

The purpose of the National Conference poster competition is to stimulate research by medical students and family medicine residents, to provide a venue to share innovative and effective educational programs, to showcase unique community projects, and to encourage networking among medical students and residents with similar interests. This year's authors offer valuable information in the categories of clinical inquiry, community projects, educational programs, and research.

## **Poster Presentations**

### **Pelvic Inflammatory Disease: Challenges in Diagnosis (Clinical Inquiry)**

*Catherine Peony Khoo, MD  
University of California, Los Angeles*

Pelvic inflammatory disease (PID) is a common infection with an estimated lifetime prevalence of 4.4% in reproductive-aged women in the United States. However, given its nonspecific signs and symptoms, along with a lack of readily available specific diagnostic testing, PID remains a clinical diagnosis that may pose diagnostic challenges resulting in serious morbidity and mortality. The case presented is that of a perimenopausal woman presenting with fever and lower abdominal pain who was misdiagnosed on multiple occasions in both ambulatory and hospital settings until she was finally found to have sepsis secondary to PID complicated by tuboovarian abscess. Her case highlights multiple important points in diagnosis of PID, pathogenic organisms and risk factors implicated in PID in postmenopausal women, treatment of PID, and cognitive error contributing to preventable misdiagnosis.

### **How Insufficient Asthma Control Can Break Your Heart (Clinical Inquiry)**

*Louai Naddaf and Sujan Thapaliya, MD  
Saba University School of Medicine*

Background: 61-year-old female presented with severe shortness of breath, wheezing, orthopnea, a productive cough, and lower limb edema upon waking up at night. Results: Workup on the first day revealed an ejection fraction of 30%. On the second day, the patient developed new intermittent chest pain radiating to her neck, new ECG changes, and an elevated troponin. A cardiac catheterization revealed normal coronary arteries, left ventricle with hyperkinetic basal segments, and an akinetic apex. Discussion: The hallmark of takotsubo cardiomyopathy that differentiates it from a myocardial infarction is the bulging out of the left ventricular apex with a hypercontractile base with no coronary artery obstructions. In our patient, this was most likely due to acute respiratory failure from underlying asthma. It is important to remember the current practice guidelines for monitoring of asthma. Office spirometry is one of the useful tests that can be performed when caring for patients with asthma. Conclusion: The diagnosis of takotsubo cardiomyopathy should be suspected in adults who present with chest pain or dyspnea in combination with ECG changes or elevation in cardiac troponin. Routine performance of spirometry will help patients better understand the condition of their respiratory condition and help prevent a broken heart.

### **A Cerebral Contusion Presenting with Sub-Acute Medication Resistant Psychosis (Clinical Inquiry)**

*Ashley Rubin and Daniel Lofgren  
West Virginia School of Osteopathic Medicine*

The most common symptoms of a cerebral contusion include headache, dizziness, concentration problems, and memory loss. Insomnia is reported by more than half of patients and can exacerbate symptoms. A 24-year-old previously healthy male presented with psychosis, acute personality changes, and auditory and visual hallucinations three weeks after falling 15-feet with concurrent head trauma. A right-sided cerebral contusion with concussion was diagnosed on initial admission with increasing homicidal and suicidal ideation after 26 hours of insomnia. The patient accomplished rest after eight days of medication-resistant insomnia with a final combination of ziprasidone with lorazepam. After one night of sleep, the patient was alert and oriented with normal mood, affect, and cognition. The insomnia appeared to exacerbate this patient's symptoms and an atypical insomnia treatment regimen was required to induce somnolence and restore function in this patient. The combination of his abnormal patient presentation along with the unorthodox medication regimen make this case unique from other traumatic brain injury symptoms and treatments.

## **Everything is Fine and Dandy: A Rare Presentation of Asymptomatic Dandy Walker Malformation in an Adult (Clinical Inquiry)**

*Veena Varki, MS, MPH, Maria Rathore, BS, and Richard Pianti, DO  
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This is a 27-year-old female with no significant past medical history who presented to the emergency department with a chief complaint of a throbbing bilateral headache for the past three days. In order to rule out subarachnoid hemorrhage, cerebral ischemia, and/or head trauma in the ED setting, the patient underwent a CT scan of the brain. The imaging revealed a large collection of stable spinal fluid in the posterior fossa with minimal enlargement of the fourth ventricle, which is indicative of a Dandy Walker Malformation without hydrocephalus. Upon exam, the patient demonstrated no visual, focal, developmental, or neurologic deficits. Additionally, she exhibited no signs of cerebellar ataxia or psychomotor delays. As a result, an MRI of the brain was ordered and further confirmed cerebellar hypoplasia with a large cystic area at the level of the posterior fossa. The patient was admitted, managed conservatively, and her headaches resolved. Dandy Walker Syndrome (DWS) is a rare brain malformation in which various parts of the cerebellum (most commonly the cerebellar vermis) fail to develop. Consequently, an affected individual typically exhibits severe motor deficits, difficulty coordinating movements, and overall developmental delays. For this reason, DWS is usually diagnosed within the first year of life and is exceptionally rare to present in an adult. This case is particularly unique because the patient has been asymptomatic since birth. The patient's overall presentation exemplifies preserved cortical architecture and function despite having a very large and extensive Dandy Walker Malformation. Above all, the case study raises awareness of the condition and aids in the proper diagnosis and medical/surgical management options for rare adult DWS patients in the future.

## **Effects of Protocol Changes on Postpartum Visit Attendance Rates and Patient Care at a Student-Run Free Clinic (Community Project)**

*Taylor Fagan, Marie Rosenberger, and Cate Heil  
Kansas University Medical Center*

JayDoc Free Clinic (JDFC) is a student-run free clinic associated with the University of Kansas Medical Center. JDFC, in addition to urgent care needs, offers prenatal, postpartum, and limited gynecologic services. Only 40% of women in the United States attend the recommended provider visit at 4-6 weeks postpartum, and no precedent exists to address postpartum adherence at a student-run free clinic. A protocol was created to address low postpartum scheduling and attendance. This protocol included scheduling postpartum appointments before delivery, appointing a postpartum liaison to ensure consistent protocol implementation, calling the labor and delivery unit weekly for patient updates, and calling the patient after delivery and one day prior to the scheduled appointment. Implementation of the new protocol led to a dramatic increase in scheduling postpartum appointments. The increase in postpartum scheduling resulted in 69.38% of new protocol patients attending postpartum appointments, compared to 61.5% prior to implementation ( $X^2(1, N=75) = 5.4853, p < .02$ ). Patients also had increased rates of long-acting reversible contraceptives (LARC) usage and postpartum depression screening. Overall, the introduction of a postpartum protocol enabled JDFC to improve the process of scheduling perinatal patients for postpartum visits, which resulted in a larger proportion of patients receiving recommended postnatal follow up.

## **"Snippets & Tidbits" as a Learning Strategy for PGY1 Family Medicine Residents (Educational Program)**

*Kristina Laguerre, MD and Jennifer Waite, DO  
Sunrise Graduate Medical Education Consortium - Southern Hills Hospital*

Our aim was to design an efficient study program for PGY-1 family medicine residents in order to improve performance on their In-Training Examinations (ITE). By analyzing and comparing mock-ITE (taken during orientation) and actual exam scores of the exposed and unexposed groups, we were able to determine if implementing a 12-week guidelines-based program is an effective study tool. All members in the exposed group demonstrated a positive percent change from the mock to actual ITE, with some scores improving as much as 22%; however, the small sample size made it difficult to demonstrate any statistically significant changes. Feedback from residents in the exposed group suggest that the Snippets and Tidbits study program was an effective tool, particularly when it came to studying guidelines-based information—something they were not previously accustomed to doing. The Snippets and Tidbits study program will be introduced to the next incoming class of PGY-1 residents, with the hopes of gathering more quantitative and qualitative data and in order to determine if a true difference in ITE scores exists between exposed and unexposed groups.

## **Screening for Postpartum Depression and Anxiety in Mother-Baby Dyads in a Family Medicine Residency Practice (Research)**

*Theresa Clearman, MD*

*Family Medicine Residency Program, Memorial Hospital of Rhode Island, Alpert Medical School of Brown University*

A growing body of evidence supports screening for maternal postpartum depression at newborn visits as well as at mothers' postpartum visits (1,2,3,4). We investigated whether postpartum depression screening is being conducted at newborn, postpartum, and adult primary care visits in the year following delivery in our resident-faculty practice in Pawtucket, RI. Infant-mother dyads who were both established patients in our practice for births from July to December 2016, with a total of 32 infants and 31 mothers, were included in the retrospective review. Charts were systematically reviewed for documentation of postpartum depression screening, psychiatric diagnoses, and treatment plans. Edinburgh Postnatal Depression Scale (EPDS) was performed on 15 of the mothers, most commonly at the postpartum visit and once at a newborn visit. Twelve mothers (39%) had either depression or anxiety, three were diagnosed prior to pregnancy, and of the remaining nine, six had EPDS screens performed. Ten mothers with no psychiatric diagnoses were never screened with the EPDS, several of whom presented for their children's visits but not their own. These data suggest that formal screening at newborn visits could improve our detection of postpartum depression and broaden access to treatment.

## **Failure to Follow Up Abnormal Radiographic Findings in Pulmonary Nodules at a Level 1 Trauma Center and Community Hospital (Research)**

*Matt Decker and Hunter Faris*

*University of Missouri - Kansas City*

Pulmonary nodules are masses identified by radiological modalities and have been shown to be incidentally discovered and not pursued in up to 70% of cases. Surveillance management of identified nodules is necessary because of the risk of increased morbidity and mortality from new lung cancer diagnosis. This study aimed to quantify the rate of completed follow up at a local level one trauma center and found that overall successful initial management was only 48.0%. Our results reveal the need for new protocol that increases the rate of successful pulmonary nodule management to accomplish a higher standard of medical care for patients.

## **Listening Matters! The Effect of PCP Listening Frequency on ED Visits (Research)**

*Katie Hinderaker, MD*

*University of Minnesota - St. Joseph's Family Medicine*

Few studies have examined how patients' relationships with their primary care providers (PCPs) influence healthcare utilization. This study sought to determine whether a PCP's listening skills was associated with a patient's ED use. Using the 2015 California Health Interview Survey (CHIS, n=21,034), a multivariable logistic regression was performed to determine if a PCP's listening frequency, as perceived by the patient, was associated with the likelihood of having at least one ED visit within the last year, adjusting for various health and demographic factors. A patient who had a PCP that usually or always listened was less likely to visit the ED than a patient with a PCP that never or sometimes listened (OR = 0.61, 95% CI 0.46 to 0.80). Additionally, patients without PCPs were less likely to visit the ED in the last year than patients with PCPs who never/sometimes listened (OR = 0.51, 95% CI 0.37 to 0.69). Factors significantly associated with increased ED use were younger age, African American race, public insurance, asthma, heart failure, fair-to-poor general health, and limited English proficiency. This study provides insight into factors associated with increased ED utilization from a large, diverse sample.

## **Validity of Consumer-Marketed Handheld Near-Infrared Spectrometer (Research)**

*Jerome Pomeranz*

*Frank H. Netter MD School of Medicine at Quinnipiac University*

Situations exist where a consumer-friendly instrument measuring food content would be better than looking at nutrition labels. Diabetics could more easily choose foods with a low glycemic index, and the food pipeline would be safer if more individuals frequently checked for food contamination. Nutritional studies could be more accurate if they didn't rely on memory recall or subjects journaling everything they consume. One such possible device to remedy current deficiencies is the SCiO near-infrared spectrometer, whose reliability and accuracy this study tested with regard to measuring the nutritional content of apples, carrots, and string cheese. Food was scanned then analyzed using traditional chemistry methods, and the results were compared to the food label and USDA data. Coefficients of variation were calculated to measure SCiO device readings' consistency and ANOVA was used to compare accuracy against food labels. The device reliably measured the cheese but the produce, especially carrots, had higher than desired coefficients of variation. The SCiO device generally had higher accuracy than the food labels, though the overall finding was not statistically significant. The device shows promise for being more accurate than food labels, but data on more food types is required before that is definitive.

## **Health System Utilization for Substance Use Disorder (Research)**

*Kathryn Rooney*

*Rush Medical College*

Substance use disorder (SUD) is a significant problem in the US. Almost 90% of individuals who meet criteria for SUD do not receive long-term treatment services. Rush University Medical Center (RUMC) in Chicago, Illinois has identified mental health and substance use as priority health needs in the area serviced by RUMC. Our study sought to determine the association between insurance status and hospital use for SUD services at RUMC. We also explored this association before and after the implementation of CountyCare under the ACA in 2013. RUMC hospital encounters for SUD were identified using the Chicago Area Patient-Centered Outcomes Research Network database and characteristics, including insurance status of individuals who sought SUD services. Adults aged 18 or older who sought SUD services at RUMC from January 2011 to December 2015 were included in the study. Our study found that the majority of individuals who sought SUD services at RUMC from 2011 to 2015 had health insurance. Regardless of insurance status, most SUD encounters involved an inpatient admission. In addition, SUD encounters increased following the implementation of CountyCare in 2013, indicating that individuals may have greater access to SUD services at RUMC as a result of insurance provisions under the ACA.

## **Get More Bang for Your Patient Care Discrepancy Between Family Medicine Resident and Faculty E/M Codes in a Continuity Clinic Setting (Research)**

*Anisha Turner, MD*

*Louisiana Health Sciences Center Shreveport*

Correct coding is essential for appropriate revenue and payment, while errors can result in discipline or loss of future participation in Medicare and other programs. Unfortunately, very few family medicine (FM) residency programs offer formal curriculum about practice management or economics. Our study assessed family medicine resident coding accuracy when compared to faculty physicians. All resident notes were assessed by a faculty member and billing changed at faculty's discretion. T-tests and Pearson chi-square was used to analyze the data. Of the 224 charts that were reviewed, a total of 99 (44%) were inaccurate when compared to the attendings' E/M code. Accuracy significantly increased from PGY1 to PGY3 year ( $p = .003$ ). The inter-rater reliability (IRR) measured between the resident and attending charts was 55%. Total financial loss across all 233 encounters were estimated at \$1613.16 over a 12-week period. This high level of discrepancy between resident and faculty billing indicates the need for further education and intervention in this area.

## **Poster Displays**

### **Felty's Syndrome: Rare Subset of Rheumatoid Arthritis Mistaken for Inflammatory Process (Clinical Inquiry)**

*Nisa Arshad, MD, Nabeel Ali, MD, and Amsa Arshad, MD  
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Felty's syndrome (FS) is a severe but rare subset of seropositive rheumatoid arthritis (RA). FS has a classic triad of RA, neutropenia, and splenomegaly. The lifetime risk of developing FS for a patient diagnosed with RA is less than 1%, although the true prevalence is difficult to assess because many patients remain asymptomatic. This syndrome develops in long-standing RA, usually greater than 10 years, and the exact etiology is unknown. We report a case of a 55-year-old Caucasian female who presented with chronic non-healing ulcers in the setting of seropositive RA. She was noted to have WBC of 3.31k and ANC of 1.92k on presentation. Her skin lesions were initially attributed to an infectious etiology, and she was treated with multiple courses of antibiotics. Her WBC continued to drop and abdominal ultrasound revealed splenomegaly, pointing toward a diagnosis of Felty's syndrome. The diagnosis was further confirmed by dermatologic histopathology. This case illustrates the importance of keeping a broad differential in mind when approaching non-healing skin ulcers, especially in the face of antibiotic failure, as well as reminding us of a rare but important complication of RA.

### **A Case of Scurvy (Clinical Inquiry)**

*Sarah Baden, MD  
Institute for Family Health - Harlem*

A 60-year-old female presents with complaints of weakness, bilateral lower leg and foot redness, and immobility due to pain in her hip and legs for approximately one month. She was undomiciled and eating a diet of canned tuna and crackers. Physical exam revealed dried blood on her lips with gingival bleeding and gum hypertrophy. She had previously been diagnosed with deficiencies of B and D vitamins, and on this presentation, her gingival findings were classic and raised suspicion for scurvy, a rare disease in the United States. Her other symptoms of depression, multiple bone fractures, erythematous skin, and pain were also consistent with vitamin C deficiency. The diagnosis was confirmed and she was successfully treated. This clinical inquiry will discuss this unique case, as well as review the symptoms, cause, diagnosis, and treatment of scurvy. Implications are not only for those working globally in resource-challenged settings, but also for those working at home with populations at risk.

### **A Different Angle: A Rare Cause of Nausea and Emesis in an Adolescent Female (Clinical Inquiry)**

*Christy Baggett, DO, Ashley Yenior, MD, and Renu Gautam, MD  
Mayo Clinic Florida Family Medicine Residency*

Superior mesenteric artery (SMA) syndrome is a rare cause of a small bowel obstruction resulting in persistent nausea and emesis. SMA syndrome usually occurs in the setting of recent weight loss, as it is suspected that the loss of the duodenal fat pad causes a narrowing in the angle between the aorta and the SMA, leading to compression of the duodenum. The diagnosis is made by computed tomography and ultrasound. Patients are initially managed conservatively, but may require surgery if symptoms persist despite conservative management.

### **Loperamide Abuse: A Rising Concern (Clinical Inquiry)**

*Priyanka Bhandari, MD  
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We describe a case of a 32-year-old female who presented to the ER with abdominal discomfort and atypical chest pain and palpitations, and was found to be in polymorphic ventricular tachycardia (torsades de pointes) along with persistently prolonged QT interval of 700 msec. Further history taking revealed she had been taking 200 tablets of over-the-counter (OTC) loperamide per week for chronic back pain. There has been a rising concern among health care workers, especially primary care physicians about the rising abuse of OTC loperamide, an anti-diarrheal medication, due to its opioid agonistic action. It is being increasingly used for prolongation of the opioid analgesic and euphoric effects and at times to treat the opioid withdrawal symptoms. It is referred to as the "poor man's methadone". The rise in loperamide abuse has been mainly observed around 2010 coinciding with the introduction of tamper-resistant oxycodone tablets. Although safe in normal doses, excessive doses have been linked to gastrointestinal, respiratory, and serious cardiovascular side effects. Recent years have seen an upsurge of these cardiotoxicities in the abusers.

## **Speechless: The Relationship Between Peripartum Cardiomyopathy and Stroke (Clinical Inquiry)**

*Whay-Yih Cheng, DO*

*Saint Louis University/Scott Air Force Base, Illinois*

Peripartum cardiomyopathy (PPCM) is defined as new dilated cardiomyopathy diagnosed in the final month of pregnancy or up to several months after delivery with an ejection fraction (EF) of less than 45% [1,2,5]. It is a rare disease process that occurs in 50% [1]. The time to recovery varies and can take up to five years. In the meantime, women can develop ejection fractions <35%, which predisposes them to risks such as left ventricular thrombus formations and arrhythmias, which may lead to complications such as strokes [2]. The overall management of PPCM is similar to the standard treatment of heart failure, which follows the American College of Cardiology/American Heart Association (ACC/AHA) task force recommendations. In addition, women with an LVEF <35% should be given either heparin/low-molecular-weight heparin (antepartum) or warfarin (postpartum). However, there is a lack of evidence in the management of PPCM to support the use of aspirin, Xarelto, or Pradaxa, and if different anticoagulants show the same, worse, or better mortality outcomes in women with PPCM.

## **Krokodil: The Flesh Eating Drug from the Depths of Russia (Clinical Inquiry)**

*Crystal Golding and Joseph Hong*

*American University of the Caribbean School of Medicine*

Desomorphine, commonly known as “krokodil,” is a semi-synthetic opioid that first found its prominence in Russia for its powerful sedative and anesthetic effects. The drug is infamously known for its highly destructive and damaging dermatologic effects, ranging from open ulcers to necrotic, gangrene tissue and scars. Although cases of krokodil use in the United States are less prevalent than those of heroin, the drug produces substantial unique physical manifestations that are important to recognize. This case report examines the clinical manifestations of a middle-aged male (Case #1) and female (Case #2) couple in Nassau County, New York with admitted krokodil abuse, and compares them to the sparse-reported consequences with use of this drug in North America. Both patients presented with krokodil-induced ulcerations on their extremities at the injection sites. They were treated with antibiotic therapy for soft tissue infections and worked up for bacterial endocarditis. The patients were also treated for complications of their intravenous drug use, including bacteremia and a paraspinal abscess.

## **Large Pelvic Mass as a Cause of Acute Decompensation (Clinical Inquiry)**

*Nadine Grace and Peter Abraham*

*Ross University School of Medicine*

Pelvic masses are a common finding in women of reproductive age and present a diagnostic dilemma. Though 90% of masses are found to be benign, rapidly-growing pelvic masses raise concern for malignancy, prompting extensive diagnostic laboratory tests and imaging. Presenting symptoms in gynecologic malignancy are varied and the spectrum of presentations make thorough clinical examination necessary to ensure malignancy is investigated in appropriate patients. Malignancy should be thoroughly investigated in women with new, rapidly-growing pelvic masses. Though the role of imaging in suspected gynecological malignancies is debated, ultrasound and MRI can characterize the mass to query malignancy. Here, we report a case of a 36-year old woman who presented with dyspnea and pelvic pain. Exam revealed a pelvic mass suspicious for malignancy as well as a tender abdomen. Magnetic resonance imaging of the abdomen and pelvis with contrast revealed a heterogeneous pelvic mass measuring 12.5 centimeters with intense enhancement, anterior and superior to the uterine fundus. Echocardiogram revealed pulmonary hypertension. The patient quickly deteriorated and was not able to be resuscitated. Though autopsy results are pending, a large heterogeneous pelvic mass with intense enhancement, in conjunction with our patient’s clinical course, suggest gynecologic malignancy.

## **Access to HIV Pre-Exposure Prophylaxis in High Risk Seronegative Patients in the Primary Care Setting: A Call for Action (Clinical Inquiry)**

*Zarrin Hossein-zadeh and Roberto Rivero-Soto, MD  
Medical University of the Americas*

Despite the overall national reduction rate in HIV infection by 18% from 2008 to 2014, the rate of infection has been increasing amongst African American and Latino homosexual and bisexual men by 35% and 20% respectively. Pre-exposure prophylaxis (PrEP) is a single daily oral medication that has shown significant reduction in the rate of HIV infection in high risk populations. The corresponding case presents a 21-year-old AA homosexual male with high-risk sexual behavior that presented to the family medicine clinic to establish care and inquire about resuming PrEP. He had tested negative for HIV at three and six months prior; however, during the initial assessment for PrEP, his HIV results were positive, and he was started on ART. This case raises concerns about the lack of approved medical interventions such as PrEP to high risk individuals. There are numerous other reported cases including high risk patients with injection drug use (IDU) and patients in serodiscordant heterosexual relationships that have not been educated about PrEP. This case report aims to increase awareness about PrEP safety and efficacy within the primary care setting.

## **Decreasing Mortality Through the Early Recognition of Sepsis (Clinical Inquiry)**

*Anthony Iwelunmor, MD  
Columbus Regional Health (The Medical Center)*

Sepsis is a clinical syndrome caused by dysregulated inflammatory response to infection. It is classified in a continuum of severity ranging from infection and bacteremia to sepsis and septic shock, which can lead to multiple organ dysfunction syndrome and death. The rate of sepsis in the United States since the late 1970's has gradually increased. Some of the major reasons for the increased rate of sepsis are due to immunosuppressed patients, advancing age of patients, and multidrug-resistant infections. The following case depicts my encounter with a septic patient in the emergency room. Based on constellations of physical examination, clinical lab findings, radiologic, microbiological, and physiological data, I was able to diagnose the patient with sepsis. I initiated appropriate therapy effectively upon my encounter with the patient in the ER and admitted her to the intensive care unit (ICU).

## **A Case of Severe Hyponatremia in a Beer Drinker (Clinical Inquiry)**

*Alka Kalathil, MD  
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In 1971, Demanet, et al., first recognized a case of low daily solute intake and excessive beer drinking leading to dilutional hyponatremia. Since then, nearly 20 cases have been discussed(1). Patients, who develop this syndrome, beer potomania, present with severe hyponatremia and are at an increased risk of complications related to rapid correction of this hyponatremia. As most beer drinkers take in some sort of additional food source to meet the minimal solute requirement for free water excretion in the kidney, this syndrome is not commonly seen. Patients who present with beer potomania tend to have recently binged in excessive amounts of beer or experienced an abrupt decrease in food intake in the preceding days prior to presentation(2). This case will discuss a patient who presented with beer potomania and subsequently developed osmotic demyelination syndrome.

## **Bilateral Lower Extremity Pain and Weakness With an Incalculable INR (Clinical Inquiry)**

*Aruna Khan, MD and Christy Baggett, DO  
Mayo Clinic*

Anticoagulant medications are widely used in the primary care setting. The indications for these medications include the treatment of venous thromboembolism and prevention of stroke in patients with risk factors. There are a variety of anticoagulants, but this study will focus on warfarin since it was the medication used by our case patient. Warfarin is a vitamin K antagonist and its mechanism of action involves deactivating the vitamin K-dependent clotting factors. When therapy is initiated, it should be given with a heparin product for at least five days until the international normalized ratio (INR) is therapeutic for two consecutive days. Warfarin therapy requires close monitoring until therapeutic levels are stabilized due to the adverse effect of major bleeding. In this study, we present a case of a patient who had been on chronic warfarin therapy and was previously treated with a two week course of fluconazole. Thus, the patient presented with dermatologic findings of ecchymoses and hematomas. In addition, she had an unusual complaint of bilateral lower extremity pain and weakness. After thorough investigation and workup, her labs revealed an incalculable INR and CT pelvis showed a right iliopsoas muscle hemorrhage/hematoma that was significantly enlarged.

## **Beware of Low Back Pain (Clinical Inquiry)**

*Frank Marcano, MD*

*The Brooklyn Hospital Center*

A 51-year-old male presented to the clinic for low back pain. Pain has been for a month, sharp, 6/10. Not radiated, improved with NSAIDs, and worsens when lying down or moving. Denies paresthesia, saddle anesthesia, changes in bowel or urinary systems. No trauma involved. Lab work done was remarkable for calcium of 11, which is not routinely done for back pain. Physical examination limited due to pain, but demonstrated an antalgic gait bilateral weakness in lower limbs. Spastic and tenderness to palpation on the paravertebral thoracic and lumbar spine. Spinal X-rays: fracture at T8 and L2. CT and MRI showed lytic lesions, compression deformity at T4, T8, L1, L2, and L4 vertebral bodies, and suspicious for pathological fractures. Bone marrow biopsy was done to confirm multiple myeloma (MM). MM is a neoplastic plasma cell disorder characterized by proliferation of malignant plasma cell in the bone marrow. MM can be suspected with bone pain with lytic lesions, increased serum total proteins and/or monoclonal proteins in the urine or serum, anemia, acute renal failure, and hypercalcemia. MM is often-missed diagnosis on the differential for acute lower back pain. As in this case, it can present with virtually no warning signs.

## **Systemic Methicillin-Resistant Staphylococcus Aureus Infection in a Patient With Scabies (Clinical Inquiry)**

*Alexiso Otero Rosado, MD*

*Manati Medical Center Family Medicine Program*

Scabies is an infestation of the skin by the mite *Sarcoptes scabiei*. Classic scabies usually manifests as an intensely pruritic skin eruption with a distinct distribution. The space between the fingers, wrists, axillae, areolae, and genitalia are common sites of infection. Secondary staphylococcal infections, including impetigo, ecthyma, paronychia, and furunculosis, frequently complicate the scabies infestation. The fissures associated with the infestation provide a portal of entry for bacteria, which may lead to sepsis in older adults and immunocompromised patients(1). We present the case of a 67-year-old woman living in a nursing home that presented with a five-hour progression of fever, shortness of breath, sialorrhea, hypoactivity accompanied by erythematous, linear skin eruptions in her trunk, upper extremities, and lower extremities consistent with scabies infestation (ICD 10 diagnostic code B86), and eventually complicated with Methicillin-resistant *Staphylococcus aureus* disseminated infection. The patient had history of two prior episodes of scabies infestation treated each time with permethrin cream achieving partial symptom relief. This case report identifies predisposing factors that helped develop the serious and eventually lethal complications from such infestation. Preventive measures, rapid diagnosis, and initiation of appropriate therapy should be initiated when suspicion of this diagnosis first arises.

## **A Case of Newly Diagnosed WPW Pattern During Pregnancy (Clinical Inquiry)**

*Katherine Rendon, MD and Ariel Hoffman, MD*

*Carl R. Darnall Family Medicine Residency Program*

Introduction: Management of Wolff-Parkinson-White (WPW) is well-known; however, management in pregnancy is not well defined in the literature. Presented is a case of a WPW pattern in a pregnant patient who reported chest pain. Case Presentation: 23-year-old G1P0 at 34 weeks estimated gestational age who presented to the emergency department with chest pain was found to have WPW pattern seen on resting EKG. Maternal fetal medicine and cardiology were consulted with recommendations of adequate pain control during labor and procainamide intravenously if needed for arrhythmia. She proceeded to cesarean delivery due to nonreassuring fetal heart tracing. The delivery and postpartum period were uneventful. She was discharged with cardiology follow-up for electrophysiology study. Discussion: WPW is a preexcitation syndrome that can progress to SVT, especially in pregnancy due to hemodynamic shifts and increased heart rate. Management of WPW syndrome consists of antiarrhythmics and ablation. These are considered based on symptoms and hemodynamic stability of the patient; however, pregnancy complicates these recommendations. Conclusion: As pregnancy can unmask previously unknown arrhythmias, family physicians who care for obstetric patients should have some familiarity in basic management of common arrhythmias which may be encountered in pregnancy.



## **Life-Threatening Gastrointestinal Bleeding from Dieulafoy's Lesion with Synchronous Submucosal Mass of the Stomach (Clinical Inquiry)**

*Cesar Rodriguez Franco, MD and Dianela Medina Vega, MD  
University of Puerto Rico Family Medicine Residency Program*

Upper (GI) bleeding is a significant cause of in-hospital morbidity and mortality in the US. It's responsible for 400,000 hospital admissions yearly. Although relatively uncommon (1.5%), Dieulafoy's lesion usually causes severe, life-threatening, recurrent, acute GI bleeding. Suspicion being low, it can be difficult to diagnose. This is the case of a 47-year-old male with no medical comorbidities who showed up with painless melena and symptomatic anemia. Initial esophagogastroduodenoscopy (EGD) revealed a small submucosal mass suggestive of gastrointestinal stromal tumor (GIST) with a clean ulcer that was initially identified as the source of the bleeding. Life-threatening melena persisted despite aggressive medical treatment. Repeated EGD, colonoscopy, and tagged RBC scan found no active bleeding. Ultimately, an arteriography identified and embolized a stomach Dieulafoy's lesion, achieving resolution of symptoms without reoccurrence. This case illustrates the importance of broad differential, highlights the challenges of identifying the etiology of intermittent GI bleeding with uncommon synchronous GIST and Dieulafoy's lesion, and how its concurrence introduces a confounding factor in achieving the correct diagnosis and treatment.

## **Neurosyphilis Presenting with Anxiety (Clinical Inquiry)**

*Ashley Rubin and Nhu-Hac Truong  
West Virginia School of Osteopathic Medicine*

The number of cases of late and late latent syphilis in the United States is on the rise(1). This diagnosis is often forgotten when an elderly patient is being worked up for altered mental status. Rarely does a 70-year-old male with neurosyphilis present simply with anxiety. Due to the decreased severity of the presentation, this patient was sent home from the emergency department multiple times until the anxiety progressed to psychosis. He was finally admitted with delirium, suicidal ideation, and paranoia. A routine T. pallidum Ab test returned positive, and further workup of confirmatory lab work, a thorough neurological exam, and MRI imaging revealed a chronic syphilis infection. This case study explores signs in the history and physical examination that should quickly prompt a provider to consider neurosyphilis as a differential. This patient presented with Argyll Robertson pupils and significant risk factors. The goal of this discussion is to bring awareness to this infrequent presentation and share simple examination techniques that could have been used to diagnose and treat this patient's symptoms more promptly. In doing so, the hope is to raise awareness to the diagnosis of neurosyphilis, especially in the elderly patient presenting with psychiatric symptoms.

## **Dyspepsia: A Case Report and Discussion of Current Treatment Guidelines (Clinical Inquiry)**

*Samantha Sabban  
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Dyspepsia is a common problem that affects up to 40% of adults each year. Symptoms include epigastric pain or burning, postprandial fullness, and early satiety. The corresponding case recounts a 32-year-old white male who presented to the clinic with acute on chronic dyspepsia for 10 years. Current treatment included over-the-counter proton pump inhibitors and antacids. He denied any other medications or NSAIDs, weight was stable, and there was no clinical dysphagia. A referral was placed to gastroenterology due to the chronicity of symptoms. Upper endoscopy was performed and notable for mild gastritis, a small hiatal hernia, and an upper esophageal inlet patch. Biopsies were negative for H. pylori and he was started on omeprazole 40mg daily with symptomatic improvement. The approach to treatment for patients with dyspepsia-type symptoms can be difficult. Non-pharmacological interventions such as dietary discretion, weight loss, and identification of triggering agents such as Helicobacter pylori infection should be thoroughly evaluated. Patient-directed therapy with a trial of once daily dosing of proton pump inhibitors (PPI) and endoscopy are reserved for those who fail first-line therapy.

## **MTHFR and PAI-1 Mutation Resulting in Bilateral BKA in a 22-Year-Old Male (Clinical Inquiry)**

*Gurbani Singh, Gurneet Matharoo, MD, and Rizwan Minhas, MD  
American University of Antigua*

In this study we describe a rare case of PAI-1 gene hyper-expression with concurrent heterozygous MTHFR mutation leading to bilateral deep venous thrombosis (DVT) and compartment syndrome with sequela in a 22-year-old male. The patient presented to the emergency department with complaints of bilateral calf swelling, redness, and pain. He had just driven more than seven hours prior to presentation. Haematological labs were drawn and lower extremity ultrasound was performed revealing bilateral lower extremity DVT. He had an elevated D-dimer and was given Lovenox (enoxaparin) with a prescription for Eliquis (apixaban). Two days later, the patient returned due inability to ambulate. He admitted to not filling his script for Eliquis but his presentation of marked lower extremity edema and tenderness was out of proportion. He was found to have acute bilateral lower extremity compartment syndrome with resulting AKI (creat. 8.0), severe rhabdomyolysis with CK > 127,000 and hyperkalemia (7.2), along with shock liver and hematemesis. He was given aggressive IV hydration and underwent bilateral 4 compartment fasciotomy with left lateral thigh fasciotomy and IVC filter placement. Due to the extent of needed fasciotomies, he underwent BLE debridement of necrotic muscles and required below knee amputations. Mutation was noted afterward.

## **Care for the Disabled Traveler on Vacation: Operation KD and the Mouse (Community Project)**

*Tiffany Chen and Maegan Pollard  
University of Massachusetts Medical School*

For adults living with disabilities that require skilled nursing for ADL assistance, organizing a family vacation may seem like an impossibility. Despite the obstacles, our team developed a community project for medically empowering a disabled individual to go on the trip of a lifetime. The patient is a 53-year-old male who is wheelchair-bound and immobile from the waist down and has a love for Disney. He resides in a skilled nursing facility (SNF) where he receives assistance for ADLs (i.e. bathing, toileting, and transferring from wheelchair to bed). Organizing this trip involved four stages, during which roles were established and discussed prior to the trip with the family/care team involved. Three medical students and one veterinary student became the core transfer team to work with KD's family and SNF healthcare workers to take on the caregiver burden during the trip. Having medically literate family members was a helpful resource in navigating the necessary steps to remove a disabled adult from a SNF in a safe manner, but family engagement was key. Overall, we would encourage other disabled individuals to dream big, for organizing a safe trip successfully overcame the risks that could interfere with memories of a lifetime.

## **Yoga Class Intervention in Response to Health and Exercise Beliefs, Behaviors, and Habits of Migrant Farmworkers in Ohio (Community Project)**

*Haley Coleman and Neha Chavali  
Northeast Ohio Medical University*

Importance: Obesity is a common problem in Hispanic migrant farmworker communities in the United States exacerbated by socioeconomics, culture, and workload. Methods: A survey was administered at a medical clinic in a migrant farmworker community to understand health knowledge, beliefs, and behaviors, examine homogeneity across migrants, and design culturally- and socioeconomically-sensitive interventions. Individuals (n=36) completed a 31-item survey: three demographic, 12 health behavior, eight health belief, three health knowledge, and six health intervention questions. Responses were analyzed by frequency graphs and bivariate analyses, stratified by gender using chi-squared tests to determine significance. The results were presented to the medical director, board of directors, and migrant community. A yoga class was designed and held weekly over the May to September farming season. Follow-up focus groups were held at the conclusion. Results: The yoga class had 20 attendants. Attendees had high regards for the class and felt motivated to exercise and stretch at home. They felt more confident about their knowledge of exercise and health. Of the attendees of the focus group, 100% wanted yoga to be available the following season. Conclusions: Culturally sensitive and innovative programming, such as a weekly yoga class, can be effective in encouraging healthy habits and reducing health disparities in migrant communities.

## **Doctors Create Local Solutions: A Panel Q&A on Fixing Hawaii's Healthcare (Community Project)**

*Arcelita Imasa*

*John A. Burns School of Medicine*

Recognizing the ongoing challenges and problems in Hawaii's healthcare system, medical students belonging to Partnership for Social Justice interest group sought opinions from our local doctors to find consensus on how to address the primary care doctor shortage, skyrocketing insurance premium costs, decreasing career satisfaction and increasing burnout among local doctors, and increasing administrative costs and burdens in Hawaii's healthcare. The three-hour panel Q&A and discussion event was held at the medical school, and a significant number of our local doctors and medical students participated. Through the presentations of four speakers, who are all doctors, a list of solutions to the healthcare crisis was generated. The discussion among doctors that followed brought up additional proposals for approaches to healthcare problems in Hawaii. This event is unique because it exposed the medical students to the personal and collective experiences and opinions of our current doctors, giving future doctors insights on what their future may look like. Additionally, it provided a venue for our local doctors to voice their views and opinions in identifying goals for real healthcare reform and impacting policies that will benefit not only them but also the health of Hawaii's population.

## **Protecting Our Vulnerable: Screening for Mistreatment in Hospice (Community Project)**

*Jennifer La*

*The University of Texas Health Science Center at San Antonio*

Hospice patients are a vulnerable population at greater risk of mistreatment. While the incidence of mistreatment in vulnerable populations has been defined, approaching 10% in elderly and 50% in dementia, the incidence of mistreatment in hospice is not well defined. This study aims to assess the rate of hospice patients who establish concern for mistreatment (ECM) and identify risk factors. Patients admitted to a local hospice were screened for mistreatment using two screening tools validated among the elderly: Elder Abuse Suspicion Index (EASI) and Caregiver Abuse Screen (CASE). Those able to participate in a survey were screened using EASI; those unable to participate, or who relied on caregivers, were screened with CASE. EASI score was  $\geq 1$  (max 5) and CASE  $\geq 4$  (max 8) ECM. Our results showed a total cohort ECM of 7% with CASE question five (caregiver neglect) and seven (caregiver exhaustion) most frequently positive. We concluded that the rate of hospice patients with ECM is similar to other vulnerable populations. However, our limited results support the need for larger studies to investigate validated, hospice-specific screening tools and methods of implementation, ultimately improving patient care for vulnerable hospice patients and targeting risk factors such as caregiver burden.

## **Money in Medical School: Student Perception and Retention of a Financial Literacy Elective (Educational Program)**

*Anne Drolet, Seth Barker, and Rohit Nallani*

*Michigan State University College of Human Medicine*

Medical students face increasing amounts of debt, which impacts several aspects of their lives, including specialty choices. To combat this, we developed a medical business and finance elective offered to preclinical students. The nine week elective consisted of lectures from various financial and medical professionals. We measured retention of key topics and student attitudes after completion of the elective using pre- and post-survey responses from all 169 participants of the elective, in addition to follow-up surveys from 101 students. The elective resulted in a significant increase in perceived knowledge of medical finance ( $\Delta 3.1$ ,  $p < .001$ ) and medical business ( $\Delta 2.7$ ,  $p < .001$ ). Additionally, mean perceived knowledge scores years after completing the elective were higher than the initial pre-elective scores. The pre- and post-elective surveys showed no statistically significant change in attitudes toward student debt. The results indicate that not only does this elective format increase perceived knowledge of medical business and finance directly after elective completion, but an increase in perception can be seen up to four years after course completion. This elective format is an ideal method to promote medical students' business and financial literacy and offers a strong prototype for other programs.

## **Fourth-Year Medical Student Perceptions of Wellness Resources at the Geisel School of Medicine at Dartmouth (Educational Program)**

*David Han, Dema Hakim, Narek Mkrtychyan, and Mrika Aliu  
Geisel School of Medicine at Dartmouth*

Amidst troubling evidence on medical student burnout, it is unclear to what extent students use and perceive wellness resources offered at their institutions. Such knowledge may provide insight into student attitudes toward efforts to promote wellness. Using survey methodology, we conducted a cross-sectional study to understand the perceptions and use of wellness resources at a single institution by fourth-year medical students. Our main outcome identified which resources most respondents used and deemed helpful compared to others. Sixty-one students responded (84% cooperation rate). Of 29 resources assessed, Wednesdays off between rotations, student events, and student interest groups were most commonly deemed helpful. Participants reported the school was “too little” or “way too little” involved in addressing student wellness (84%) and ideally, the school should be “very” or “extremely” involved (87%). Students commonly endorsed not having enough time for themselves (56%), citing lack of time as the most important issue on which the school could better focus. In conclusion, there exists a wide range of wellness resource use and perceptions. Despite the variety of wellness offerings, students believe the Geisel School of Medicine is less involved in addressing wellness than it ideally should be and time was a salient theme of concern.

## **Case-Based Learning: Improving Contraception Knowledge and Counseling Skills of Clerkship Students (Educational Program)**

*Bethany Werner  
UT Southwestern*

Better educating medical students about contraception and the art of counseling patients is important to many fields of medicine. Problem-based learning (PBL) is a teaching method being incorporated in US medical education due to evidence that it is more engaging, ensures deeper learning, and strengthens student/faculty interactions. We sought to determine if PBL improves comprehension and comfort with counseling patients when compared to a traditional didactic lecture. The first group of students on the third-year OBGYN rotation received the traditional lecture, and the second group received the case-based lecture (CBL), a subtype of PBL. A total of 53 students completed post-lecture questionnaires. The average comprehension score increased 7.69 points from the traditional lecture to the CBL. The CBL cohort demonstrated more positive answers (strongly agree or agree) to a statement regarding being comfortable counseling patients than did the traditional lecture group. The increased average is a positive sign that CBL is an effective way of teaching this topic. The curriculum component created for this study addressed counseling patients on contraception, which is a new addition to traditional lectures. CBL is an effective way to teach clerkship students about contraception and patient-centered counseling skills.

## **1989 (Research)**

*Ayoola Adigun  
Zaporozhye State Medical University*

Urgent care centers (UCCs) are part of the US health care delivery system reducing emergency department (ED) overcrowding and providing access, quick service, and lower cost of care than EDs. Managed care organizations (MCOs) have begun to partner with UCCs to treat non-urgent health conditions. Despite the rapid growth of the urgent care industry, few studies describe characteristics of beneficiaries from Medicaid/Medicare MCOs who use UCCs. Our objective was to identify the characteristics of beneficiaries from a MCO who utilized UCCs and compare them with ED users and those who used both for non-urgent health conditions. Using cross sectional design, we analyzed administrative claims data of a MCO from January to December 2016 (n=20,107). Outcome variables were number of visits to UCCs, EDs, or both. The MCO followed New York University algorithm for ED visit classification to identify non-urgent health conditions. We used the Behavioral Model of Health Care Utilization as a conceptual framework to identify the predictors in the model: age, gender, race, distance to UCC from residence, type of insurance, primary care physician visits, inpatient admissions, chronic conditions, morbid obesity, and smoking. Three generalized linear models were used to analyze the association between outcomes and predictors.

## **Use and Impact of the Point-of-Care Video-Recording Feature in iOS PhotoExam Application (Research)**

*Julia (Claire) Cambron and Kirk Wyatt, MD  
Mayo Clinic School of Medicine*

Due to the prolific use of smartphones and the prevalence of EMRs in healthcare today, Mayo Clinic's internal iOS-based, clinical photo- and video-capturing application (PhotoExam) and similar commercially-available applications provide a convenient opportunity to enhance point-of-care documentation. Studies of PhotoExam's photography function have demonstrated its diverse clinical applications. However, little is known about utilization of the video-recording feature or how the application's use affects patient-centered outcomes. In order to further investigate, we reviewed 394 videos recorded between March 2016 and July 2017 by Mayo Clinic staff using the PhotoExam application. Findings revealed that orthopedic surgery contributed the most videos (33%). The finding captured 83% of the time was range of motion, often pre- or post-surgical intervention. Next most frequent contributors were neurology (23%) and ophthalmology (16%), often using the application to document the progression or stability of a finding, such as motor function and balance (25%) or extraocular movement (44%) respectively. Primary care specialties contributed 8% of the total videos (29/366 eligible videos) and 10% of the videos that resulted in referrals (3/30 videos). Those referred cases equated to 10% of the total videos taken by primary care providers, demonstrating the application's ability to augment documentation and facilitate hand-offs in primary care.

## **Association of Hypertension Among Self-Reported Binge Drinkers in a Patient-Centered Medical Home with a Screening, Brief Intervention, and Referral to Treatment Program (Research)**

*Vladislav Fomin and Dennis Keselman  
Donald and Barbara Zucker School of Medicine at Hofstra/Northwell*

This study evaluated drinking patterns of patients who were universally screened via the Screening, Brief Intervention, and Referral to Treatment (SBIRT) AUDIT-C questionnaire. A total of 998 patients were identified and were control matched to evaluate the effect of potentially risky drinking (a score of four or greater for men or three or greater for women) or binge drinking (defined as having five or six drinks when drinking or having six or more drinks at once at any point in the last year) on blood pressure and hypertension. Hypertension was defined as having a systolic blood pressure greater than 140, having a previous diagnosis of hypertension, or being currently treated for hypertension. When adjusted for age, BMI, and tobacco usage, there was no correlation found between the rate of hypertension and binge drinking or potentially risky drinking. There was a modest increase in blood pressure when comparing those who were either binge drinking or potentially risky drinking with the control population. The modest increase in blood pressure highlights the importance of understanding a patient's alcohol consumption when addressing, counseling, and managing elevations in blood pressure.

## **Psychological First Aid: Integrating Mental Health and Psychosocial Support (MHPSS) with Disaster Medicine in Dominica after Hurricane Maria (Research)**

*Joshua Gleason, Bill Christian, and Alyssa Vitale  
Ross University School of Medicine*

Unlike physical injuries, adverse mental health outcomes of disasters may not be apparent. Much of the potential harm to survivors of disaster will be related to their mental health. Preparedness requires the active integration of emergency mental health into emergency medicine in every component of disaster response. Emergency personnel often encounter challenges in knowing Who is Where, When, doing What (4Ws) with regard to mental health and psychosocial support (MHPSS). Such knowledge is essential to inform coordination. The aim of the MHPSS needs assessment is to recognize the immediate necessities of communities affected, identify existing services and resources, and generate recommendations to inform the design of International Medical Corps (IMC) programs. As part of this assessment, the IMC conducted a MHPSS 4Ws mapping exercise to document current MHPSS activities being conducted in order to assess community needs and current sources of distress in Dominica after Hurricane Maria.

## **Frailty Assessment and Implications for Patient-Centered Care (Research)**

*Zarrin Hossein-zadeh and Roberto J. Rivero-Soto, MD  
Medical University of the Americas*

In the United States, persons 65 years and older are the fastest growing population. This group is also living longer, leading to a greater number of older patients with the risk of becoming frail. With increasing age, physiologic reserve decreases; however, the rate at which these changes occur vary from individual to individual, making frailty risk stratification a key factor for patient-centered care. Frailty comes from the French word “frele” which means “little resistance”. Frailty is a medical syndrome of multifactorial origin characterized by diminished physiologic reserve, strength, and endurance that makes patients vulnerable to negative outcomes during a disease process or surgery. There have been over 70 different tools developed to assess for frailty; however, there is not a single tool with enough predictive value to be recognized as the standard screening method. In this paper, components of different frailty assessment tools and its relationship to possible outcomes in older patients is reviewed. The aim of this study is to bring awareness about the need for a frailty assessment method to provide health care providers with a good estimate of patients’ overall physiologic baseline and to provide patient-centered care that ensures the best outcomes.

## **Zika Virus Knowledge, Education, and Contraceptive Use Among Rural Dominican Republic Communities (Research)**

*Tricia Mittra and Brooke Bachelor  
Des Moines University*

**Introduction:** A team from Des Moines University traveled to four rural communities within four days surrounding Monte Cristi, Dominican Republic to provide health services. They assessed Zika virus (ZIKAV) knowledge, common contraceptive methods, and methods of disseminating vital health information. **Methods:** Ninety men and women provided informed consent to participate in a 12-question, verbally-administered survey in Spanish. **Results:** Most participants knew of ZIKAV and had received their information from charlas, a local term for informal health presentations. Few knew that ZIKAV is sexually transmitted, incurable, and in their communities. The most commonly-cited contraceptive method was condoms, and thirty percent of participants did not use contraception. One patient reported long-acting reversible contraceptive (LARC) usage. **Conclusion/Implications:** Significant ZIKAV knowledge deficits were present within these communities. With identification of specific knowledge gaps, communities can disseminate standardized, unambiguous, and realistic recommendations during future epidemics. The limited usage of LARCs is concerning when pregnancy prevention is the primary recommendation to prevent fetal harm. Future research should analyze charlas to identify effective methods for disseminating information in a timely manner to similar populations. Results may also be applicable to rural communities globally.

## **State Characteristics Associated With Passage of Health Equity Legislation (Research)**

*Hanna Nedrud, Maria Krisch, RN, and Brooke Cunningham, MD  
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Despite over a decade of research, awareness, and federal action concerning health disparities, health inequity persists in the United States. Unfortunately, there are few incentives for health care organizations to prioritize the elimination of disparities. One incentive for change is passing state health equity legislation. However, information about this legislation and what is necessary for its successful passage is limited. Our project identified and coded state health equity legislation from 2004 to 2014 for bill characteristics and tested for associations between state characteristics and bill passage. Our findings demonstrate that health equity legislation is most often passed in the form of appropriations bills in states with more liberal political ideology. We also highlighted state characteristics such as minority population and inequity scores, which have less impact on bill passage and thus require alternative approaches for passing equity bills in states with people in need. A goal of the American Academy of Family Physicians is to advocate for policies to address social determinants of health and support health equity. Our findings can guide policymakers’ strategies for the introduction of health equity legislation in the fight to end health disparities in our nation.

## **Geographic Distribution of Naloxone Availability at Community Pharmacies in Sacramento County, California (Research)**

*Zachary Nicholas  
California Northstate University*

Naloxone is an opioid receptor antagonist used to reverse opioid overdoses. Recent changes in California regulations permit pharmacists to furnish naloxone without a physician prescription. Additional barriers to naloxone, including geographic distribution and variable formulations, have been identified. We designed a short telephone survey to assess geographic naloxone availability and voluntary adherence to current guidelines at pharmacies in Sacramento County, California. A list of 104 pharmacies was obtained from the California State Board of Pharmacy, excluding specialty pharmacies and facilities contacted during previous data collection. Fifty surveys were completed in 60% of pharmacy-containing ZIP codes consisting of independent, grocery-based, and corporate chain pharmacies. Of the pharmacies surveyed, 41.7% confirmed in-store availability of naloxone, and intranasal spray (Narcan©) was the most commonly available formulation (74.1%), followed by suspension for intramuscular injection (18.5%). Only 46.2% of pharmacies that responded indicated adherence to current voluntary prescription guidelines; yet 57.1% of pharmacies that stocked naloxone also furnished the medication without a physician prescription, compared to 21.4% of non-stocking pharmacies. These results suggest that multiple barriers persist which impede community availability of naloxone. Additional interventions and education aimed at pharmacies may enhance participation to match regulatory aims.

## **Postpartum Depression in Women of Sexual Minorities (Research)**

*Akruti Patel and Faiza Khondoker  
Michigan State University College of Osteopathic Medicine*

Lesbian and gay individuals are 2.4 times more likely to suffer from mood disorders than their heterosexual counterparts. However, there is gap in mental health research done on patients of sexual minorities during the postpartum time period. A literature review was conducted to assess the existing data on PPD rates in lesbian and bisexual women. Pubmed database was used to search the terms “postpartum depression, lesbian, bisexual” using EPPI-4 Reviewer, and three studies were selected that met inclusion criteria for similar methods, outcomes measured, and participants’ sexuality. Studies analyzed depressive symptomatology in post-partum non-monosexual women using self-administered depression surveys. Meta-analysis software and chi-square tests were used to determine the average rates of PPD and the statistical significance of PPD between the heterosexual and non-monosexual groups. PPD rates were significantly higher in non-monosexual women compared to heterosexual women (22% vs 10.2%), ( $p=0.003$ ). Studies showed that a previous history of mental illness was the strongest predictor of PPD in women (1). Lesbian mothers experienced homophobia during obstetrical care and expressed worries of societal homophobia toward their children. The results exemplify the need to improve the mental health care provided to sexual minority mothers during the postpartum period.

## **Examining the Social Determinants of Health: Improving Health by Addressing Inequality Over the Lifespan (Research)**

*Ashley Schumaker  
Central Michigan University College of Medicine*

In the United States we pay more per capita on medical care than all other nations, yet our health outcomes are significantly worse than many other industrialized nations. The primary focus of recent health policy has been on increasing access to health care. While access to health care is important to health, it is not the only or even the most critical, determinant of health. Over the past several decades, researchers have become increasingly interested in examining social influences on health. Researchers examining the social determinants of health have consistently found chronic stress, socioeconomic status, and race are social factors that significantly impact health. In addition, research indicates that health in childhood sets the stage for adult health. This literature review examines research dedicated to understanding how stress, race, and socioeconomic status impact health. In addition, research examining how childhood experiences influence both child and adult health are reviewed. Suggestions for improving health through education on social determinants of health and social policy are provided.

## **Time On Your Side (Research)**

*Anisha Turner, MD*

*Louisiana Health Sciences Center Shreveport*

In the current practice environment, physicians face mounting demands on their time, from face-to-face patient contact to charting in electronic medical records. Yet, no matter what demands a physician faces, there are only 24 hours in a day. Since physician time has important implications on quality care, patient/physician satisfaction, malpractice suits, health care costs, and physician payments, there is reason to believe that time efficiency deserves more attention. Unfortunately, there have been very few studies on physician time as a resource to date. We hypothesized that patient forms will decrease the amount of time physicians spend on total care per patient. Face-to-face time between physician and patient is not statistically significant (p value 0.12). Total physician time on patient care was significantly less in the intervention group than the control group (p value 0.009). We concluded that using a pre-visit questionnaire to increase awareness of patients' medical history appears to decrease documentation and total physician time in patient care without compromising physician-patient face-to-face time.

## **Sexual Health Knowledge Lacking Amongst U.S. Medical Students (Research)**

*Christina Warner*

*University of Minnesota Medical School*

Only half of U.S. medical schools require formal instruction in sexuality, and sexual health knowledge is severely underrepresented on formal licensing exams. Furthermore, no comprehensive survey exists evaluating sexual health literacy amongst U.S. medical students. This study sought to quantify the sexual health knowledge of medical students using a 32-question survey distributed electronically to representatives from all MD- and DO-granting medical schools in the U.S. Knowledge was evaluated across five domains: sexual function and dysfunction, fertility and reproduction, sexuality across the lifespan, sexual minority (LGBTQIA) health, society, culture and behavior, and safety and prevention. Survey respondents (n=994) scored an average of 65.65% correct (19.7/30). Overall, students scored lowest on questions regarding safety and prevention (x=49.05%) and highest on questions regarding sexual function and dysfunction (x=72.96%). Higher knowledge scores were associated with medical school year (p=0.0001), race (p=0.0005), sexual orientation (p=0.0001), religion (p=0.0055), future medical specialty choice (p=0.0276), type of medical school program (MD vs. DO) (p=0.001), and medical school sexual health education courses (p=0.0137). Significant advances must be made in medical school sexual health curricula to combat increasing rates of sexually transmitted disease, health disparities, and sexual dysfunction in America.

## **Student Electronic Health Record Documentation and New CMS Guidelines: A Survey of Students and Preceptors (Research)**

*David Yoder and Matthew Antalis*

*Wright State University Boonshoft School of Medicine*

As the electronic health record becomes the predominant form of documentation nationwide, its place in medical education is important to assess. A survey of 45 students and 34 preceptors at Mercy Health – St. Rita's Medical Center in Lima, Ohio was conducted. The survey focused on how students were utilizing their access to EHRs, the perceived value of students documenting in the EHR, and the attitudes of both preceptors and students regarding the new CMS guidelines. The results demonstrate that 90% of students have documented in the EHR on a rotation, and most have valued the ability to use the EHR in their medical education with 93% indicating it added to their educational experience. Preceptors also generally valued the EHR as an educational tool for students, and 93% of preceptors indicated it added to students' educational experience. Perceptions of the new CMS guidelines were generally neutral to favorable with listed benefits, including students being a more integral part of the team and reduced burden of EHR documentation for preceptors; some hesitations included concern for errors and liability. Student documentation in the EHR is a valuable aspect of preparation for post-graduation training and practice.