-verbal cues on the patient-physician relationship, these statements of haste, if used in the clinical setting, could influence the tone of clinical encounters by conveying a rushed atmosphere to the patient. With increased time pressures occurring in clinical settings, our data suggest there is a need to determine the impact of these phrases on patient satisfaction and raise awareness among medical trainees.

Proportion of PGY-1 Residents Who Use Hasty Phrases (n, (%))

Portion of clinical encounter when hasty phrase is used	All Cases (n=130)	Fatigue Case (n=65)	Chest Pain Case (n=65)
Complete Encounter	77 (59%)	39 (60%)	38 (59%)
History	12 (9%)	7 (11%)	5 (8%)
Physical Exam	68 (52%)	34 (52%)	34 (52%)
Wrap-up	6 (5%)	4 (6%)	2 (3%)
Hand-washing	20 (15%)	8 (12%)	12 (19%)

USE OF BETA BLOCKERS, LIPID LOWERING AGENTS, AND ANGIOTENSIN CONVERTING ENZYME- INHIBITORS BEFORE RECURRENT ACUTE MYOCARDIAL INFARCTION A.B. Olomu[1]; A. Dhoble[1]; A. Siddiqi[1]; K. Burton[1]; D. Oluwole[1]; M.M. Holmes - Rovner[1]. [1]Michigan State University, East Lansing, MI. *(Tracking ID # 190048)*

BACKGROUND: Mortality associated with recurrent acute myocardial infarction (AMI) is significantly higher than with the first AMI. Overwhelming evidence from several randomized control trials reveal that beta-blockers (BB), angiotensin converting enzyme (ACE) inhibitors, and lipid lowering therapy (LLT) decrease the likelihood of recurrent AMI and death in patients with a previous history of AMI. The objective of this study was to examine the rate and predictors of prescription of BB, ACE-inhibitors and LLTs to patients before hospitalization for recurrent AMI.
METHODS: We enrolled and reviewed the charts of 719 patients prospectively identified with acute coronary syndrome (ACS) in five mid-Michigan community hospitals during the period January 2002 to April 2003. This investigation is part of a larger study of outcomes following acute coronary syndrome (ACS) in Michigan. We identified 172 patients with previous history of MI and determined the rate of use of BB, ACE- inhibitors and LLTs before their hospitalization. Multivariate logistic regression was used to assess predictors of these medication prescriptions
RESULTS: Of 172 with history of previous MI, 43.6% (95% CI 0.36–0.51) were on BB, while 35.5% (95% CI 0.28–0.43) and 54.7% (95% CI 0.47–0.62) were on ACE-inhibitors and LLTs respectively at the index admission. Logistic regression analysis revealed a significant interaction between the age, race and BB prescription to patients with previous history of MI. Minority patients older than 60 yrs were significantly less likely to be on BB than older (>60 yrs) white patients (p=0.028, 95% CI 1.27–64.34). No other patient covariates such as gender, history of diabetes, hypertension, and ejection fraction were significant predictors of BB, ACE-inhibitors, LLT prescription.
CONCLUSIONS: A high proportion of ACS patients with previous history of AMI were not taking medications shown to be efficacious in decreasing recurrent AMI and death. Racial disparity in the use of BB still exists among the elderly. Our results suggest that significant opportunities may exist to prevent recurrent AMIs through the increased use of BB, ACE-inhibitors and LLTs.

USE OF EDUCATIONAL GAMES IN RESIDENCY TRAINING: A SURVEY OF US INTERNAL MEDICINE PROGRAM DIRECTORS E.A. Akl[1]; R.A. Mustafa[1]; M.C. Wilson[2]; A. Moheet[3]; H.J. SchüNemann[4]. [1]University at Buffalo, Buffalo, NY; [2]University of Iowa, Iowa City, IA; [3]ViaHealth, Rochester, NY; [4]McMaster University, Buffalo, NY. *(Tracking ID # 190882)*

BACKGROUND: An educational game is defined as a competitive activity with a prescribed setting constrained by rules and procedures. Learning results from peer interaction and feedback in an entertaining and low risk environment. A number of Internal Medicine residency programs have reportedly used educational games as part of their curricula. The objective of this study was to explore the acceptability and current use of educational games among Internal Medicine residency programs in the US.
METHODS: We conducted a national survey of directors of Internal Medicine residency programs in the US. We mailed program directors the initial invitation to participate in the survey in April 2007. We included a non-monetary incentive consisting of a Jeopardy-like game to teach clinical practice guidelines in a Microsoft PowerPoint file format. We sent a follow up mail and a follow up fax respectively 5 and 9 weeks after the initial invitation.
RESULTS: The survey response rate was 51% (195 out of 383). 176 respondents (90%) supported the use of educational games as an educational strategy. 152 (78%) reported using educational games. Types of educational games used included Jeopardy like games (77%) board games (3%) and other types (3%). Respondents reported using educational games as teaching tools (57%), as review tools (54%), and as evaluation tools (4%). Support of educational games was associated with university and military based residency programs, compared to community based programs. The use of educational games was associated with <25% as the percentage of international medical graduates among residents. The use of educational games as teaching tools was inversely associated with the South as the geographical location of the program. The uses of educational games as review and evaluation tools respectively were associated with >25% percentage of international medical graduates among residents and with a female sex of the program director.
CONCLUSIONS: The use of educational games, particularly Jeopardy like games, is popular among US Internal Medicine residency programs. There is a need for rigorous evaluation of the effectiveness of educational games in terms of educational and clinical outcomes.

USE OF INHALED CORTICOSTEROIDS AND THE RISK OF PNEUMONIA IN PATIENTS WITH CHRONIC OBSTRUCTIVE PULMONARY DISEASE- A SYSTEMATIC REVIEW AND META-ANALYSIS A. Amin[1]; S. Singh[2]; Y. K. Loke[3]. [1]Wake Forest University, Winston Salem, NC; [2]Society of General Internal Medicine, Winston Salem, NC; [3]University of Wast Anglia, Norwich, . *(Tracking ID # 189740)*

BACKGROUND: Inhaled corticosteroids are widely used in patients with Chronic Obstructive Pulmonary Disease. Our objective was to determine the risk of pneumonia with the use of Inhaled corticosteroids in patients with Chronic Obstructive Pulmonary Disease.
METHODS: We conducted a systematic review and meta-analysis of Randomized Controlled Trials of Inhaled Corticosteroids in patients with Chronic Obstuctive Pulmonary Disease. Search strategy: We identified relevant trials from Pubmed, Google Scholar, Science Citation Index and Cochrane systematic reviews of inhaled corticosteroids in chronic obstructive pulmonary disease using MESH terms. We also retrieved unpublished company trial reports from the GlaxoSmithKline and Astra Zeneca trial registries. Selection criteria: Randomized controlled trials of more than 6 month's duration, involving fluticasone or budesonide in chronic obstructive pulmonary disease. Included trials had to report on pneumonia adverse events. Data Analysis: we recorded the number of patients with pneumonia, and mortality, and calculated the pooled relative risk (RR) in a fixed effects meta-analysis.
RESULTS: We identified 8 relevant trials covering 11800 patients, ranging from 44 weeks duration to 3 years. For Inhaled Corticosteroid used in combination with long-acting beta-agonist versus long-acting beta-agonist (5 trials), the pooled RR for pneumonia = 1.62 (95% CI = 1.37 to 1.92; p< 0.0001). The Number needed to harm (NNH) per year was estimated at 56. (95%CI: 38–92). There was no significant difference in overall or pneumonia-related mortality. For Inahled corticosteroid alone versus placebo (6 trials), the pooled RR for pneumonia = 1.76 (95% CI = 1.45 to 2.14; p< 0.0001). The NNH per year was estimated at 50 (95%CI 34–90). There was no significant difference in overall or pneumonia-related mortality. We did not find any significant statistical heterogeneity in the above analyses.
CONCLUSIONS: Inhaled corticosteroids significantly increase the risk of pneumonia in patients with Chronic Obstructive Pulmonary Disease, irrespective of whether they are used alone, or in combination with a long-acting beta-agonists.

USING DECISION AIDS IN COMMUNITY-BASED PRIMARY CARE: A THEORY-DRIVEN EVALUATION WITH ETHNICALLY DIVERSE PATIENTS D. Frosch[1]; F. Legare[2]; S. Ochoa[1]; S. Contreras[1]; C.M. Mangione[1]. [1]University of California, Los Angeles, Los Angeles, CA; [2]Laval University, Quebec, Quebec. *(Tracking ID # 189792)*

BACKGROUND: Despite a growing body of evidence supporting the use of decision aids (DAs) to increase patient participation in clinical decision making, little is known about using these tools outside of academically affiliated practices. As interest in dissemination and diffusion of DAs grows, there is a critical need for research to help us understand the barriers and facilitators to integration in clinical practices in the community and the effects of decision aids on patients from diverse backgrounds. The current project focused on solo practitioners, which currently account for 43% of primary care practices in the US.
METHODS: 13 community-based primary care clinics in predominately low-income minority neighborhoods of Los Angeles were recruited into the study using the AMA Masterfile database. Practices received a fixed budget to purchase equipment to show video DAs and project staff worked with practices to find a tailored solution to integrating DAs into the clinical workflow. Patients reviewed DAs in the practice before the consultation with a physician. Patient participants completed theory-based measures assessing attitudes, perceived social norms, self-efficacy and intentions for working with their physician to make a cancer screening decision after reviewing a brochure (n=107) or video decision aid (n=100), but before seeing the physician. A post-questionnaire assessed screening decisions and participant knowledge.
RESULTS: Practices took different approaches to integrating DAs, including showing video DAs in the waiting room using portable DVD players and showing them in private exam rooms or practice staff lounges. Utilization of DAs varied significantly between practices. High utilizing practices were characterized by strong cohesion between physician and staff, used appointments to schedule patients and had a slower overall pace. Most of the patients were African American (37%) or Latino (41%) and had annual incomes below $25k. Patient participants who reviewed a video decision aid had higher knowledge (41% vs. 29% questions correct, $p<.001$) and were more likely to want to be the primary decision-maker (33.4% vs. 15%, $p<.02$). Contrary to our hypotheses, they reported lower perceived social norms (Mean 1.8 vs. 2.5, $p<.01$), self-efficacy (Mean 2.1 vs. 2.5, $p<.01$) and intentions (Mean 1.9 vs. 2.3, $p<.05$) to work with their physicians than participants who reviewed a brochure. Participants who decided against cancer screening reported lower intentions to work with their physician in making a decision (1.8 vs. 2.6, $p<.01$) and were less likely to have spoken with their physician about screening (29% vs. 79%, $p<.01$). The majority of patients (87%) reported that the DA or brochure helped them recognize that a decision needs to be made and most (76%) felt that the tools were helpful in making a decision about cancer screening.
CONCLUSIONS: Community-based primary care practices were able to integrate DAs with varying success. Underserved ethnic minority patients found the decision support tools useful. However, if the goal of decision aids is to encourage shared decision-making with a physician, it will be important to tailor their content in such a manner as to increase relevant behaviors.

USING LAY COMMUNITY HEALTH WORKERS TO INCREASE THE ENROLLMENT AND RECRUITMENT OF MINORITIES IN CANCER CLINICAL TRIALS A. Card[1]; B.R. Sherman[2]; V. Grann[3]; M. Drummonds[4]; M. Mejia[5]; O. Carrasquillo[1]. [1]Columbia University, New York, NY; [2]University of Albany, Rensselaer, NY; [3]Herbert Irving Comprehensive Cancer Center, New York, NY; [4]Northern Manhattan Perinatal Partnership, New York, NY; [5]Alianza Dominicana, New York, NY. *(Tracking ID # 190437)*

BACKGROUND: Numerous groups have called for an increase in the proportion of minorities participating in cancer clinical trials. Our objective was to employ Community Based Particpatory Research principles in a pilot study examining the use of lay community health workers (CHWs) in increasing outreach for cancer clinical trial participation in a minority community.
METHODS: The project was a partnership between two University Centers, one being an NCI designated Comprehensive Cancer Center (HICCC), and two local community based organizations (CBOs). The partners reviewed the existing training curricula and adapted these to their local communities. CHWs completed a tailored two-day training curriculum on the ethics of clinical trials, outreach strategies, and cancer education. Upon completion of this training, CHWs at each CBO decided how best to incorporate cancer outreach into the existing workflow of their regular daily activities. Cancer outreach was tracked using data forms containing demographic information and consent. Basd on existing protocols, the HICCC Recruitment Core subsequently contacted all individuals who had completed the forms and if they agreed, would then place their information in the HICCC enrollment database.
RESULTS: Fifteen CHWs completed the two-part training curriculum. Qualitative feedback of the training sessions showed all CHWs to be very satisfied with the training curriculum and would recommend it to other CHWs. Over a six month period, a total of 374 completed outreach data forms were submitted by the two agencies, with the majority of subjects being either Hispanic (63%) or non-Hispanic Black (29%). Of the 189 outreach forms submitted by one CBO, the HICCC had a follow-up contact rate of 63% of whom 90% agreed to be placed in the enrollment database. Of the 185 data forms by the other CBO, the contact rate was 61% of which 80% agreed to be in the database. In this outreach effort the fifteen CHWs were supported at 5% effort. In contrast, over a similar six month period, a professionally trained HICCC outreach worker at 100% effort can obtain approximately 300 completed outreach data forms with a 70% success rate on contact of which an estimated 90% are entered in the database (approximately 200). Both CBOs felt the cancer education training, clinical research education, and IRB and HIPAA certification for the participating CHWs were important skills that each CBO could leverage in future research partnerships. One CBO continues to include cancer education in their outreach activities.
CONCLUSIONS: Our pilot study shows that community based CHWs can be effective at enrolling minorities into cancer clinical trials. The next step would be a formal randomized control trial comparing traditional outreach approaches versus those led by CHWs and the differences in the populations reached by each approach. In settings unlike the HICCC or those without professionally trained outreach workers, including outreach activity by community based CHWs may be a useful adjunct. Finally, in designing such grant funded programs, it is important to incorporate structures that empower community partners allowing for sustained, workable strategies facilitating a more active health education role within the community.

USING ORGANIZATIONAL ASSESSMENT TO GUIDE QUALITY IMPROVEMENT IN THE AREA OF PATIENT CENTERED COMMUNICATION J. Matiasek[1]; M.K. Wynia[2]; M. Johnson[1]; C.Y. Osborn[1]. [1]American Medical Association, Chicago, IL; [2]University of Chicago, Chicago, IL. *(Tracking ID # 189911)*

BACKGROUND: Effective communication is fundamental to high quality health care, and thus favorable health outcomes. Health care organizations have struggled to effectively communicate with diverse patient populations, particularly those with limited English proficiency (LEP), low health literacy, and different cultural beliefs that have been shown to have poorer health outcomes. Health care organizations should assess their communication performance at the patient, staff, and organizational policy level to identify areas for quality improvement (QI). An organizational toolkit was developed to assist health care organizations in that effort.
METHODS: A national consensus process informed the development of an organizational assessment toolkit to help organizations evaluate 9 communication performance domains: organizational commitment, data collection, community engagement, workforce development, patient engagement, socio cultural context, language services, health literacy, and performance evaluation. The toolkit includes coordinated surveys for patients, clinical staff, and non-clinical staff; an organizational policy evaluation; and optional focus group protocols. Thirteen health care organizations (6 hospitals and 7 health centers) implemented the assessment toolkit and collected data from November 2006 to August 2007. These data were then compiled, analyzed and presented back to each organization in assessment feedback reports.
RESULTS: The 13 health care organizations completed a total of 7,158 surveys from 676 clinical staff (physicians, nurses, social workers, patient educators, and other patient care staff), 553 non clinical staff (reception, billing, laboratory, research, and other non patient care staff), and 5,929 patients. Focus groups were conducted at 6 organizations with 31 patients without LEP, 70 patients with LEP, 39 clinical staff, 37 non clinical staff, and 5 language interpreters. Each organization also had a team of leaders and managers complete a policy evaluation. The

toolkit assessed 9 communication performance domains at 13 organizations, and, as intended, identified organization-specific areas for quality improvement. For example, in the workforce development domain, organizations (N =11) identified the need for more training on health literacy and cross-cultural communication (N=10). Some organizations (N=7) also identified the need for setting training goals, and collecting better feedback on existing training programs (N=5). In the patient engagement domain, organizations (N=10) found they can better help patients understand whom to call with questions. Organizations also identified a need to assist staff in talking with patients about decision making (N=10) and in encouraging patient questions (N=4).
CONCLUSIONS: The organizational assessment toolkit assesses 9 critical communication domains and allows organizations to make evidence-based decisions about resource allocation and quality improvement initiatives.

USING SNAPPS TO FACILITATE THE EXPRESSION OF CLINICAL REASONING AND UNCERTAINTIES: A RANDOMIZED COMPARISON GROUP TRIAL T. Wolpaw[1]; K. Papp[1]; G. Bordage[2]. [1]Case Western Reserve School of Medicine, Cleveland, OH; [2]University of Illinois at Chicago, Chicago, IL. *(Tracking ID # 189898)*

BACKGROUND: Goals of clinical teaching include assessing students' clinical reasoning skills, facilitating and strengthening their development, and providing opportunities for practice and feedback. Yet when medical students present cases to preceptors, they focus mainly on factual information and reveal little about their diagnostic reasoning or uncertainties. Do third-year students who use the 6-step, learner-centered SNAPPS technique for case presentations to family medicine ambulatory care preceptors express clinical reasoning and learning issues more often than students not trained in the technique? SNAPPS stands for: Summarize history & findings, Narrow the differential; Analyze the differential; Probe preceptor about uncertainties; Plan management; and Select case-related issue for self-directed learning (1).
METHODS: A randomized, post-test only comparison group trial was conducted with 64 students to study the effects of the SNAPPS technique for case presentations compared to students receiving a generic method for obtaining feedback from preceptors (controlling for attention) and students following usual & customary clerkship procedures. Implementation combined brief faculty development with more extensive learner development, followed by practice during 4-week family medicine rotations. In the last week, students audiotaped case presentations that were coded for 10 dependent variables organized in 6 outcome categories, corresponding to 6 steps in SNAPPS. Results were analyzed for between group differences (ANOVA for ratio-scaled and Chi Square test for nominal-scaled variables).
RESULTS: 108 students consented to participate. 76 students audiotaped case presentations; 64 had audible tapes. Case presentations per student (3.31, SD 2.10) did not differ among study groups (p=0.13). 66 SNAPPS, 67 comparison, and 82 usual & customary presentations were coded. SNAPPS students outperformed both comparison and usual & customary groups for each outcome category. SNAPPS students took approximately 14% less presentation time to summarize patient findings (effect size=0.69) yet had as many key clinical findings as those in the other two groups. They expressed more than twice as many diagnoses (2.08 vs. 0.81 and 0.77, p<.000; effect size=1.07) and justified diagnostic possibilities over five times more often (1.26 vs. 0.22 and 0.23, p<.000; effect size=1.08). SNAPPS students formulated eight times more questions and uncertainties than comparison students and more than twice as many than usual & customary students (84.38 vs. 10.77 and 33.33, $\chi^2(2)=75.75$, p<.000). They initiated management discussions nearly 30% more often than other groups, (84.84% vs. 56.72% and 53.66%, $\chi^2(2)=17.84$, p<.003). Student-initiated selection of readings only occurred for the students using SNAPPS. SNAPPS presentations were no longer than usual presentations but differed by one additional minute from the comparison group.
CONCLUSIONS: The expression of clinical diagnostic reasoning and uncertainties during case presentations to ambulatory preceptors was greatly facilitated by using the SNAPPS technique. Implementation combined brief faculty development with more extensive learner development. Students can conduct case presentations using a technique that makes each step explicit and gives learners rather than teachers responsibility for ensuring that each step is completed. 1. Wolpaw TM, Wolpaw DR, Papp KK. SNAPPS: A learner-centered model for outpatient education. Acad Med. 2003;78:893–898.

USING THE INTERNET TO TRANSLATE AN EVIDENCE-BASED LIFESTYLE INTERVENTION INTO CLINICAL PRACTICE K.M. Mctigue[1]; M. Conroy[1]; L. Simkin-Silverman[1]; C.L. Bryce[1]; A. Fiorillo[2]; G.S. Fischer[1]; C. Murphy[1]; K. Kelly[1]; C. Milas[1]; T. Bhargava[1]; R. Hess[1]. [1]University of Pittsburgh, Pittsburgh, PA; [2]University of Pittsburgh Medical Center, Pittsburgh, PA. *(Tracking ID # 190635)*

BACKGROUND: Despite guidelines recommending that primary care clinicians screen for obesity and offer intensive counseling interventions to obese adults, few evidence-based programs are accessible. Translation of a validated program to an online format may facilitate lifestyle intervention in a primary care setting.
METHODS: We adapted a well-validated lifestyle curriculum (the Diabetes Prevention Program Lifestyle Balance Curriculum) for online delivery. We evaluated the feasibility of implementation in coordination with primary care, and the potential for weight loss promotion in a pilot study of 50 patients from an urban academic internal medicine practice, enrolled between 11/16/2006 and 2/11/2007. The Virtual Lifestyle Management (VLM) program includes 16 core weekly lessons, then 8 monthly lessons. It incorporates behavioral tools such as email prompts for online self-monitoring of eating pattern, physical activity and weight, and automated weekly progress reports. Participants are supported via electronic counseling. Patients with a BMI of 25 kg/m2 or above, at least one weight-related cardiovascular risk factor, and Internet access were eligible if the referring physician felt that the lifestyle goals were safe and medically appropriate. Here, we report process measures and weight outcomes over 9 months of enrollment. Body weight was assessed every 3 months using calibrated scales. Weight change was analyzed by (a) using a last-observation-carried-forward (LOCF) approach, and (b) determining weight change among those with data available at 9 months +/- 2 weeks from their enrollment date.
RESULTS: Participants were primarily female (76%), with an average age of 51.94 (SD 10.82), and BMI of 36.8 (SD 6.8). At an average of 273.42 (SD 24.95) days following enrollment, 50% of participants had logged into VLM within the last 30 days; 60% had completed at least 10 lessons and 38% had completed the 16 core lessons. The LOCF approach to 9-month weight data showed an average weight change of −5.53 (SD 7.63) kg. Among the 34 participants with weight data in the 9-month window, average change was −7.13 (SD 8.73) kg, and 38% had lost at least 7% of their body weight.
CONCLUSIONS: An Internet-based lifestyle intervention can be incorporated into primary care practice, and may facilitate the integration of evidence-based lifestyle advice with clinical care. Among primary care patients with weight-related co-morbidities, prolonged participation was common, and at least a quarter of the original sample showed clinically significant weight loss at 9 months of follow-up.

USUAL SOURCE OF CARE FOR UNINSURED ADULTS L. Hoilette[1]; A. Gebremariam[1]; M.M. Davis[1]. [1]University of Michigan, Ann Arbor, MI. *(Tracking ID # 190518)*

BACKGROUND: Emergency department (ED) crowding, which has worsened in recent years, is often attributed to increasing numbers of individuals who use the ED as a usual source of care (USC) and/or have no health insurance. National programs such as the President's Health Center Initiative, launched in 2002, have attempted to increase access to primary care and reduce reliance on the ED as a USC. The current proportion of uninsured non-elderly adults who identify the ED as a USC, and whether this proportion has changed over time, has not been assessed.
METHODS: Retrospective secondary data analysis of adults aged 18–64 years, using the 2002 and 2006 National Health Interview Survey (NHIS). The NHIS is an annual nationally representative in-person survey of approximately 40,000 households. Questions regarding health care access and health care utilization were used to determine the proportion of uninsured adults who reported a specific USC or no USC. Results were weighted to reflect national estimates.
RESULTS: As the number of uninsured non-elderly adults increased nationally from 2002 to 2006, proportions of uninsured adults who identify the ED as a USC did not change significantly: 3.5% in 2002 (weighted n= 1,018,179) vs.3.1% in 2006 (weighted n=1,108,446) (Table). Moreover, the proportions of uninsured adults without any USC increased over the same time period, reflecting a shift away from private offices as a USC (Table).
CONCLUSIONS: With increasing numbers of uninsured non-elderly American adults in recent years, the problem of EDs as usual sources

of care persists. Even more concerning, almost one-half of uninsured non-elderly adults now report no USC. These data indicate limitations of current initiatives to improve access to health care for uninsured adults.

Usual Source of Care for Uninsured Adults aged 18–64 – NHIS, 2002 & 2006

Uninsured	No usual source of care % (95% CI)	Clinic/ Health Center % (95% CI)	Private Office % (95% CI)	Emergency Department % (95% CI)
2002 (weighted n= 31,000,000)	39.9 (38.0–41.8)	22.1 (20.5–23.7)	34.5 (33.0–36.3)	3.5 (2.9–4.3)
2006 (weighted n= 37,000,000)	44.1 (41.8–46.4)	22.7 (21.1–24.4)	30.1 (28.1–32.2)	3.1 (2.5–3.9)

UTILITY OF LOW DOSES OF SINGLE-PILL AMLODIPINE BESYLATE/ ATORVASTATIN CALCIUM IN THE CONTROL OF CONCOMITANT HYPERTENSION AND DYSLIPIDEMIA: RESULTS OF A POOLED ANALYSIS OF 2572 PATIENTS R.D. Feldman[1]; P. Marques Da Silva[2]; R.C. Blank[3]; S. Erdine[4]; H. Shi[5]; R.A. Moller[5]; I.M. Schou[6]. [1]The University of Western Ontario, London, Ontario; [2]Hospital de Santa Marta, Lisbon,; [3]Presbyterian Hospital, Charlotte, NC; [4]Istanbul University, Istanbul,; [5]Pfizer Inc, New York, NY; [6]Pfizer Australia, Sydney, New South Wales. *(Tracking ID # 189752)*

BACKGROUND: Many patients with hypertension and dyslipidemia are not at their recommended blood pressure (BP) and low-density lipoprotein cholesterol (LDL-C) goals. This analysis assessed the efficacy of the low doses of single-pill amlodipine/atorvastatin (amlo/atorva; 5/10, 10/10 mg) and the incremental benefits observed with dose uptitration.
METHODS: The pooled results of GEMINI-US, GEMINI-AALA, JEWEL 1, and JEWEL 2 were analyzed. In these 14–16-week, open-label studies, amlo/atorva dose was electively titrated across the full dose range (5/10–10/80 mg); this analysis focused on the low doses (5/10, 10/10 mg). The primary endpoint was attainment of both BP and LDL-C goals (study-specific goals).
RESULTS: Of a total of 5114 patients, 2572 received amlo/atorva 5/10 or 10/10 mg at the start of the study. For this subgroup, mean baseline BP was 152/90 mmHg and LDL-C was 130 mg/dL. At study end, BP and LDL-C goal attainment rate was 64% for patients on 5/10 mg only, 52% for those on 10/10 mg only, 43% for those who uptitrated from 5/10 to 10/10 mg, and 50% for those who uptitrated from 5/10 or 10/10 mg to >10/10 mg. Uptitration from 5/10 to 10/10 mg reduced BP by a mean of 9.7/5.2 mmHg; incremental BP/LDL-C changes are shown in the Table. Adverse event-related discontinuations were similar for patients on 5/10 mg only (3.7%), 10/10 mg only (2.9%), those who uptitrated from 5/10 to 10/10 mg (4.8%), and those who uptitrated from 5/10 or 10/10 mg to higher doses (3.0%).
CONCLUSIONS: Amlo/atorva 5/10 and 10/10 mg provided large reductions in BP and LDL-C, helping approximately half of the patients to reach both goals (comparable to overall study). This single-pill combination therapy therefore simultaneously controls 2 major factors that contribute to cardiovascular risk.

	Amlo/atorva dose							
	5/10 mg only (n=1139)		5/10 to 10/10 mg (n=686)		10/10 mg only (n=173)		5/10 or 10/10 to > 10/10 mg (n=574)	
	SBP/DBP (mmHg)	LDL-C (mg/dl)	SBP/DBP (mmHg)	LDL-C (mg/dl)	SBP/DBP (mmHg)	LDL-C (mg/dl)	SBP/DBP (mmHg)	LDL-C (mg/dl)
Baseline, mean	149.3/89.6	127.4	155.1/91.2	123.5	153.3/90.4	127.5	151.1/90.9	144.3
Last reading prior to uptitration, mean			142.9/85.0				136.9/83.3	117.3

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(continued)

	Amlo/atorva dose							
	5/10 mg only (n=1139)		5/10 to 10/10 mg (n=686)		10/10 mg only (n=173)		5/10 or 10/10 to > 10/10 mg (n=574)	
	SBP/DBP (mmHg)	LDL-C (mg/dl)	SBP/DBP (mmHg)	LDL-C (mg/dl)	SBP/DBP (mmHg)	LDL-C (mg/dl)	SBP/DBP (mmHg)	LDL-C (mg/dl)
Change from baseline to uptitration, mean	–	–	−12.5/−6.2	−32.9	–	–	−14.1/−7.7	−26.7
Study end, mean	126.2/76.7	84.3	133.2/79.7	83.0	130.4/78.4	82.6	129.2/78.7	94.5
Change from uptitration to study end, mean	–	–	−9.7/−5.2	−6.1	–	–	−7.7/−4.6	−23.0
Change from baseline to study end, mean	−23.0/−12.9	−43.3	−22.0/−11.5	−40.3	−23.1/−12.1	−46.0	−21.8/−12.2	−49.3

UTILIZING PEER SUPPORT THROUGH GROUP APPOINTMENTS TO IMPROVE DIABETES CARE IN AN UNDERSERVED POPULATION C. Liu[1]; D. Lee[1]; L. Henault[1]; A. Ash[1]; P.K. Davidson[1]; E.M. Hylek[1]. [1]Boston University, Boston, MA. *(Tracking ID # 189661)*

BACKGROUND: The prevalence of diabetes is increasing, particularly among minority populations. Diabetic complications occur with greater frequency in patients who are non-white and have lower economic and educational status. The age-adjusted mortality rate related to diabetes is twice as high in black versus white (48.3 versus 23.4) individuals[1]. Sustained glycemic control remains a challenge. We studied the efficacy of group appointments in improving diabetic control among ethnically diverse and economically disadvantaged patients. Perceived patient benefits of this model include increased coping skills, peer interaction, self-help, access to providers, and improved care.
METHODS: Patients with diabetes were invited to participate in a series of biweekly group visits with 10 to 12 participants over a 6-month period. Interactive sessions were led by a multidisciplinary team comprised of a nurse, pharmacist, psychologist, and nutritionist. Individual patient evaluation and management was conducted at each visit by a physician. Content included kitchen demonstrations and strategies to maximize medication adherence, transitioning to insulin, coping with chronic illness, and how to incorporate healthier habits into lifestyle changes. Patients also identified barriers to self-management. For patients who attended 2 or more sessions, HgbA1c measurements were compared during the year immediately prior to enrollment (usual care) and 6–12 months after the last class attended.
RESULTS: Between November 2003 and December 2006, 178 English speaking patients with diabetes participated and 145 (81%) attended 2 or more group visits. The mean age was 57 years, 64% were female, 83% were African American, and 80% had either Medicaid or Medicare as their primary insurance. Hypertension was highly prevalent (78%) and 67% of participants had a BMI≥30. The mean entry HgbA1c was 8.9%. Stress was reported by 49% as the most significant challenge to self-management (table). The majority of patients had at least 1 year of usual care prior to enrollment. Of the 145 patients, 139 (96%) had HgbA1c values available within 6 to 12 months of the last session attended. A sustained decrease in mean HgbA1c was found: 8.9% to 7.8% at the end of the study. For the 57% of patients whose entry HgbA1c was ≥8.0% (mean 10.5%), the sustained improvement was even more significant: 10.5% to 8.3%.
CONCLUSIONS: Patient participation in group visits focused on diabetes care resulted in sustained decreases in HgbA1c for at least 6 months to 1 year after completion. This model of care reinforces principles of self-management through repetitive content and peer interaction and support that are not easily attainable with traditional care. Coping skills are a key feature. This model of diabetes management may be particularly beneficial to patients with seemingly intractable glycemic control, especially for those patients who are from

underserved populations. Further study is warranted on the effectiveness of this model in improving other health outcomes important in diabetic patients, such as blood pressure, weight, and LDL cholesterol. [1]Boston resident deaths, Massachusetts Department of Public Health, Census 2000, U.S. Department of Commerce

Patient reported barriers to diabetes self management

	N	%
Stress	71	49
Medication adherence	37	26
Diet	91	63
Excercise	91	63
Weight	88	61

VALUE OF A LONGITUDINAL CLINIC EXPERIENCE: A SURVEY OF RESIDENT PERCEPTIONS AT A LARGE CANADIAN INTERNAL MEDICINE PROGRAM K.A. Locke[1]; K. Tzanetos[1]; K. Imrie[1]; S.W. Hwang[1]. [1]University of Toronto, Toronto, Ontario. *(Tracking ID # 190150)*

BACKGROUND: In Canada, the practice of general internal medicine includes both hospital-based care and consultative outpatient care. Longitudinal clinics are a universal feature of Internal Medicine training programs in Canada, but concerns have been raised regarding scheduling conflicts created by these clinics and the perception that trainees do not value longitudinal clinic experiences. The objective of this study was to assess internal medicine residents' perceptions of the value of a longitudinal clinic experience at a large Canadian training program.
METHODS: The University of Toronto Internal Medicine training program's longitudinal clinics, sponsored by the division of General Internal Medicine, were the setting for the study. We developed a survey, using group consensus, focused on PGY1 and PGY2 residents' perception of the relative value of this longitudinal clinic compared with other 'block' type subspecialty clinics. The survey was administered by e-mail over 3 weeks with 2 reminders in April, 2007.
RESULTS: Responses were received from 66 of 105 (63%) of residents. 70% of residents said that the longitudinal clinic was a significant positive element in their development as ambulatory practitioners. This result correlated best with attitudes toward the value to referring physicians of residents' patient care, as well as various aspects of improvement in knowledge and skills in ambulatory practice ($p<0.05$). The key areas of benefit from the experience were: Knowledge and skill in managing hypertension, diabetes, coronary artery disease, and congestive heart failure; a mentoring and collegial relationship with supervisors and peers; the ability to learn communication and counselling skills; development of time management skills; the ability to follow their own patients (particularly after hospital discharge); and the 'break' from other rotations that the clinic affords. Compared with block subspecialty clinics, the longitudinal experience was strongest in promoting skills in solving undifferentiated problems, undertaking preventive care, advocating for patients, prioritizing problems, and taking responsibility for patient management. Important detractors from the experience included stress related to simultaneous commitment to ward and office, and the perceived loss of learning time on the ward. Suggested improvements to the clinic included an increased emphasis on observation of clinical skills, and more structured and regular feedback on learner performance.
CONCLUSIONS: In the Canadian setting, longitudinal clinics in GIM have important benefits not captured by block subspecialty clinics in developing knowledge, skills and attitudes necessary for successful independent practice in Internal Medicine. This survey of resident perceptions describes important aspects of a strong longitudinal ambulatory experience which contribute to its value. These elements represent unique opportunities to strengthen and develop longitudinal clinics in Internal Medicine training programs.

VARIATION IN DIABETES PREVALENCE BETWEEN ASIAN ETHNIC GROUPS A.L. Diamant[1]; S. Babey[1]; T. Hastert[1]. [1]University of California, Los Angeles, Los Angeles, CA. *(Tracking ID # 190572)*

BACKGROUND: The cost of diabetes continues to increase in this country, both the human and financial costs, as the prevalence of diabetes continues to rise among all racial/ethnic groups. Even among Asians with the lowest prevalence the proportion of people with the diagnosis is increasing, although little is known about the variation in diabetes prevalence between Asian ethnic groups.
METHODS: California has the greatest proportion of Asian Americans in the country. Using data from the 2001, 2003 and 2005 California Health Interview Surveys we studied the variation in prevalence of diabetes between Asian ethnic groups: Chinese, Filipino, Korean, Japanese, Vietnamese, South Asian, and Other Asians (predominantly Cambodians) using bivariate and multivariate logistic regression. We assessed the impact of Asian ethnic group on having a known diagnosis of diabetes controlling for age, gender, educational attainment, income, insurance status, years lived in the U.S. and body mass index.
RESULTS: Japanese(10.6%) have the highest prevalence followed by Filipinos (8.1%), Vietnamese (5.8%), Koreans (5.7%), Other Asians (4.5%), Chinese (4.1%) and South Asians (4.0%) ($p<0.001$). The prevalence of obesity also varies between Asian ethnic groups with the highest Controlling for sociodemographic co-variates there is significant variation in the odds of having diabetes between the Asian ethnic groups. However, when BMI is added to the model only being Filipino among Asian ethnic groups is associated with a higher odds of having a diagnosis of diabetes (OR 2.11 95% CI 1.26, 3.57), while overweight (OR 1.98 95% CI 1.32, 2.97) and obese (OR 2.34 95% CI 1.29, 4.25) also have positive odds of having a diagnosis of diabetes.
CONCLUSIONS: The prevalence of diabetes varies between Asian ethnic groups and is strongly associated with rates of obesity although BMI does not explain completely the variation in prevalence. As programs to combat diabetes and obesity are developed cultural differences should be taken in to consideration. Research assessing the health of Asian populations should study Asian ethnic groups as much as possible, rather than using a composite of all Asians.

VICTIMIZATION BY A KNOWN ASSAILANT IS ASSOCIATED WITH DELAY TO PRESENTATION FOR CARE AFTER SEXUAL ASSAULT J.S. Mccall-Hosenfeld[1]; J. Liebschutz[2]; K.M. Freund[2]. [1]VA Boston Healthcare System, Boston University, Boston, MA; [2]Boston University, Boston, MA. *(Tracking ID # 189516)*

BACKGROUND: Primary care providers commonly see rape survivors. Few rape victims seek immediate medical attention. Many who present for post-assault care do so after considerable delay, associated with decreased efficacy of postexposure prophylaxis for HIV and emergency contraception, and compromised prosecution of sexual offenders. Using data from the Massachusetts Sexual Assault Nurse Examiner (SANE) program, we examine the effects of assault and victim characteristics on time to presentation after sexual assault.
METHODS: Cross-sectional data were collected during forensic exam for all patients presenting to 24 SANE hospitals in Massachusetts between 7/03 and 6/05. Data included patient demographics, assailant information, and assault characteristics including surroundings, verbal threats, voluntary or involuntary use of intoxicants, or severe violence (any of the following: beating, physical restraints, burns, bites or use of a weapon). Subjects reporting male sex, age < 12 or >60, or race other than white, black or Hispanic were excluded. Race was dichotomized as white versus black/Hispanic; age as teenage (12–17) versus adult (18–59); and assailant status as stranger versus known (family member or date). A Cox proportional hazards model described independent factors predicting delayed presentation for post-assault care. Covariates included age, race and variables with $p<0.10$ in bivariate analyses.
RESULTS: 535 subjects presented over two years; 94% (502) were women; 436 met eligibility criteria. Based on our data, the incidence of rape, and census data for Massachusetts, only 10.5% of all female sexual assault victims in Massachusetts presented for post-assault care. The mean age was 25 (+/- 10) years. 70% were white; 15% Hispanic and 14% black. 64% reported that the assault took place in a home. 55% were assaulted by a known assailant. 97% reported that their assailant had penetrated a body cavity (mouth, vagina or anus) and 98% reported ejaculation during the assault. 14% reported the assailants wore a condom. 30% reported verbal threats, 17% reported intoxication, and 46% were exposed to severe violence during the assault. The mean time from onset of assault to presentation was 23 +/- 23 hours, with 95% presenting within 72 hours of the assault. In bivariate analyses, a known assailant was associated with delay versus

a stranger assailant (mean time 25 versus 20 hours, p=0.03). Severe violence was associated with earlier presentation (mean time 20 hours versus 25 hours for subjects not reporting severe violence, p=0.04). Race, age, multiple assailants, assault surroundings, condom use, intoxication, penetration, and ejaculation were not significantly associated with time to presentation. In multivariable analysis, a known assailant remained associated with delay to presentation, (HR=1.3, 95%CI=1.02, 1.6); no other factor remained significant.
CONCLUSIONS: Among women who present for exam following sexual assault, most do so expeditiously. However, the proportion of rape victims who present for post-assault emergent care is alarmingly low. If an assailant is a family member or date, a woman is likely to delay post-assault care. These data reinforce the importance of routine screening for intimate partner violence (IPV) by primary care physicians. Many rape victims in primary care may have never consulted a physician about their assault. Patients who screen positive for IPV deserve further education that sexual assault, even by someone known, is a crime.

WARFARIN FOR ATRIAL FIBRILLATION IN COMMUNITY-BASED PRACTICE A.J. Rose[1]; A. Ozonoff[2]; L. Henault[2]; E.M. Hylek[2]. [1]Bedford VAMC, Bedford, MA; [2]Boston University, Boston, MA. *(Tracking ID # 189855)*

BACKGROUND: Observational studies of anticoagulation for atrial fibrillation (AF) have not adequately examined the management of warfarin in community practice. While time in therapeutic INR range (TTR) is used to assess quality of oral anticoagulation in many studies, little is known about the distribution of TTR in populations or in special groups such as patients new to warfarin or patients with low target INR values. While consensus guidelines recommend that all patients test INR at least every 28 days, evidence for this recommendation is lacking. Finally, the effect of interruptions of warfarin for scheduled procedures on TTR is not known. This study aimed to address these issues by describing INR control in a large cohort of patients with AF anticoagulated in community practice.
METHODS: Our prospective cohort study included patients from 101 community-based practices from 38 states in the United States. Patients were invited to participate in our study by letter or at a routine appointment, and gave informed consent. Data collected included demographics, comorbidities, warfarin doses, anticoagulation management notes, and INR values. Patients with low INR target ranges (upper bound below 2.8) and patients new to warfarin were identified from the anticoagulation clinical record. Outcomes included TTR, major hemorrhage, and stroke/systemic embolus.
RESULTS: We enrolled 3396 patients anticoagulated for AF. Mean TTR for the cohort was 66.5%, but varied widely among patients; 37% of patients had TTR above 75%, while 34% of patients had TTR below 60%. The 127 patients with low target INR ranges spent 43% of time with an INR below 2.0, compared to 19% for patients with normal target ranges (p<0.001). 165 patients were new to warfarin; their mean TTR was 58% vs. 68% for prevalent warfarin users (p<0.001), and their INR control remained different from that of prevalent users even into their sixth month of therapy (54% vs. 62% of INR values in range in month 6). In the overall cohort, more frequent INR testing was associated with reduced TTR (p<0.001); patients whose interval between tests was the longest (>28 days, 21% of patients) had a mean TTR of 76%. Patients with low INR values within 14 days of a procedure (n=425) had lower TTR than all others (62% vs. 67%, p<0.001); after deleting INR values within 14 days of a procedure, there was no difference (67% vs. 67%, p=0.73). Our cohort had an incidence rate of 1.90 major hemorrhages and 1.00 strokes/systemic emboli per 100 patient-years.
CONCLUSIONS: Mean TTR in our cohort was high (66.5%), similar to that achieved in randomized trials, but the distribution of TTR among individual patients was wide. Patients new to warfarin have persistent difficulty stabilizing their INR control, even through six months of therapy. Patients with low INR target ranges spend 43% of time below an INR of 2.0; while some consensus guidelines recommend low target ranges for patients perceived to be at elevated risk for bleeding, patients may not be well-served by such management, and prospective studies are needed. Clinicians in our study were able to successfully identify patients who can safely test INR less frequently than the guideline-recommended minimum interval of 28 days. Deleting INR values within 14 days of a procedure improves the accuracy of TTR as a measure of the quality of anticoagulation care. Our results inform the management of warfarin for AF and refine our understanding of the TTR measure.

WEIGHT LOSS AFTER BARIATRIC SURGERY IMPROVES BUT MAY NOT RESOLVE OBSTRUCTIVE SLEEP APNEA D.L. Greenburg[1]; C.J. Lettieri[2]; A.H. Eliasson[2]. [1]Uniformed Services University, Bethesda, MD; [2]Walter Reed Army Medical Center, Washington, DC. *(Tracking ID # 189871)*

BACKGROUND: Obstructive sleep apnea (OSA) and obesity are mutually exacerbating conditions. Some publications champion bariatric weight loss as the definitive treatment of choice for OSA in morbidly obese patients. However, the therapeutic effect of surgically promoted weight loss in OSA is controversial. We sought to clarify the impact of bariatric weight loss on OSA, hypothesizing that despite substantial weight loss and reductions in the respiratory disturbance index (RDI) many individuals will have persistent OSA necessitating treatment.
METHODS: Prospective cohort study of consecutive patients with excessive daytime somnolence referred for sleep evaluation prior to bariatric surgery from 2003–2006. Polysomnography was obtained prior to and one year following bariatric surgery. Presence and/or severity of OSA was determined using the RDI with values of 0–4 considered normal and values of 5–14, 15–30, and >30 considered consistent with mild, moderate, and severe OSA, respectively. We compared the effects of surgical weight loss on the body mass index (BMI), the RDI, and continuous positive airway pressures (CPAP) required to ablate apneic events. We used multivariate linear regression to identify predictors of OSA severity following weight loss. Multivariate logistic regression was used to identify predictors of compliance with CPAP therapy postoperatively.
RESULTS: Twenty-four individuals were enrolled. Mean age was 47.9± 9.3 years and 75% were women. At baseline all patients had OSA. Most (n=17) had severe OSA. Surgical weight loss reduced the BMI from 51.0± 10.4 to 32.1±5.5 kg/m2 (p<0.001) and reduced apnea severity as measured by the RDI from 47.9±33.8 to 24.5±18.1 events/hour (p< 0.001). CPAP requirements dropped in all individuals (11.5±3.6 to 8.4± 2.1 cmH2O; p=0.001). However, 23 of 24 (96%) subjects still met diagnostic criteria for OSA. Most patients continued to have either moderate (n=10; 41.7%), or severe (n=7; 29.2%) disease. The most important predictor of the RDI at follow-up was the RDI at baseline (ß-coefficient=0.777, R2=0.603). Compliance with CPAP postoperatively was poor and was used by only 5 (22%) patients with persistent OSA. All patients with persistent OSA snored during follow-up polysomnograph. However, most patients (n=17, 71%) reported subjective resolution of snoring. Individuals who denied snoring were much more likely to have discontinued CPAP than individuals who were aware of their snoring (OR=10, 95%CI=1.22–81.8).
CONCLUSIONS: Although surgical weight loss can significantly reduce a patient's RDI, most patients continue to have moderate or severe OSA. A patient considering bariatric surgery should be counseled that surgical weight loss is not likely to cure OSA and that treatment may need to be continued postoperatively. Subjective resolution of snoring may identify individuals with persistent OSA who are at risk for premature discontinuation of CPAP therapy.

WEIGHT PERCEPTION AND RISK OF OBESITY-RELATED DISEASE IN A LOW-INCOME, URBAN PRIMARY CARE POPULATION M. Huizinga[1]; I. Scarinci[2]; K. Cavanaugh[3]; B.M. Beech[3]. [1]Vanderbilt University Medical Center, Nashville, TN; [2]University of Alabama at Birmingham, Birmingham, AL; [3]Vanderbilt University, Nashville, TN. *(Tracking ID # 190455)*

BACKGROUND: Obesity is one of the most common chronic diseases. In addition to biological factors, knowledge and perceptions of weight likely influence the development of obesity. This study describes the weight perceptions and perceived risk of obesity-related disease in a low-income, urban population.
METHODS: This is a cross-sectional study of participants recruited from 4 community and faith-based clinics in Memphis, TN, from January 2000 to November 2001. Participants were recruited after completing a medical exam and were asked to participate in a survey about their medical history and perceptions. Weight and height were collected by self-report. Data were analyzed using chi-squre or t-test, as appropriate.
RESULTS: Over 5000 participants completed the survey (n=5073). The age range of the clinics was 26 to 84. Participants were predominately female (85%), African American (84%), and had less than a high school

education (30%). The mean BMI was 30.2 ¡À 8.0; 24% were overweight (BMI 25-<30) and 51% were obese (BMI¡Ý30). Of those that were overweight, 50% accurately perceived themselves as above a healthy weight; 84% of those obese accurately perceived themselves weight as above a healthy weight. Overweight and obese participants with an accurate perception of their weight were more likely to believe that their weight may cause an adverse health condition (overweight: 15% vs. 5%; obese: 36% vs. 10%; p<0.001 for both groups). However, the majority of overweight and obese participants did not believe their weight would cause an adverse health condition (overweight 90%; obese 68%). Forty percent of overweight or obese participants who did not believe their weight would cause an adverse health condition had at least one obesity related co-morbid illness (diabetes 10%, hypertension 30%, hyperlipidemia 19%, all three 3.4%).
CONCLUSIONS: In this population of patients at community health clinics, half of the overweight patients did not have an accurate perception of their weight. Overweight and obese patients underestimated their risk of an adverse health condition related to their weight; those who did not accurately perceive their weight were more likely to underestimate their risk. Underestimation of risk was present despite having at least one obesity related chronic disease. Providers should be aware that patients may not recognize the relationship between their weight and health status. Further work is needed to understand the role of patient awareness of obesity and its related risk on future health outcomes.

WHAT ARE THEY DOING? PROVIDER VARIATION IN TREATMENT INTENSIFICATION FOR ELEVATED BLOOD PRESSURE EVENTS. T. P. Hofer[1]; M.M. Hogan[2]; M.L. Klamerus[3]; E.A. Kerr[4]. [1]VA HSR&D Center for Excellence & University of Michigan, Ann Arbor, MI; [2]Ann Arbor VAMC Center for Practice Management and Outcomes Research, Ann Arbor, MI; [3]Ann Arbor VA Center for Clinical Management Research, Ann Arbor, MI; [4]Ann Arbor VA COE & University of Michigan, Ann Arbor, MI. *(Tracking ID # 190899)*

BACKGROUND: We sought to define how providers vary in their likelihood of changing blood pressure (BP) treatment when faced with a patient with an unmet treatment threshold.
METHODS: We enrolled 1175 diabetic patients of 92 primary care providers (PCPs) in nine Midwest VA facilities if their lowest triage BP prior to their PCP visit was>=140/90. Treatment change (defined as medication change or scheduled follow-up for BP within 4 weeks) was determined by a post visit provider survey and chart review. Providers completed a baseline survey before enrollment including a scenario question about how long they would wait to recheck a blood pressure for a patient with an elevated BP. We also tracked whether providers chose to repeat blood pressure measurements done by nurses at triage. Using three level models of patients within PCP and site, we examined the variability in provider rates of treatment change (N=1100 with complete data).
RESULTS: 559 (51%) patients with elevated BP at triage did not receive a treatment change. Controlling for the visit triage BP, prior SBP, patient age, number of chronic problems, and the total HTN medication burden, 12% of the variance in treatment change is due to the individual provider and 2% to the clinic. Providers varied in both their overall rate of treatment change (O.R. 0.49 for providers 1 s.d. below the median provider) and their probability of treatment change as a function of the triage SBP (an additional O.R. of 1.3 per 10 mm Hg increase in SBP for providers 1 s.d. above the median provider). A 25% reduction in odds of treatment change was seen for higher BP goals (per 10 mm Hg) and longer periods of times that providers were willing to wait to recheck an elevated BP (for each 2 weeks) and together these variables accounted for about 25% of the provider variability (likelihood ratio chi-squared 20.84, p=.008). However, at the same time, the provider likelihood of repeating the triage blood pressure of a patient, and the blood pressure measured on repeat, varied by site, provider and organizational attributes such as the number of patients per clinic session (controlling for the triage blood pressure and mean prior blood pressure). Controlling for the covariates described above, repeating a BP measurement was associated with substantially decreased likelihood of intensification.
CONCLUSIONS: Provider variation in treatment change is substantial, not affected by controlling for multiple patient measures of treatment complexity and is located at the provider rather than clinic level. The provider variability was at least partly associated with variables that suggest clinical inertia. However, the use of intensification rates as a performance measure is precluded at present by the complete absence of the standardized BP measurement protocols that would be essential to prevent gaming.

WHAT CHARACTERIZES STUDENTS WHO CHOOSE TO PARTICIPATE IN THE HEALER'S ART? S.L. Clever[1]; G. Geller[2]. [1]Johns Hopkins School of Medicine, Baltimore, MD; [2]Johns Hopkins University, Baltimore, MD. *(Tracking ID # 190294)*

BACKGROUND: It is clear that medical students who sign up for elective "humanistic" courses are self-selecting, but there have been few attempts to quantify characteristics that distinguish students who enroll in such courses. At our medical school, we recently introduced The Healer's Art, an elective to help students recognize and cultivate their self-care and innate healing skills. As part of an evaluation of the course's outcomes, we aimed to determine what characterizes students who enroll.
METHODS: In 2004 and 2005 we conducted a survey of all 2nd-year medical students at our institution (N=240), 6 weeks before the start of the course. We used validated, reliable scales to measure tolerance for uncertainty, mindfulness, empathy, burnout and interpersonal trust, and collected sociodemographic data. We also asked questions such as "Has anything surprised [or inspired, or touched] you in the past 24 hours?", which were taken from the course's daily writing exercise. We then used bivariate and multivariable analyses to determine the relationship between those characteristics and course enrollment.
RESULTS: 230 students (96%) completed the survey, of whom 75 enrolled in the course. The mean age of respondents was 24, and 50% were women; these variables did not vary with course enrollment, nor did marital status, importance of attending religious services, tolerance for uncertainty, burnout, or interpersonal trust. As shown in the table below, the characteristics that were significantly associated with enrollment in bivariate analysis include race, empathy and "surprise", with a trend toward higher scores in mindfulness among students who choose to participate in the course. Other results are presented in the table below. In multivariable analysis, only the student's indication that she or he had been surprised in the past 24 hours remained statistically significant.
CONCLUSIONS: We ourselves were somewhat surprised that the "surprise" variable was so persistently associated with students who enroll in the course. This may represent an openness to new experience, or a "capacity for wonder", which is consistent with individuals who seek out similar courses. We found that students who enrolled in the course differed from their classmates in several characteristics relevant to course outcomes, though the differences were small. It is clearly important for others studying outcomes of similar courses to take this self-selection bias into account.

Results

Characteristic	Scale	Enrolled	Unenrolled	P
Race (%)				
Asian/Pacific Islander		22	35	
White, non-Hispanic		64	45	0.035 (for all race comparisons)
Other (A-A, Hispanic)		14	20	
Mindfulness	1–6, low - high	4.1	3.9	0.06
Empathy	1–6, low - high	4.0	3.8	0.02
"Has anything surprised you in the past 24 hours?"	% indicating "yes"	69	48	0.003

WHAT DO THEY IDENTIFY AS THEIR LEARNING GOALS? EVALUATION OF THIRD YEAR MEDICAL STUDENTS' SELF-IDENTIFIED AMBULATORY LEARNING GOALS OVER AN ACADEMIC YEAR H. Matsubara[1]; D. Elnicki[1]. [1]UPMC Shadyside, Pittsburgh, PA. *(Tracking ID # 189512)*

BACKGROUND: Medical students experience a major transition as they enter clinical clerkships. We conducted this study to identify third year students' learning goals, how those goals fit within generally recognized domains of learning, and how the distribution of goals changes over an academic year as students gain more clinical experience.
METHODS: In academic year 2006–2007, all third year students at the University of Pittsburgh School of Medicine completed 8 weeks of Combined Ambulatory Medicine Pediatrics Clerkship (CAMPC). Immediately prior to CAMPC, students were asked to state their learning goals for the clerkship in free-text format. Collected goals were then thematically categorized by 2 coders into 6 learning domains: affective, psychomotor, cognitive, perceptual, experiential, and interpersonal domains. Inter-rater reliability was calculated using the Kappa statistic. Disagreements between coders were solved by consensus. The distributions of domains between genders and the distributions of domains between the first 6 months of the academic year and the following 6 months were compared using Chi-square.
RESULTS: A total of 353 learning goals were collected from 101 students (response rate; 68%) of which 52 were women. In the first 6 months, 183 goals (52%) were stated by 51 students (50%). The inter-rater reliability between the coders was substantial (k=.66). The most frequently identified goals were in the psychomotor domain, which involves motor skills and manipulation of objects (eg. "gain skill with fundoscopic exam") and were stated by 79% of students. The cognitive domain, concerning knowledge and intellectual ability, followed with 74% (eg. "learn pharmacology"). Third most frequent (49%) was the experiential domain, focusing on exposure to and participation in experiences (eg. "work with adolescents"). The less common domains were: perceptual domain, focusing on distinguishing and recognizing certain issues, 26% (eg. "contrast major outpatient and inpatient illnesses"); interpersonal domain, stressing changes through relationships with others, 21% (eg. "learn to develop good patient-physician rapport" or "learn the student's role on the team"); and affective domain, emphasizing a feeling or emotion, 17% (eg. "evaluate adult outpatient medicine as a career" or "identify clinical role model"). There were no significant differences in the distribution of domains between genders (all p>.10). The analysis of the distributions of domains between the halves of the academic year showed significantly more students identified goals in the affective domain during the first half (25% vs. 8%, p=.018). For the other 5 domains, there were no differences in frequency.
CONCLUSIONS: Students' most common goals were the acquisition of certain skills or knowledge. Students were more likely to seek clinical role models or their career interests during the first half of the academic year. These findings can help us adjust our curriculum to students' evolving needs, both as individuals and as developing learners. We will further examine the maturing of students' goals within the learning domains as the students' progress through the academic year.

WHAT FACTORS INFLUENCE PATIENTS' WILLINGNESS TO PARTICIPATE IN CLINICAL RESEARCH? T.V. Perneger[1]. [1]University Hospitals of Geneva, Geneva, . *(Tracking ID # 189997)*

BACKGROUND: Clinical depends on the patients' willingness to participate. Understanding the attributes of research projects that make patients likely to participate is critical. We explored such reasons in an experimental vignette-based study.
METHODS: We surveyed former inpatients by mail. We described 4 clinical studies in vignettes, and asked for each whether the respondent would agree to participate; responses were on a 5-point scale (certainly accept, probably accept, unsure, probably refuse, certainly refuse). Each vignette was used to test 3 dichotomous factors that may affect participation (Table), in a factorial design. There were 8 versions of each vignette, but each patient saw only one, at random. Results were analysed using ordinal logistic regression.
RESULTS: The global survey response rate was 68%. Of 1432 respondents, 1285 (90%) answered the research vignettes; 12% said they would "certainly accept" to participate in all four, and 5.5% would "certainly refuse" all four. Answers to the 4 scenarii were moderately correlated (r 0.50–0.62). The propensity to participate was associated with (Table): approval by a research ethics committee, absence of side-effects in a new drug, no additional visit required, balanced information given to participants, and tested technology in the public domain. In contrast, the origin of study funds, financial reward to participants, the need to complete a questionnaire, and clinical versus economic purpose of the study did not influence participation. Destruction of blood samples at the end of the project, use of placebo controls, and random allocation of study subjects were associated with a lower propensity to participate (although the latter effect was non-significant).
CONCLUSIONS: Patients valued safety, convenience, appropriate oversight, and open communication in research. However, they were put off by some aspects of research that are valued by professionals. Educating the public about research methods may improve participation.

Table

Vignette 1: Randomized trial of a new treatment for a respiratory disease	Odds ratio	P value
a. No side effects (vs possible malaise and nausea)	1.7	<0.001
b. Comparison with current treatment (vs placebo)	1.3	0.015
c. Public funding (vs pharmaceutical industry)	1.0	0.76
Vignette 2: Trial of a new technique in orthopaedic surgery		
a. Random allocation (vs surgeon's opinion)	0.8	0.11
b. Balanced information (vs persuasive)	1.3	0.02
c. Technology in public domain (vs patent)	1.3	0.02
Vignette 3: Test of a new laboratory test for heart disease		
a. No additional medical visit required (vs one visit)	1.6	<0.001
b. Blood samples destroyed at end of study (vs blood bank)	0.8	0.036
c. Reward of 100 francs (vs none)	0.9	0.19
Vignette 4: Analysis of service organization based on medical records		
a. Aim to improve effectiveness/safety (vs reduce costs)	1.1	0.41
b. Only record review (vs questionnaire)	1.2	0.16
c. Approved by research ethics committee (vs only head of service)	2.1	<0.001

WHAT FACTORS PREDICT HYPERTENSION MEDICATION NON-ADHERENCE IN YOUNG URBAN AFRICAN-AMERICAN MEN? C.N. Wiley[1]; C.B. Thompson[1]; R.E. Thompson[1]; L.R. Bone[1]; D.M. Levine[1]; M. N. Hill[1]; C.R. Dennison[1]. [1]Johns Hopkins University, Baltimore, MD. *(Tracking ID # 190258)*

BACKGROUND: Among African-Americans (AA), hypertension (HTN) occurs more often, begins at an earlier age, and is more severe compared to whites. Medication non-adherence is a significant contributor to poor HTN control; however, few studies have prospectively assessed predictors of HTN medication non-adherence in young AA men with HTN. A randomized clinical trial evaluating the effectiveness of a more versus less intensive intervention to improve HTN control provided an opportunity to study this issue in this high-risk, yet understudied group. We sought to identify longitudinal predictors of anti-hypertensive medication adherence in young urban AA men, specifically clinical, health services utilization, behavioral, social and patient-provider factors that might impact medication adherence.
METHODS: 309 AA men with HTN, aged 21 to 54 from inner-city Baltimore participated in this trial. We used generalized estimating equations to identify predictors of medication adherence at 24, 36, 48 and 60 months. The outcome of interest was antihypertensive medication adherence, which was measured using the Hill-Bone Compliance to High Blood Pressure Therapy Scale, Medication-Taking subscale (HBS-MT). The scores on the scale range from 9–36, with, higher scores reflecting worse adherence. We controlled for age, blood pressure control, medication side effects, number of HTN meds, history of an alcohol-related problem, type and amount of alcohol use, marital status, positive urine screen for illicit drugs, and intervention group. We also performed the same analysis stratified by intervention group.

RESULTS: The mean HBS-MT score was 11.4 (range 9–31). Depression was associated (â=0.75, p=0.004) with medication non-adherence. Satisfaction with care (â=−0.93, p=0.016) and believing that the provider listens and attends to your concerns (â=−0.58, p=0.045) were negatively associated with medication non-adherence. Participants whose regimen included a Beta blocker (BB) (â=−1.19, p<0.001) or an Angiotensin Receptor Blocker (ARB) (â=−0.57, p=0.03) had lower HBS-MT scores, indicating better medication adherence, while participants whose regimen included a Thiazide diuretic had worse adherence (B= 1.01, p=0.03). When stratified by intervention, in the more intensive group, depression remained associated with non-adherence (B=0.85, p<0.01) and the medication effects for BB (B=−0.87, p=0.02) and ARB persisted (B=−0.58, p=0.02). In the less intensive group, satisfaction with care (B=−1.20, p=0.02) remained negatively associated with non-adherence and medication class remained associated with non-adherence for BB (B=−1.33, p<0.001) and Thiazides (B=1.46, p=0.01).
CONCLUSIONS: This is the first prospective study assessing predictors of medication adherence in young urban hypertensive AA men. This group is less well-studied than other race-gender groups. Our study reveals that mental health and quality of the patient-provider relationship are as important in this group as in better studied groups, and are predictive of medication adherence. In addition, anti-hypertensive class impacts medication adherence and should be considered when selecting therapy in this population. These findings are of critical importance for general internists who provide care for AA men and for health disparities researchers who seek to better understand predictors of medication adherence, and to design interventions to improve adherence, and ultimately HTN outcomes in this high-risk group.

WHAT IS TRUTH: PATIENTS REPORT HIGH USE OF SUBOPTIMAL ANTIRETROVIRAL REGIMENS J. Josephs[1]; T. Korthuis[2]; K. Gebo[1]; -. For The Hiv Research Network[3]. [1]Johns Hopkins University, Baltimore, MD; [2]Oregon Health and Science University, Portland, OR; [3]Johns Hopkins, Baltimore, MD. *(Tracking ID # 190146)*

BACKGROUND: Self reported use of antiretrovirals(ARV) is a commonly surveyed measure. Accurate reporting of ARV affects accuracy of adherence and morbidity data, and indicates increased patient self-efficacy. The objective of this study was to assess the prevalence of self-reported suboptimal ARV regimens.
METHODS: During 2003, 951 patients participated in face-to-face interviews at 14 HIV primary care sites in the U.S. that are part of the HIV Research Network. All sites are highly experienced HIV treatment centers. Patients were asked "Which of the following drugs are you supposed to be taking today?" Patients were shown both a list of ARV and a pill card. We report patient responses using descriptive statistics.
RESULTS: The sample was 68% male, 52% African American, 14% Hispanic, with median age 46 years (range 20–85). HIV risk: 34% MSM 30% heterosexual, 16% IDU. 69% of respondents were on HAART regimens. 78% of patients used at least on antiretroviral medication. 13% of respondents reported taking at least one suboptimal antiretroviral regimen. In multivariate regression, adjusting for site, factors associated with reporting an incorrect regimen were age>45 (AOR 1.79 95% CI [1.15–2.79]), and Black race (1.91 [1.00–3.71]). Factors not associated with incorrect regimen reporting included illicit drug use, employment, education, number of primary care visits, CD4 count in 2003, and viral load in 2003.
CONCLUSIONS: A substantial proportion of patients receiving care at experienced HIV treatment centers report taking suboptimal antiretroviral regimens. This likely represents underreporting of appropriate antiretroviral regimens and identifies a potential target for improving patient self-efficacy.

Type of Atypical Regimen

Type of Atypical Regimen	Number (Percent)
Monotherapy	11 (1.5%)
Dual Therapy	54 (7.3%)
AZT or 3TC with concomitant Combivir or Trizivir	22 (2.9%)
AZT/D4T	9 (1.2%)
2 NNRTI	3 (0.05)
Total	99 (13.0%)

WHEN THE PATIENT DOES NOT PAY: A SURVEY OF PRIMARY CARE PHYSICIANS N.J. Farber[1]; C.V. Roche[2]; B.M. Aboff[2]; V.U. Collier[3]; J.L. Weiner[4]. [1]Society of General Internal Medicine, La Jolla, CA; [2]Christiana Care health System, Wilmington, DE; [3]Christiana Care Health System, Newark, DE; [4]Drexel University, Philadelphia, PA. *(Tracking ID # 189240)*

BACKGROUND: Some Boards of Medicine have determined that withholding treatment from patients who do not pay their bills is grounds for sanctions, while the American College of Physicians has decreed that such actions are clearly unethical. Despite ethical and legal imperatives, there are anecdotal reports of health practitioners who try to find ways to coerce patients into paying their bills.
METHODS: A survey asked respondents about patients who do not pay their physicians' bills. A case scenario of a patient who could pay his bills but did not do so was included, and physicians were asked how likely they were to withhold 13 services from such a patient based on a 4 point Likert scale. Respondents were also asked if they had actually withheld such services from patients in their practices. The survey was sent to a random sample of 1000 general internists and family medicine physicians. The effects of the demographic data on the number of services withheld from both the hypothetical patient and patients actually in physicians' practices were analyzed via ANOVA and multiple logistic regression.
RESULTS: Of 962 surveys received by subjects, 379 (39%) were completed and returned. A majority of respondents (84%) would have withheld at least one aspect of service or medical care from the hypothetical patient, with 41% having actually withheld care or services from their patients who did not pay their bills. Most services involved administrative actions such as completing life insurance examinations (65%) or disability forms (58%), but a majority of respondents would be willing to forego performing minor procedures (56%) or ordering laboratory tests (55%) on the hypothetical patient. Responses for actual patients corresponded and varied from less than 1% to 21% depending on the medical care involved. Respondents who were older (p=0.003) or who believed that patients are not always entitled to medical care (p=0.002) were more likely to withhold medical care from the hypothetical patient, while those in rural as opposed to urban or suburban practices (p=0.03), had discharged patients from their practices (p<0.0001), and did not believe that patients were always entitled to medical care (p=0.05) were more likely to have withheld medical care from actual patients.
CONCLUSIONS: A majority of primary care practitioners would be willing to withhold at least some types of medical care or services from patients who do not pay their bills, and some have actually done so despite both ethical and legal mandates to the contrary. Some demographic features and especially physician attitudes about patient entitlement affect primary care practitioners' decisions about whether they would withhold medical care from non-paying patients. Physicians should be educated about the importance of the patient-physician relationship and their fiduciary and legal obligations to the patient.

WHO IS VISITING RETAIL CLINICS AND WHY? A COMPARISON OF PATIENT VISITS TO RETAIL CLINICS AND PRIMARY CARE PHYSICIANS A. Mehrotra[1]; M. Wang[2]; J. Adams[2]; J.R. Lave[1]; E.A. Mcglynn[3]. [1]University of Pittsburgh, Pittsburgh, PA; [2]RAND, Santa Monica, CA; [3]RAND Corporation, Santa Monica, CA. *(Tracking ID # 190667)*

BACKGROUND: Retail clinics provide a new model for delivering ambulatory care with a focus on patient convenience. With the number of retail clinics growing rapidly, several physician organizations have expressed concerns about patient care at retail clinics. Little is known about the characteristics of the patients who use retail clinics and the type of care they receive. We compared difference in demographics, sources of payment, and reasons for the visit between patients visiting retail clinics versus primary care physicians' (PCP) offices.
METHODS: We recruited retail clinic companies and obtained de-identified visit-level data on all visits to their sites between 2000 and 2007. We used the 2002–2004 National Ambulatory Medical Care Survey to create a nationally representative sample of PCP visits.
RESULTS: As compared to patients who visit PCPs, patients who use retail clinics are more likely to be young (43.0% vs. 22.7% are ages 18–44, p<0.001) and pay for the visit out-of-pocket (32.9% vs. 9.5%, p<

0.001). A minority of retail clinic patients report having a PCP (38.7%). The vast majority (90.3%) of visits to retail clinics are for 10 clinical issues, including pharyngitis (21.2% of all visits), otitis media and otitis externa (12.7%), and immunizations (19.7%). The 10 clinical issues that comprise a majority of reasons for visiting retail clinics account for 13.1% of adult PCP visits and 30.3% of pediatric PCP visits.
CONCLUSIONS: Relative to PCPs, retail clinics are attracting a patient population that is younger, more willing to pay out-of-pocket, and likely to seek care for minor acute and preventive issues. Further evaluation of whether retail clinics provide lower or higher quality care, whether they disrupt relationships between PCPs and patients, and whether they will negatively impact the income of PCPs is warranted.

WHO'S NOT GETTING TREATED: LOW RATES OF HEPATITIS C TREATMENT INITIATION IN AN UNDERSERVED COMMUNITY D.J. Alfandre[1]; D. Gardenier[1]; A. Federman[1]; T. Mcginn[1]. [1]Mount Sinai School of Medicine, New York, NY. *(Tracking ID # 190344)*

BACKGROUND: Hepatitis C virus (HCV) remains widely prevalent in the US. Treatment has improved, with cure rates between 40 and 80% depending on genotype, but rates of treatment initiation remain low. We sought to identify characteristics of patients that are associated with not initiating HCV therapy among eligible patients in a primary care-based HCV treatment program.
METHODS: We conducted a retrospective cohort study of 276 potentially eligible patients refered to our Primary Care HCV Evaluation and Treatment Program between January 2003 and May 2007. All patients were referred from our hospital based, on-site urban primary care clinic in East Harlem, NY. All patients were evaluated for treatment with peg-interferon and ribavirin for 48 weeks (genotype 1or 4) or 24 weeks (genotype 2 or 3) as per current guidelines. Eligibility criteria included being HIV negative, HCV RNA positive, HCV treatment naïve and age 18–64. Patients with HCV Genotypes 1 or 4 were considered treatment eligible if they fulfilled the eligibility criteria and were eligible for a liver biopsy. The primary outcome was treatment initiation, defined as receiving the first interferon injection. We used the Fischer exact test and the student T test to examine the association between non-initiation of treatment and demographics (race, mean age, gender), risk factor for infection, language, insurance status, history of any psychiatric illness (depression, anxiety, schizophrenia, substance abuse), marital status, number of co-morbidities, and viral genotype. Variables significantly associated with treatment initiation ($p<0.05$) were entered in a multivariable logistic regression model.
RESULTS: Of 276 patients with detectable serum HCV RNA, 108 (39%) were ineligible for treatment due mostly to cirhossis (9%), previous treatment (7%), and advanced co-morbid medical (7%) or psychiatric illness (8%). The total number of treatment eligible patients was 168, of which 41 (24%) began treatment and 127 (76%) either refused treatment or did not follow up. Most eligible patients had Medicaid (83%) and were either Hispanic (36%) or African American (48%). In the univariate analysis, patients with genotypes 1 or 4 were less likely to initiate treatment, p=.007 (88% vs. 73% in the untreated and treated cohorts respectively). Those who were unmarried p=.0005 (81% vs. 54% in the untreated and treated cohort respectively), and those with higher numbers of comorbidities p=.0001 (5.2 vs. 2.9 in the untreated and treated cohorts respectively), were all less likely to initiate treatment. After multivariate analysis, individuals with genotypes 1 or 4 were less likely to initiate treatment, OR .34 (95% CI .12-.95) p=.04 as were patients with more comorbidities, OR .73 (95% CI, .60-.89) p=.002. Unmarried patients were less likely to be treated with an association that approached statistical significance, OR .42 (95% CI, .17–1.03) p=.06.
CONCLUSIONS: In our cohort, only one-quarter of eligible HCV patients initiated antiviral treatment. A genotype of 1 or 4, greater number of comorbidities, and single marital status (possibly a proxy for social support), represent barriers to treatment. Compared to patients with genotype 2 or 3, the longer treatment courses and relatively lower probability of cure among genotypes 1 or 4 may be related to the decision to decline treatment. In order to improve treatment initiation, further research is needed to help understand how these factors interact and how interventions can be designed to overcome them.

WILL PATIENTS INITIATE CHRONIC DISEASE MANAGEMENT CARE FOR SUBSTANCE DEPENDENCE? T.W. Kim[1]; R. Saitz[1]; D.M. Cheng[2]; M. Winter[2]; J.H. Samet[1]. [1]Boston University School of Medicine, Boston, MA; [2]Boston University School of Public Health, Boston, MA. *(Tracking ID # 190197)*

BACKGROUND: Most treatment for the chronic illness, substance dependence, is short-term. Chronic disease/care management (CDM) is done by multidisciplinary health professionals who provide longitudinal, patient-centered care. The objective of this study was to determine whether patients with substance dependence would initiate and follow-up in a CDM clinic located in a primary medical care setting.
METHODS: We prospectively studied subjects with alcohol or drug dependence who agreed to enroll in a clinical trial in which they were assigned to attend a CDM clinic. The main outcome of interest, from electronic clinical records, was CDM initiation: the proportion of patients who returned for ≥1 visit within 14 days of the intake visit. This definition is derived from a Washington Circle developed, evidence-based quality performance measure of substance abuse treatment initiation, adopted by the National Committee for Quality Assurance (NCQA) for inclusion in its Health Plan Employer Data and Information Set (HEDIS). We also examined the proportion of subjects who attended ≥1 visit at any point after intake and the proportion that followed up with ≥1 visit after CDM initiation.
RESULTS: Of 150 subjects, 46% had drug dependence, 45% had both alcohol and drug dependence; 9% had alcohol dependence only. Comorbidities included homelessness, 53%; addiction-related medical condition, 65%; major depressive episode, 82%; and post-traumatic stress disorder, 37%. Only 17% had received any psychiatric medications in the previous 3 months. Most attended ≥1 visit after intake (77%, 95%CI 71–84%); however, only 39% (95% CI 31–46%) met criteria for CDM initiation. Of those that initiated, 90% (52/58) followed up with ≥1 visit after initiation. In separate logistic regression models adjusted for age, sex and race, neither prior addiction or psychiatric care, nor readiness to change was associated with CDM initiation. Clinically important, though not statistically significant, increases in initiation were observed for more social network support for abstinence (≥50% of family/friends without alcohol problems) and recent psychiatric medication use (OR 1.89, p=0.07 and OR 2.25, p= 0.09, respectively).
CONCLUSIONS: People with substance dependence appear to be willing to initiate and follow-up with CDM addiction care. Chronic disease management has potential for improving access and quality of care for people with addictions.

WILL PERFORMANCE MEASURES USED FOR PAY-FOR-PERFORMANCE PROGRAMS PENALIZE THOSE WHO CARE FOR MEDICALLY COMPLEX PATIENTS? L.A. Petersen[1]; L.D. Woodard[2]; L.M. Henderson[1]; T.H. Urech[1]; K. Pietz[1]. [1]HSR&D Center of Excellence, Michael E. DeBakey VA Medical Center, Houston, TX; [2]Baylor College of Medicine, Houston, TX. *(Tracking ID # 189915)*

BACKGROUND: There is concern that performance measures, patient ratings of their care, and pay-for-performance programs penalize health care providers of patients with multiple co-existing chronic conditions. We determined the impact of co-existing conditions on the quality of care and patient perception of quality.
METHODS: We examined a cohort of 155,190 patients with hypertension cared for in one geographic region in the VA health care system in FY 2005. We used clinical (e.g., blood pressure readings, medications) and administrative (e.g., ICD-9-CM codes, CPT codes) data to identify patients with hypertension and concordant (i.e., diabetes, ischemic heart disease, dyslipidemia) and/or discordant (i.e., arthritis, depression, chronic obstructive pulmonary disease) conditions, or neither. Overall good quality of care was determined by the proportion of patients with blood pressure at goal at index (≤140/90 mmHg) or who received guideline-recommended care, regardless of blood pressure achieved, within six months of the index date. We examined how quality and patient perception of quality varied by the presence or absence of the comorbid conditions, controlling for illness severity, age, and number of outpatient primary and specialty care visits in the VA. We used multivariate logistic regression to determine the impact of type and number of study conditions on the likelihood of having blood pressure controlled at index and of receiving appropriate follow-up care and overall good quality of care for hypertension. All logistic regression

models were adjusted for clustering. We used multivariate logistic regression to evaluate the relationship between patient perceptions of quality and the level of overall quality received as well as how patient perceptions varied by condition type, adjusting for age, illness burden, and number of coexisting conditions and prior utilization.
RESULTS: Of the hypertension patients in the cohort, 50% had concordant-only comorbidities, 8% had discordant-only comorbidities, 25% had both, and 17% had none. The proportion of patients with overall good quality varied by condition type with 84% of patients with none of the comorbidities studied receiving good quality while 92% with both types of conditions achieved overall good quality ($p<0.001$). Among those who did not have blood pressure controlled at index, the proportion of patients with appropriate follow-up within six months ranged from 54% for those with none of the comorbidities to 66% for those with both types of conditions ($p<0.001$). Odds of receiving overall good quality were higher for those with concordant (odds ratio [OR], 1.52; 95% confidence interval [CI], 1.46–1.59) or both types of comorbidities (OR, 1.65; 95% CI, 1.57–1.75) compared with neither. Patient assessment of quality did not vary by the presence of coexisting conditions and was not related to objective ratings of quality.
CONCLUSIONS: Neither objective nor subjective ratings of care varied with the presence or absence of the comorbid conditions. Our findings should be reassuring to those who care for the most medically complex patients and are concerned that they will be penalized by performance measures or patient ratings of their care.

WILL PROVIDERS FOLLOW-UP ON THE ABNORMAL TEST RESULT ALERT IF THEY READ IT? H. Singh[1]; E.J. Thomas[2]; S. Mani[1]; D. Espadas[1]; M.M. Khan[1]; H.S. Arora[3]; L.A. Petersen[1]. [1]Houston Center for Quality of Care and Utilization Studies, Michael E. DeBakey Veterans Affairs Medical Center and Baylor College of Medicine, Houston, TX; [2]University of Texas Health Science Center at Houston, Houston, TX; [3]Baylor College of Medicine, Houston, TX. *(Tracking ID # 189909)*

BACKGROUND: Communication of abnormal test results in the outpatient setting is prone to breakdown. Notifying providers in the electronic medical record (EMR) by alerting them about abnormal results may initiate response and proper follow-up action. However, concern has been raised that providers do not read alerts (computerized notifications of critical patient information) because of information overload. We assessed whether abnormal imaging alerts tracked to have been read by providers would ensure follow-up actions by them.
METHODS: Over a 2-month period, we analyzed outcomes of critically abnormal X-ray, CT scan, MRI, mammography, and ultrasound alerts in an ambulatory multi-specialty clinic and affiliated satellite clinics. Staff radiologists electronically coded abnormal imaging that required action as alerts, which were then transmitted to the ordering provider in the "View Alert" window of their EMR screens. The alert window is displayed when providers log on or switch between patient records and contains alerts on all of their patients, regardless of which record is being viewed. More than a week after alert transmission, an alert-management-tracking software was used to determine whether the alert was "acknowledged," i.e., whether the provider clicked on and opened the message. If alerts were acknowledged, we considered the providers to have read them. Medical record reviews were conducted for all alerts sent on outpatients. Assuming patients who were hospitalized subsequent to alert generation would receive follow-up care anyway, we excluded 19 patients. In both acknowledged and unacknowledged categories, we determined whether providers documented any evidence of follow-up action, such as contacting the patient or ordering a follow-up test or consultation (alert response). In the absence of a documented response, providers were called to determine their awareness of the test results and any follow-up action they had taken but failed to document. These processes helped confirm whether or not the test result was lost to follow-up at the end of 4 weeks after alert generation.
RESULTS: Of 220 alerts studied thus far, 197 were tracked as acknowledged. Evidence of documented response was found in 132 (67%) acknowledged alerts and 17 (73%) unacknowledged alerts ($p=0.25$). In the acknowledged category, we determined the need to call 12 providers to check for undocumented follow-up action and found that 7 (58%) providers were unaware of the result and, although aware, 3 (25%) providers had not planned any action till we called. For unacknowledged alerts, we called five providers of whom three (60%) were unaware, and one had not planned any action despite awareness. A similar proportion of results were lost to follow-up in the two categories ($p=0.47$). The most common lost to follow-up results were X-rays (8) and CT scans (5).
CONCLUSIONS: Critical imaging results continue to be lost to follow-up in a computerized test- result notification system, regardless of providers' acknowledgment of their receipt. Test-result-management systems should be improved to track not only notification but also subsequent follow-up actions to address the abnormality. Future studies using human-factors- engineering techniques should address process-of-care issues leading to such communication breakdowns and guide the design and implementation of computerized notification systems in ambulatory care.

WOMEN PHYSICIANS PERCEIVE A GENDER BASED DIFFERENTIAL IN EXPECTATIONS AND RESPONSIVENESS OF WOMEN NURSES TO WOMEN PHYSICIANS T.L. Wahls[1]; E. Prussing[2]; L.R. Graham[3]; S. Jewell[4]; M. Rosenbaum[3]. [1]VA Iowa City VAMC/University of Iowa, Iowa City, IA; [2]U of I College of Liberal Arts, Iowa City, IA; [3]University of Iowa, Iowa City, IA; [4]VA Iowa City VAMC, Iowa City, IA. *(Tracking ID # 189652)*

BACKGROUND:: Scant information exist within multiple studies of the nurse-physician relationship specific to women physicians and their experience of communication challenges. Few data document female physicians' and nurses' perceptions of ways gender influences physician-nurse communication. This study's objective was to obtain such data and make preliminary assessment/evaluation.
METHODS: Open-ended interviews, lasting approximately one hour, were conducted with nurses and physicians in primary care and surgery. Questions asked about physician- nurse communication factors influencing effectiveness, and subjects' criteria for assessing communication efficacy (to remain non-directive, gender was included but not emphasized). Interviews were audio-recorded, transcribed, and reviewed by the study team.
RESULTS: Twenty-one inteviews were conducted (eight female and one male nurse, 11 female Internists, 2 female surgeons). Roles included staff nurse, nurse practitioner, and manager, chief resident, junior, mid-career, and senior faculty. Female physicians reported female nurses typically expect greater responsibility from female versus male physicians for producing effective communication between the physician and nurse. Female physicians also consistently reported that female nurses generally exhibited noticeably greater levels of resentment towards a female, as opposed to a male, physician, in situations involving directive communicative behaviors with nursing staff. Specifically, many physicians identified women physician need to use personalized "banter" prior to or accompanying directive communication toward nurses than is required from males. Physicians acknowledged learning how to communicate with nurses as an important and challenging task in their own development and an important issue to address with medical learners. The nurse practitioner and the male staff nurse also reported female nurses have higher expectations and lower levels of responsiveness to female versus male physicians. However, no other nurses identified this difference. All nurses reported communication between physicians and nurses was generally more effective from female physicians than their male counterparts. Physicians and nurses reported similar criteria for communication effectiveness: outcome, relational impact, mutual satisfaction, and receptivity of the participants at the conclusion of the communication. Nurses especially valued the extent to which physicians, regardless of gender, were willing to take input from nurses on patient care issues. Nurses tended to talk in reference to communication style rather than gender-based communication as reasons for whether communication was successful or not.
CONCLUSIONS: Female physicians perceive female nurses to be have negative responses if female physicians' communicative behaviors do not conform to nurses' gender-based expectations. Female nurse interviews suggest non-awareness of their differential gender-based expectations and responsiveness to physician communicative behaviors. These findings indicate that female physicians who do not conform to the nurse's gender-based expectations regarding communicative behaviors, are generally perceived negatively by female nurses. These differences of perceptions and expectations may also contribute to resentment between female physician and female nurses and create tension. These outcomes all may adversely impact communication within the health care team.