**B1** Title: Physiologic Stress Response to Cognitive Load: A Diagnostic Tool for Disease Prevention?
Authors: Mariam Aboukar (OMS II); Alex Woody; Wilson S. Figueroa; Peggy M. Zoccola; S. Lee Hong
Affiliation: Ohio University Heritage College of Osteopathic Medicine, Athens, Ohio

Introduction: Chronic activation of stress-related systems has been linked to an accelerated decline in cognitive function in aging. Yet, it is unclear whether aging itself increases the physiologic stress response to cognitive load. **Objective:** To test the hypothesis that aging leads to an elevated stress response to cognitive load. **Methods:** Participants were 12 young (18-25 years) and 5 middle-aged (>55 years) adults. All were cognitively intact (Mini-Mental State Exam scores > 28). Baseline data were collected following seven minutes of relaxation and following a cognitive load (i.e., 7-minutes of mental arithmetic). Salivary cortisol samples were collected +2 minutes post-relaxation task, and +10, +20 and +30 minutes post-cognitive load. **Results:** Both groups performed equally well on the standardized cognitive task, had similar baseline cortisol levels (t(1, 8.3) = 1.152; p = 0.281), and exhibited a similar 40% increase in cortisol levels from baseline at 10 minutes post-task. A significant Group x Time interaction (F (2, 30) = 3.441; p = 0.045) was observed in subsequent cortisol levels (10 to 30 minutes post-task). Post-hoc comparisons revealed that while young subjects exhibited a significant decline from 10- to 20-minutes post-task (p = 0.023) and from 10- to 30-minutes post-task (p = 0.005), there were no significant differences in the cortisol levels of the older subjects across time.

**Summary/Conclusion:** The results indicate that aging leads to a delayed recovery from a stress response to a cognitive load. This raises the diagnostic potential of stress response for early detection of cognitive decline in aging and subsequent disease prevention.

**B2** Title: Variations in brain re-expansion after subdural hematoma evacuation
Authors: Nathan Amor, DO (PGY 5); Chris Karas, MD
Affiliation: OhioHealth/Grant Medical Center, Columbus, Ohio

**Background:** We analyzed the re-expansion of compressed brain in patients with subdural hematomas (SDHs) immediately following evacuation procedures according to preoperative subdural space thickness, age, gender, type of evacuation procedure, and type of SDH. **Methods:** We reviewed the medical files of 31 consecutive patients with operative SDHs evacuated from July 16, 2009 to June 1, 2010, all of which had noncontrast head CT scans available both preoperatively and within 24 hours postoperatively. Based on the greatest preoperative subdural space thickness and the corresponding postoperative subdural space thickness measurements, the brain re-expansion was calculated. For each patient we recorded the age, gender, type of evacuation procedure (craniotomy, drill hole with subdural drain placement, or twist drill craniostomy with subdural drain placement), and type of SDH (acute, subacute, or chronic). **Results:** There was substantial variation in brain re-expansion among patients. In aggregate, patients exhibited statistically significant brain re-expansion within 24 hours of their SDH evacuation procedure 18.0% on average. The following patients had statistically significant brain re-expansion: preoperative subdural space thickness < 10mm, age < 75 years, males, those receiving craniotomy for acute SDHs, and those receiving twist drill craniostomy with subdural drain placement for subacute SDHs. **Conclusion:** Brain re-expansion immediately following SDH evacuation is correlated to preoperative subdural space thickness, age, gender, type of evacuation procedure, and type of SDH. These findings may help clinicians anticipate the radiographic findings immediately following SDH evacuation procedures based on individual patient demographics, preoperative radiographic findings, and type of evacuation procedure selected.

**B3** Title: Documenting Quantifiable Changes and Pressures Used for Manual Diagnosis and Treatment of Cervical Spine Somatic Dysfunction
Authors: Precious L. Barnes, DO (PGY 2)\(^1\); Frank J. Casella (OMS I)\(^3\); Joseph Yoha (OMS II)\(^3\); Hilda Lai\(^3\); Terence Vardy, DO (AUS)\(^4\); Michael L. Kuchera, DO, FAAO\(^2\)
Affiliations: \(^1\)University Hospitals Regional Hospitals, Richmond Heights, Ohio; \(^2\)Marian University College of Osteopathic Medicine, Indianapolis, Indiana; \(^3\)Philadelphia College of Osteopathic Medicine, Philadelphia, Pennsylvania; \(^4\)Australia

**Background:** Quantifying changes after treatment of somatic dysfunction (SD) has been limited along with documenting palpatory pressures used during assessment and treatment of SD. Diagnostically, local soft tissues are compressed (pre-loaded) followed by one or more test impulses assessing the quality of “end-feel” motion in several planes. With the use of a durometer (Ultralign SA201, Sigma Instruments; Cranberry, PA) and a noninvasive, digital palpation monitoring system (IsoTOUCH\(^1\); Neuromuscular Engineering; Nashville TN, USA); objective documentation of cervical hysteresis changes, in conjunction with pressures used for segmental palpatory diagnosis and treatment of SD were made possible. **Hypothesis:** Instrumented measures of palpatory pressures and hysteresis changes post Osteopathic Manipulative Treatment (OMT) are possible and quantifiable. **Material and Methods:** Segmental hysteresis measurements were documented pre- and post-OMT in 31 subjects using the SA201. The IsoTOUCH\(^1\) system was then used during cervical spinal palpatory diagnosis and treatment with High Velocity Low Amplitude (HVLA) for SD at the occipitoatlantal (OA) region. **RESULTS:** Overall diagnostic cervical palpatory preload pressures averaged 1.35lbs (p<0.001) and end-feel pressures averaged 2.64lbs (p<0.001). Overall OA treatment pressures averaged 2.89lbs pre-load (p<0.001), 4.05lbs final thrust level (p<0.001), with an HVLA activating force averaging 1.10lbs (p<0.001). All four durometer components of the SA201\(^1\) demonstrated statically significant or suggestive changes post-OMT; Fixation p<0.000, Frequency p<0.000, Mobility p=0.025, and Motoricity p=0.079. **Conclusion:** All four SA201\(^1\) durometer components demonstrated an appreciable and quantifiable change post-OMT of cervical SD. The IsoTOUCH\(^1\) documented consistent treatment and diagnostic pressures, enhancing reproducibility and expanding the evidence base for manual medicine.
**B4**

**Title:** Traumatic, Posterior Pediatric Hip Dislocations with Associated Posterior Labrum Bucket-Handle Osteochondral Avulsion

**Authors:** Christopher Blanchard, DO (PGY 3); K E Klingele, MD

**Affiliations:** 1OhioHealth/Doctors Hospital, Columbus, Ohio; 2Nationwide Children’s Hospital, Columbus, Ohio

**Introduction:** Traumatic posterior hip dislocations and posterior wall acetabulum fractures in the child and adolescent are rare injuries most commonly treated with closed reduction and short periods of immobilization. **Purpose:** The purpose of this study is to present a series of skeletally immature patients with traumatic posterior hip dislocations which were associated with posterior labrum bucket-handle osteochondral avulsion. **Method:** Retrospective case series. **Results:** A retrospective review was performed on six patients with traumatic, posterior hip dislocations and posterior labrum osteochondral avulsion. Preoperative imaging and operative reports were reviewed 6 patients, mean age 14.8 years. Five patients were treated in the emergency room and one in the outpatient setting. Post reduction x-rays and advanced imaging was obtained in all patients. All patients were noted to have small posterior wall acetabulum fragments consistent with posterior labral avulsion. All patients underwent operative exploration. In all cases, consistent labral pathology was noted with labral tears from the 6 o’clock to 12 o’clock position. The most inferior aspect of the labrum was completely detached in all cases. **Conclusions:** Traumatic, posterior hip dislocations in young patients are rare injuries which can produce significant labral pathology. The incidence of posterior labrum bucket-handle osteochondral avulsion is unknown and further study is required. Advanced imaging in all studied patients revealed similar posterior wall avulsion fragments, despite concentric reduction in most patients. All patients with this radiographic finding were found to have similar labral pathology, suggesting that such finding may support a more aggressive surgical approach to this injury.

**B5**

**Title:** Delayed Intracranial Hemorrhage in the Anticoagulated Blunt Trauma Patient: Routine Repeat Head CT is Unnecessary

**Authors:** Paul Bonner (OMS II); Joshua Hill, MD

**Affiliations:** 1Ohio University Heritage College of Osteopathic Medicine, Athens, Ohio; 2OhioHealth/Grant Medical Center, Columbus, Ohio

**Introduction:** Delayed intracranial hemorrhage (DICH) is a complication of blunt head trauma in anticoagulated patients even after initially negative head CT. **Routine repeat head CT at 24-48 hours after admission is standard practice in many institutions.** We postulate that in the anticoagulated blunt trauma patient, the incidence and complication rate of DICH after an initially negative head CT is low and that routine repeat head CT is not warranted. **Methods:** Data were collected from 338 trauma patients admitted to Grant Medical Center between January 2008 and December 2010 with pre-admission history of anticoagulant use (including low dose ASA), who had an initially negative head CT, followed by a repeat CT within 12-24 hours. **Results:** DICH was identified in 2.4% (n=8) of the sample on follow-up head CT. All eight patients were taking aspirin. Of these patients with DICH: three were on aspirin only, four on aspirin and Plavix, and one on aspirin and Coumadin. None of the patients with ICH on repeat CT scan required surgical intervention. **Conclusions:** The incidence of DICH was only 2.4% (8/338). We identified no significant predictors of DICH, but all were taking ASA either alone or in combination with another anticoagulant. This data suggests that, while a period of clinical follow up is advised, routine repeat head CT is unnecessary in patients who have an initially negative head CT even in the presence of chronic anticoagulant use. This study demonstrates similar incidence of DICH to other studies but includes all forms and doses of anticoagulation.

**B6**

**Title:** Defining and Measuring Continuity of Care in an Osteopathic Obstetrics & Gynecology Residency Program

**Author:** Lauren Nicole Britt, DO (PGY 4)

**Affiliation:** Mercy St. Vincent Medical Center, Toledo, Ohio

**Introduction:** Continuity of care has been defined as a longitudinal relationship where the patient generally sees the same physician for their healthcare needs. While ACOOG has no minimum requirements for OB/GYN residents, the ACGME requires a continuity office patient panel. While longitudinal relationships are believed to promote increased trust and mutuality, which in turn may improve outcomes and lower healthcare costs, clear clinical evidence regarding care continuity outcomes has not been established. **Objectives:** Quantify current resident continuity of care practices for pregnant women in our ambulatory office and determine any relationships between clinical outcomes and continuity of care. **Methods:** IRB-approved retrospective randomized cross-sectional cohort pilot study (N=63) between January 1, 2010 and February 29, 2012. **Result:** There is a huge deficit of resident continuity for pregnant women over the continuum of care from prenatal visits to labor and delivery to postpartum follow-up. Only 6% of patients saw the same resident >50% of their pregnancy visits prior to parturition, and only 22% had ever had a prenatal visit with the delivering physician. Relationship outcomes could not be determined due to the lack of a continuity of care group. A secondary outcome found few patients met the minimum standard of prenatal visits per trimester: 51% (1st), 33% (2nd), 29% (3rd). **Conclusions:** These findings highlighted several opportunities for improving patient care and changing resident education practices within our program. During the past year, the principal investigator was involved in several initiatives to improve continuity of care practices in the residency program ambulatory care office.

**B7**

**Title:** The Effects of Implementing IADPSG Recommendations on Pregnancy Outcomes at a Small Community Teaching Hospital

**Authors:** Lucy Bucher, DO (PGY 4); Godwin Dogbey, PhD; Jody Gerome, DO

**Affiliations:** 1OhioHealth/O’Bleness Memorial Hospital, Athens, Ohio; 2Ohio University Heritage College of Osteopathic Medicine, Athens, Ohio

**Introduction:** Traditional methods of gestational diabetes (GDM) screening and diagnosis have been questioned following the publication of the Hyperglycemia and Adverse Pregnancy Outcomes (HAPO) trial. The International Association of Diabetes and Pregnancy Study Groups (IADPSG) published new diagnostic guidelines for gestational diabetes in 2010 based on the HAPO data. The IADPSG guidelines have not yet been evaluated in clinical studies. **Objective:** To retrospectively compare pregnancy outcomes in a single population where both traditional and IADPSG screening guidelines for gestational diabetes were implemented. **Methods:** We identified 631 singleton pregnancies that were screened for gestational diabetes following either the two-step Carpenter-Coustan method or the IADPSG guidelines at a single multi-physician obstetrics practice in Athens, Ohio. Outcomes evaluated included rates of GDM, mode of delivery, hypertensive disorders of pregnancy, neonatal hypoglycemia and hyperbilirubinemia. Chi-squared and t-test were used for analysis of categorical and continuous variables respectively. A p-value of <0.05 was considered significant. **Results:** A significantly higher rate of gestational diabetes was diagnosed with the IADPSG guidelines (7.9% vs20.4%, p<0.001, n=631). IADPSG criteria resulted in a statistically higher number of diet-controlled diabetics (76.6% vs 60%, p<0.001, n=89). No difference was found in outcomes between the two groups of diabetic women or the two groups of non-diabetic women. **Conclusion:** Adoption of the IADPSG guidelines increased the rate of gestational diabetes diagnosis and resulted in more diet-controlled diabetic women. A decrease of adverse pregnancy outcomes was not demonstrated despite the higher rate of gestational diabetes.
Introduction: Battlefield dressings must be easily carried and rapidly applied, with prompt onset of action to achieve hemostasis, reduce infection, inhibit contamination, and provide local pain control without systemic effects. No single dressing achieves these goals and the most effective are cost prohibitive. Inexpensive dressings were recently developed, however their effectiveness on combat wounds has been questioned. This study investigates a uniquely engineered collagen-based wound dressing that has the potential to address these unmet needs. **Objective:** The preliminary evaluation of 3 proprietary collagen-based dressings and an industry control for absorption rate, biocompatibility, healing response and safety. **Methods:** Three subjects completed the 28 day endpoint without incident. The novel materials provided superior hemostasis at the time of wound application, with no significant difference between novel dressings. All test wounds showed significant healing; Dressings A, B, and the control had greater than 90% re-epithelialization. Novel dressings showed minimal wound contraction, compared to control. Other parameters were similar between all dressings. **Preliminary Conclusions:** The proprietary collagen-based dressings showed impressive ability to promote wound healing and epithelialization without wound contraction. The completion of this study will fully evaluate the effectiveness of these devices for clinical utility.

B8 Title: Evaluation of Novel Collagen Scaffolds in a Swine Full Thickness Wound Model Authors: Maureen E. Cheung (OMS IV)1; Richard George, MD2; Michelle Chapman2; Joshua Weaver, MD2 Affiliations: 1Ohio University Heritage College of Osteopathic Medicine, Athens, Ohio; 2Summa Health System, Akron, Ohio

Introduction: A nine subject swine model of full-thickness dermal wound healing was utilized. Wounds were inspected daily with biweekly dressing changes. Sites were harvested en bloc at endpoints of 14, 28, and 90 days. Standard and advanced immuno-histochemistry techniques were utilized for analysis. **Results:** The proprietary collagen-based dressings showed impressive ability to promote wound healing and epithelialization without wound contraction. The completion of this study will fully evaluate the effectiveness of these devices for clinical utility.

B9 Title: Healthcare provider adherence to guidelines in diagnosing diabetic ketoacidosis in the Emergency Department Authors: Keri A. Childers (OMS IV); Jessica C. Perkins (OMS IV); Dustin Jones (OMS I); Jay Shubrook, DO Affiliation: Ohio University Heritage College of Osteopathic Medicine, Athens, Ohio

Diabetic ketoacidosis (DKA) is one of the most common and life-threatening acute complications of diabetes mellitus that frequently presents to the ED. DKA is characterized by hyperglycemia, metabolic acidosis with increased anion gap, and ketonemia/ketonuria. Aggressive DKA management with IV insulin, fluid replacement, and electrolyte correction is complex, requires close supervision and frequent monitoring, and carries moderate risk to the patient; therefore, consistent adherence to the diagnostic guidelines by emergency providers is important for acute diabetes management. This study was a retrospective chart review of 70 patients who visited the ED at one community teaching hospital and were subsequently diagnosed with DKA between January 1, 2012 and September 30, 2013. The ED diagnosed 57 patients with DKA; however, DKA criteria were met in only 33 patients (47.1%). The remaining 13 patients were diagnosed with DKA after admission to the ICU or the medical floor. The ED made an incorrect diagnosis of DKA in 25 patients (43.9%). Of the patients who were diagnosed incorrectly, a blood gas was not performed in 8 patients (30.8%). The unnecessary treatment of DKA is costly, requiring frequent evaluation and testing, and potentially dangerous, with cerebral edema the most common and life-threatening complication. Strict adherence to the diagnostic criteria before the initiation treatment for DKA may decrease the inefficient use of healthcare resources and the exposure of patients to potentially-harmful treatment regimens.

B10 Title: Population Characteristics of Minimally Invasive Lumbar Laminectomies in 126 patients Authors: Michael Perez-Creut, MD; Zachary White (OMS IV); Maninderpal Dhillon (OMS III) Affiliation: Michigan State College of Osteopathic Medicine, East Lansing, Michigan

Learning Objectives: To review a large retrospective cohort of patients undergoing minimally invasive laminectomy for stenosis. To offer insight into proper patient selection. **Introduction:** The lumbar spine is unique in that it is responsible for supporting a large portion of the axial skeleton. The continuous stress placed on lumbar vertebrae subject it to many disease pathologies including spinal stenosis, spondylolisthesis, and degenerative disc disease. While traditional surgical laminectomy is a common procedure for decompression treatment of spinal stenosis, the minimally invasive approach of this procedure is not well studied in a large cohort of patients. This study critically analyzes patient characteristics of individuals who underwent minimally invasive laminectomy (MIL). **Methods:** 126 consecutive patients (mean age=56, range 20-91) underwent minimally invasive laminectomy from April 2009 to August 2012. Patients presented with stenosis (n=79, 64%), spondylolisthesis with stenosis (n=16, 13%), herniated disc (12, 9%), degenerative disc disease with stenosis (n=4, 3%), scoliosis with stenosis (n=4, 3%), and/or other (n=2, 1%). **Results:** 74 males and 52 females were treated. Levels treated included L1-2 (n=8, 6%), L2-3 (n=22, 17%), L3-4 (n=48, 39%), L4-5 (n=46, 37%), and L5-S1 (n=5, 4%). There were 134 total levels treated with 29 one-level, 33 two-level, 10 three-level, 4 four-level, and 1 five-level laminectomy cases. Estimated blood loss and infection rate were 63 cc and 4% respectively. Average BMI was 29.48. 4 patients (3%) had a BMI of less than 20, 18 patients (14%) had a BMI of 21-25, 41 patients (33%) had a BMI of 26-30, 32 patients (26%) had a BMI of 31-35, and 16 patients(13%) had a BMI greater than 35. Common co-morbidities included hypertension, hypercholesterolemia, diabetes, and cancer. Common medications were NSAIDS, Lisinopril, Hydrocodone, and Simvastatin. **Conclusions:** This study presents a large retrospective analysis of MIL patient. A systematic approach to patient selection is important to identify those patients who benefit from this procedure.

B11 Title: SnapChart (beta): an Innovative Electronic Health Record for iOS Devices Authors: Bao Dinh (OMS IV), MS1; Fang Liu, MS2; Paul Fontelo, MD, MPH2 Affiliation: 1West Virginia School of Osteopathic Medicine, Lewisburg, West Virginia; 2Office of High Performance Computing and Communications, National Library of Medicine, National Institute of Health, Bethesda, Maryland

Introduction: Recently, mobile devices have impacted the daily workflow of doctors. Of about 900,000 applications in iTunes, 20,000 are medical apps. iOS devices are seen readily in hospitals useful in diagnoses, decision support and patient information. **Objectives:** To develop an electronic health record (EHR) application (app) using the iOS platform for taking H&P and progress notes. We utilized Siri’s speech-to-text feature as data input source. **Methodology:** An Apple Developer account was created, Xcode was used to program for the app, a storyboard was generated following standard H&P used in hospitals. The design interface followed the clinic workflow, emphasizing simplicity and user-friendliness. Objective-C programming language was used to write code for the View Controller. The app database was built with SQLite, a relational database system pre- existent in iOS was used to store patient information on the device. The app works on the iPhone and iPad. **Results:** The project successfully developed “SnapChart”, currently in beta phase. It utilizes both text and Siri to input patient information. The app automatically generates a fully integrated H&P and Progress notes. **Summary/Conclusion:** SnapChart was developed due to the need of charting patient information on mobile devices. The design emphasizes simplicity, speed, and clinical workflow. The app in beta mode is undergoing development. Once validated, a feasibility study with medical students and resident physicians is planned. Integration with the hospital’s EMR is a long-term goal.
B12 Title: Evaluating the Relationship between Fetal Movements in Pregnancy and Subsequent Diagnosis of Spinal Muscular Atrophy
Author: Heidi DiSalvo, DO (PGY 4)
Affiliation: Mercy St. Vincent Medical Center, Toledo, Ohio

Introduction: Spinal muscular atrophy (SMA) is the number one genetic killer of infants. It is not included in standardized prenatal testing, because unlike the other 29 core conditions, it cannot be found with tandem mass spectrometry. There are five subtypes of SMA with the most severe, Type 0, presenting in the prenatal period and Type 1 presenting during the first 6 months. Decreased fetal movements have been reported anecdotally in 4 articles, but no study has investigated this phenomenon. The International SMA Patient Registry has postnatal information from over 2900 individuals with SMA worldwide. They have never surveyed prenatal data points. Objective: Describe prenatal characteristics of individuals born with SMA, particularly fetal movements, as recalled by the biological mother. Methodology: IRB-approved descriptive, cross-sectional, cohort study. An introductory letter was sent to individuals on the International SMA Patient Registry administered by Indiana University and the Families of SMA organization inviting biological mothers to take the anonymous survey using a unique link to SurveyMonkey®. Respondents who answered they were not the biological mother were exited out of the survey. Results: N= 257 completed surveys. Type 0 or Type1 SMA was reported by 51% of respondents but there were no statistically significant associations (Fisher’s Exact two-tailed tests) between decreased fetal movements and genetic testing for SMA. Each response was also analyzed by percentages. Conclusions: Families of SMA is a non-profit organization that funds educational and support programs, as well as research to develop treatments and a cure for SMA. Study results will be disseminated to them.

B13 Title: Would OMT be a Beneficial Additive to the Acute Treatment Regimen for Our Challenging Acne Patients
Authors: Lacey Beth Elwyn, DO (PGY 1); Michael P. Rowane, DO, MS, FAAFP, FAAO; Jenifer R. Lloyd, DO
Affiliations: 1University Hospitals Regional Hospitals, Richmond Heights, Ohio; 2Director, Medical Education, University Hospitals Regional Hospitals, Richmond Medical Center, Richmond Heights, Ohio; 3Director, Residency Program, University Hospitals Regional Hospitals, Department of Dermatology, Case Western Reserve, Cleveland, Ohio

Acne vulgaris is a challenging skin condition with a multifactorial pathogenesis. The standard of care for acne treatment targets hyperkeratinization, inflammation, and increased sebum production. As osteopathic physicians, we hold the special skill of osteopathic manipulation to offer our patients, which can often complement complex treatment regimens for disease. A large contributing factor to the pathogenesis of acne is increased sebum production. The adrenal cortex plays a large role in the circulatory androgens, which stimulate the pilosebaceous unit to secrete sebum, and in turn, can exacerbate acne. It is supported that sympathetic nerves innervate the adrenal cortex via the celiac plexus and greater splanchnic nerves. Increased sympathetic tone via a somatovisceral or visceral somatic reflex at the level of the adrenal glands would, in theory, increase androgen production and the amount of circulatory androgens. Therefore, it is hypothesized that inhibition of the celiac plexus will normalize the sympathetic tone, decrease the increased androgen production, decrease the increased sebum production, and improve acne.

B14 Title: Effects of an elective course on medical students’ attitudes, and self-efficacy for knowledge and skills related to pediatric cardiovascular disease risk factor assessment and research
Authors: Brian Fiani (OMS III)1; JJ Carlson1,2; TB Becker1,2; J Palka1; JC Eisenmann1,2
Affiliations: 1Ohio University Heritage College of Osteopathic Medicine, Athens, Ohio; 2Department of Radiology, Division of Sports and Cardiovascular Nutrition; Michigan State University, East Lansing, Michigan

Introduction: Medical school clinical research electives can improve student knowledge and skills. Bandura’s self-efficacy (SE) or confidence theory, has demonstrated that SE levels can predict behaviors including mental and physical tasks. Objectives: Develop and pilot a questionnaire to examine the influence of a clinical research elective on medical students’ attitudes and SE for knowledge and skills related to pediatric cardiovascular disease (CVD) risk factor assessment. Methodology: Year 1 and 2 medical students (N=21) participated in the (S) Partners for Heart Health elective which included education and training to measure CVD risk factors in 5th graders. Medical students completed a 25 question survey (fall 2011 pre; spring 2012 post) to assess their attitudes and SE (10 point scale) for knowledge and skills related to pediatric CVD risk factors assessment and research. Analyses included a Mann-Whitney rank-sum test (p<0.05). Results: Eleven of 21 medical students participated in all trainings, and pre- post surveys. There was a significant increase in 5 of 12 SE questions (p<0.01) including SE of knowledge and skills involving metabolic syndrome (p<0.001), research (p<0.04); and a measurement skills SE composite score (p<0.02). However, SE for blood pressure measurement declined significantly (p<0.01). Several attitude questions improved including interest in research involvement during medical school (p<0.01). Conclusion: Medical school students involved in a CVD risk factor measurement elective increased their interest in research participation, and their SE to perform pediatric CVD measurement results. However, students appeared to be overly confident at baseline for selected measures including blood pressure. This questionnaire has the potential to quickly assess medical students’ attitude, knowledge and skills related to pediatric CVD risk assessment.
The Fourth Annual Regional Osteopathic Poster Exhibition and Competition 2014

B16  Title: Modified Self-Administered OMT as an Adjutant Treatment for Stasis Dermatitis  
Authors: Jessica Weston Galvin, DO (PGY 3); Jennifer Lloyd, DO, Program Director; Michael Rowane, DO, Director of Medical Education  
Affiliation: University Hospitals Regional Hospitals, Richmond Heights, Ohio  

Introduction: Stasis dermatitis is one of the most common skin conditions seen by dermatologists and primary care physicians. The underlying cause of stasis dermatitis is chronic venous insufficiency. Osteopathic treatments encourage venous and lymphatic mobilization and can be a great adjuvant treatment. However, the use of OMT seems to be underutilized. One of the greatest perceived barriers for the use of OMT is limited office time. Chronic conditions like stasis dermatitis require more frequent applications of OMT and therefore time constraints are likely to be an even greater barrier for the use of OMT. Modified self-administered OMT addresses some of the barriers for the use of OMT. Objectives: The aims of this study were to: 1) describe modified self-administered OMT techniques that have been published in the literature and 2) create an OMT treatment protocol for stasis dermatitis that could be performed by the patient alone once he was properly trained. Results: A literature search of MEDLINE and OSTMED found only a handful of previously described self-administered techniques. We describe a treatment plan that applies osteopathic principles by modifying classic osteopathic techniques that patients can perform by themselves at home in order to treat stasis dermatitis. Summary/Conclusion: Modified self-administered OMT appears to be underutilized. Our treatment plan for stasis dermatitis is an example of how modifying classic OMT techniques for use at home could overcome some barriers to the use of OMT.

B17  Title: Prospective Randomized Study of Absorbable Micorporous Polysaccharide Hemosphere Particles for the Prevention of Lymphoceles Following Robotic Lymphadenectomy for Prostate Cancer  
Authors: Daniel Gilbert, DO (Fellow); Ronney Abaza  
Affiliation: Dublin Methodist Hospital, Dublin, Ohio  

Purpose: The most common complications of pelvic lymph node dissection (PLND) for prostate cancer are related to lymphocele formation, which occur in 30-50% of patients according to published studies with screening imaging. While most are asymptomatic, when intervention is required the cost and morbidity are high. We performed a prospective randomized study to evaluate an absorbable hemostatic agent (Arista®AH) in the prevention of lymphoceles after robotic prostatectomy with PLND. Materials and Methods: Of 100 patients enrolled, 88 completed the study. Each patient served as their own control with Arista®AH placed over the field of PLND on only one side in a randomized fashion as revealed only after bilateral PLND was completed. All patients underwent screening pelvic CT scan 3 months later with radiologists blinded to the Arista®AH treated side. A significant lymphocele was defined as a fluid collection 3cm or greater in any plane. Results: The mean lymph node yield was 8.1 nodes. Fourteen lymphoceles were identified. Five occurred on the side where Arista®AH was used versus 9 on untreated sides (5.7% versus 10.2%, p=0.75). When they occurred, there was no statistically significant difference in lymphocele size between treated and untreated sides (p=0.100). No lymphoceles were symptomatic. Conclusions: While the study was underpowered to detect a statistically significant difference due to an unusually low baseline rate of lymphoceles, a trend in lymphocele reduction was seen with Arista®AH use. A larger study is warranted to determine whether this trend reflects a true reduction in lymphoceles with use of this hemostatic agent.

B18  Title: The Effect of Oxidized LDLs on LPP3-deficient and WT mice Monocytes  
Authors: Samuel Handshoe (OMS II); Susan S. Smyth, MD, PhD; J. Brandon Anthony, PhD  
Affiliation: University of Pikeville-Kentucky College of Osteopathic Medicine, Pikeville, Kentucky  

Introduction: Analysis of data from a series of genome-wide association studies identified an association between SNPs in the final intron of the PPAP2B gene and coronary artery disease. PPAP2B encodes the protein LPP3 that regulates the availability of bioactive lipids. How genetic variation in PPAP2B confers risk of CAD is unknown, due to a lack of understanding of LPP3. Because the cardiovascular risk-associated PPAP2B allele is associated with lower LPP3 mRNA expression, increased vascular LPA signaling may result in enhanced cardiovascular disease susceptibility in humans. LPP3 could play a role in the regulation of oxidized phospholipids to modulate phenotypes of monocytes. Objectives: To identify LPP3’s role in phenotypic modulation of monocytes in response to oxidized LDL using RT-PCR and its effects on monocyte migration. Methodology: WT and LPP3-KO primary bone marrow-derived mouse monocytes were treated with varying levels of oxidized LDL for 24 hours. RT-PCR was used to compare phenotypes of the different groups of monocytes. A migration assay was used to investigate migration. Results: Untreated LPP3-KO monocytes showed a prevalence of the M2 phenotype, an anti-inflammatory macrophage that is seen in atherosclerosis. Wild-type monocytes showed a pro-inflammatory M1 phenotype. LPP3-KO + oxLDL monocytes showed a Mox phenotype, a pro-inflammatory macrophage with decreased phagocytic abilities. Summary/Conclusions: Defining LPP3 involvement in ischemic heart disease could potentially provide innovative targets to prevent and treat CAD. Future studies will include repeating the experiments and exploring LPP3’s role in atherosclerosis in respect to monocyte behavior and LPP3’s role independent of monocytes.

B19  Title: The Synergistic Effect of Essential Plant Oils and β-Lactam Antibiotics against Methicillin-Resistant Staphylococcus aureus (MRSA)  
Authors: Christopher Haydanek (OMS I); John Gallagher; Christopher Keller PhD, CPH; Nancy Carty, PhD  
Affiliation: Laboratory of Human Pathogens, Lake Erie College of Osteopathic Medicine, Erie, Pennsylvania  

Introduction & Objectives: The emergence of community acquired methicillin-resistant Staphylococcus aureus (MRSA) coupled with the increase in multiple-drug resistant S. aureus strains makes treatment of infections difficult. Our previous studies showed that cinnamon cassia oil overcame erythromycin resistance in S. aureus clinical isolates. The goal of the present study is to determine if essential plant oils in combination with β-lactam antibiotics will have a similar effect on MRSA clinical isolates. Methods: Antibiotic resistance profiles were used to select MRSA and methicillin-sensitive S. aureus (MSSA) strains from S. aureus isolates collected from the anterior nares of pre-clinical medical students (n=111). A disk diffusion assay was used to screen a panel of 32 essential oils against MRSA and MSSA strains. Essential oil-antibiotic combinations were prepared using the 2 most effective oils and the antibiotic oxacillin. Checkerboard assays were used to classify the interaction of the essential oil-antibiotic combinations against MRSA and MSSA isolates. Results: Red thyme and oregano oils were identified as the most effective oils against both MRSA and MSSA strains. Checkerboard assay results indicated a synergistic effect when combinations of red thyme oil/oxacillin and oregano oil/oxacillin were used against MRSA strains. Results from testing of the combinations against MSSA strains indicated no antagonistic effect was present. Conclusions: Results demonstrate that when used in combination, essential oils and β-lactam antibiotics do have a synergistic effect against MRSA. In some cases the effect was sufficient to decrease the antibiotic MIC for MRSA strains to a level consistent with MSSA strains.
B20 Title: On-going Assessment of Physician Performance in Electronic Health Record Data Management in a Family Medicine Residency
Authors: Andrew Henson, DO (PGY2); Sandra Snyder, DO; Carl Tyler MD, MSc
Affiliation: Cleveland Clinic - Fairview Hospital, Cleveland, Ohio

Introduction: As residency training programs adopt electronic health records (EHRs), trainees need to acquire critical clinical information, and then enter, organize, integrate, and update that information in the context of the structure and functionality of their specific EHRs. Objectives: To describe a system of ongoing assessment of electronic health record data quality that was instituted in a family medicine residency. Methodology: Residency faculty, resident physicians and the residency practice business manager of this Family Medicine residency program initiated a monthly chart audit process to assess physician performance in EHR data management. Audit items focused on the inclusion of key clinical data elements, avoidance of redundancy, and organization of data to optimize clinical utility, patient safety, and practice productivity. Audit data was posted publicly within the residency with physician names specified. Results: We will present 12 months of chart audit data regarding EHR management of the problem list, medications, and patient history. Summary/Conclusion: On-going chart audits of EHR data management were successfully integrated into routine faculty precepting responsibilities in a manner that was practical, efficient and sustainable. Achievement of audit targets was highly variable between resident training year and faculty groups. Longitudinal, multi-year chart audit data will inform the curricular needs for training in EHR data management.

B21 Title: Methicillin-resistant Staphylococcus aureus (MRSA) or not? That is the question. Can ultrasound provide the answer?
Authors: Kari Keneaster, DO; Carrie Becker, DO (PGY 5); Jessica Hilst, DO (PGY 4); Bridget Nestor-Arjun, DO (PGY 3); Scott Rubenstein, MD (PGY 3); Jeremy Traylor, DO, FACOEP
Affiliations: 1Miami Valley Hospital, Dayton, Ohio; 2Grandview Medical Center, Dayton, Ohio; 3Wright State Integrated Residency in Emergency Medicine, University, Dayton, Ohio;

Background: Abscesses challenge physicians in that the causative pathogen in unknown at the time of diagnosis and incision and drainage. We aimed to assess whether or not ultrasound findings would show a correlation between MRSA and complexity of abscess on imaging, guiding the physician in antibiotic choice. Methods: A literature review was completed on prior ultrasound, abscess and MRSA research. IRB approval was obtained. Physicians reviewed sample images for training to define data variables on ultrasound including “Well defined border”, “Cobblestoning”, “Septations”, and “Satellite Lesions”. After consent was obtained, ultrasound was performed and data was collected, regarding the above listed abscess characteristics. Results and patient information were recorded and then stored in a locked box. Incision and drainage was then performed if the patient was found to have an abscess on ultrasound. Later, the culture results were reviewed and recorded. Patients were then reviewed for inclusion and exclusion criteria. Conclusion: Data for 34 patients was initially collected. However, only twenty-three were included in the final results. Eleven patients were excluded. Of the 23 abscesses included, 10 had well-defined borders, 8 exhibited cobblestoning, and 5 had satellite lesions. Fourteen abscesses were positive for MRSA. This pilot study was designed to determine how many subjects would be needed for a full study in order to determine, with 95% confidence, if ultrasound would be a reliable diagnostic tool in bacteria identification in abscesses. At this point, only 23 subjects have been studied. Further data collection will be needed to complete this pilot study. Only then, will a larger study be able to be conducted to obtain clear answers to whether ultrasound holds this diagnostic capability.

B22 Title: Metal-on-Metal Reverse Total Shoulder Arthroplasty for Glenohumeral Replacement in Young Patients
Authors: John D. Idoine III, DO (PGY 6); Clay Riley, MD; Omkar Dave, MD; Dan P. O’Connor, PhD; Yousef Shishani, MD; Hussein A. Elkousy, MD; Gary M. Gartsman, MD; Robert Nowinski, DO; Reuben Gobezie, MD; T. Bradley Edwards, MD
Affiliations: 1The Cleveland Shoulder Institute, University Hospitals of Cleveland, Mayfield Heights, Ohio; 2Martin Knee and Sports Medicine Center, Little Rock, Arkansas; 3Department of Orthopaedic Surgery, University of Texas Medical Branch, Galveston, Texas; 4Laboratory of Integrated Physiology, University of Houston, Houston, Texas; 5Fondren Orthopedic Group, Texas Orthopedic Hospital, Houston, Texas; 6OrthoNeuro, New Albany, Ohio

Introduction: Reverse total shoulder arthroplasty (RTSA) has become a successful treatment for older patients with instability and rotator cuff arthropathy. However, as a semi-constrained prosthesis, conventional RTSA employing a polyethylene spacer may fail over time secondary to polyethylene wear and subsequent osteolysis. Custom made metal-on-metal (M-o-M) implants have been designed to circumvent this mode of failure. Objective: To assess the postoperative results in a cohort of young patients who underwent glenohumeral replacement using a M-o-M reverse shoulder arthroplasty. Methodology: Patients younger than 50 years of age were eligible for inclusion. Active range of motion was measured postoperatively using a goniometer. Complications were recorded. Shoulder specific outcome scores were calculated before and after surgery. Results: Nine male patients underwent surgery using a custom M-o-M reverse shoulder implant. The average age was 37 years (range: 17-49) and all patients had a minimum follow-up of 12 months (range: 12-25). Postoperative active forward flexion and external rotation were 119° and 10°, respectively. Complications included: 3 patients who sustained a postoperative dislocation, 1 base plate failure following a glenoid fracture and 1 patient with dissociation of the glenosphere. ASES scores improved from 47 preoperatively to 73 postoperatively (p = .013). Constant and adjusted Constant scores improved from 20.8 points and 16% preoperatively to 61.8 points and 67.3% postoperatively (p = .019 and p = .068). Conclusion: Although RTSA with a M-o-M articulation may appear to be an attractive choice when treating younger patients with limited reconstructive options, postoperative outcomes are disappointing and the complication rate is high.
B23 Title: Early antioxidant supplementation prevents the oxidative stress that is a major contributor to diabetic nephropathy, even in conditions of poor glycemic control
Authors: Lubka Ilieva (OMS II); Sharon Inman, PhD; Kelly McCall, PhD
Affiliation: Ohio University Heritage Collage of Osteopathic Medicine, Athens, Ohio

Diabetic nephropathy is a common complication of diabetes and is the leading cause of end-stage renal disease. Good glycemic control alone is not sufficient to prevent diabetic nephropathy since some diabetic patients with good glycemic control still develop nephropathy. A proposed culprit is excessive oxidative stress in the cells and vasculature of the kidney resulting in endothelial cell dysfunction, which is one of the earliest and most pivotal consequences seen in early diabetes. We hypothesize that an oxidant diet will alleviate the hyperglycemic-induced oxidative stress and prevent and/or delay the progression of diabetic nephropathy, even in conditions of poor glycemic control. To test this hypothesis, we used a known rat model of diabetic nephropathy and studied three different groups: (1) a non-diabetic control; (2) a diabetic control fed a 65% sucrose diet known to induce type-2 diabetes mellitus (T2DM) and diabetic nephropathy; and (3) an experimental group fed the 65% sucrose diet plus the antioxidant diet. During the course of the 12-week experiment, we measured body weights, fasting blood glucose levels, and urine outputs. Our findings supported our hypothesis that an oxidant diet can ultimately prevent and/or delay the progression of diabetic nephropathy. Interestingly, the data also suggested evidence of kidney damage even prior to the onset of T2DM.

B24 Title: Treatment of Acetabulum Fractures Through the Modified Stoppa Approach: Strategies and Outcomes
Author: Mark Isaacson, DO (PGY 5)
Affiliation: Department of Orthopedic Surgery, OhioHealth/Doctors Hospital, Columbus, Ohio

Background: Since the original description by Letournel in 1961, the ilioinguinal approach has remained the predominant approach for anterior acetabular fixation. However, modifications of the original abdominal approach described by Stoppa have made another option available for reduction and fixation of pelvic and acetabular fractures. Questions/Purposes: We investigated perioperative and long-term outcomes of the Stoppa approach for a variety of acetabular fractures, with attention paid to complications and functional results. Patients and Methods: Between September 2008 and August 2012, 36 patients with acetabular fractures were treated using the Stoppa approach. Follow-up included regularly scheduled office visits, radiographs, and validated patient outcome surveys. Results: After a mean follow-up length of 32.1 months, absolute hip function, as measured by the Merle d’Aubign Hip Score, was very good in 54%, good in 9%, medium in 18%, fair in 5% and poor in 14%. Complications related to our approach were minimal, with one superficial infection and three deep infections, two patients with temporary lateral thigh numbness, no obturator nerve palsies and one inguinal hernia. Three deaths in the cohort were seen in follow-up to unrelated causes. Union rate was 94.1%, while 72.7% of patients were able to ambulate without any assistive devices. Conclusions: In agreement with prior published data, our results show good functional outcomes with minimal complications using the modified Stoppa approach for a variety of acetabular fractures. Our results highlight the difficulty but feasibility in treating posterior column displacement through an anterior approach. Consideration for dual approaches with posterior column involvement may be warranted to optimize fracture reduction and functional outcomes.

B25 Title: Lymphedema in Ovarian Cancer Survivors: Assessing Diagnostic Methods and Risk Factors
Authors: Neel S. Iyer (OMS I), MPH^2; Brenda Cartmel, PhD^2; Lou Friedman, PT CLT-LANA^3; Melinda L. Irwin, PhD, MPH^2
Affiliations: ^1Lake Erie College of Osteopathic Medicine, Bradenton, Florida; ^2Yale School of Public Health, New Haven, Connecticut; ^3Yale Cancer Center, New Haven, Connecticut

Introduction: Lymphedema is a poorly understood but significant side effect of treatment for gynecologic cancer. We sought to determine the prevalence of lower limb lymphedema (LLL) in a sample of ovarian cancer survivors via three different diagnostic methods while also evaluating the agreement between each method and assessing potential risk factors for LLL. Methods: LLL was measured via self-report questionnaire, optoelectric perometry, and evaluation by a certified lymphedema specialist in women (n = 48) who had completed treatment for their ovarian cancer and were physically inactive. Results: LLL prevalence ranged from 19-42% depending on the diagnostic method, with the self-report questionnaire and the lymphedema specialist evaluation having the highest agreement (κ = 0.646). No risk factors were significantly associated with LLL, although there was a trend towards higher total body fat and BMI among those with LLL versus lower body fat and BMI among those without LLL. Conclusion: There is a strong need for further research, given that the prevalence of LLL could be as high as 42 percent among women treated for ovarian cancer.

B26 Title: Prevalence of Eosinophilia and Ova and Parasites Screening in a Refugee Population in a Midwestern County
Authors: Brandon Kohrs (OMS IV)\(^1\); Thomas Herchline, MD\(^2\),\(^3\),\(^4\); Sylvia Esser-Gleason, DO\(^1\),\(^3\); Grace Brannan, PhD\(^1\)
Affiliations: \(^1\)Lake Erie College of Osteopathic Medicine, Bradenton, Florida; \(^2\)Yale School of Public Health, New Haven, Connecticut; \(^3\)Yale Cancer Center, New Haven, Connecticut; \(^4\)Premier Health Network, Dayton Ohio

Introduction: Eosinophilia is a major health issue concerning refugee populations from parasite endemic regions such as Sub-Saharan Africa, the Middle East and Asia. Parasites, the most common cause of eosinophilia worldwide, often result in high eosinophil levels. Objective: The objective was to determine the prevalence and possible correlation of ova and parasites (O&P), eosinophilia, and body mass index (BMI) in a refugee population in a midwestern county of the United States. Methodology: This was a retrospective chart review of all refugees who had an initial medical evaluation at Public Health Dayton & Montgomery County between January 1, 2009–June 10, 2013. Results: Overall, 598 patients (60.9% male, 39.1% female) (Mean age=29) had a completed stool analysis. Positive O&P was seen in 32.9% (27.6% non-pathogens, 9.2% pathogens). Eosinophilia (450 cells/µL cutoff) was seen in 13.4%. There was a significant difference in the eosinophil levels of tissue parasite infected (Schistosomiasis, Strongyloides, and hookworms) (770±820 cells/µL (P-value 0.01)) compared to those not infected (204±577 cells/µL). Those with positive O&P had a lower BMI (21.33±4.75 (P-value .006)) than those with negative O&P (23.45±5.87). The BMI of non-pathogen infected individuals was (21.64±4.77 (P-value 0.03)) lower than those not infected (23.17±5.84). Conclusion: This study suggests that parasite infection is common in refugees and that a significant positive correlation between O&P and eosinophil levels exists in the tissue parasite group. BMI is also lower in those with a positive O&P and in those infected with non-pathogens, which were previously thought to cause no harm to the body.
Polychlorinated Biphenyls (PCBs) are chlorinated hydrocarbons used in industry for their chemical properties. Once in the environment, PCBs do not degrade easily and can remain for long periods of time. PCBs can be carried by air, water and soil, and can also be taken up by plants and small organisms. PCBs accumulate in animal fatty tissues and biomagnify in the food chain. Manufacturing of PCBs was banned after 1979, but the poor maintenance of hazardous waste allows PCBs to leak into the environment. PCBs have been known to have injurious health effects in animals including hearing deficits in rats exposed during development. A collection of nuclei located in the brainstem called the superior olivary complex (SOC) is a major component of the ascending and descending auditory pathways and is the first site of convergence of auditory information from the left and right ears. The SOC is made up of three primary nuclei, the medial superior olive (MSO), lateral superior olive (LSO), medial nucleus of trapezoid body (MNTB), and several smaller periolivary nuclei, including the superior parvocellular nucleus (SPON). Each nucleus has established roles in different aspects of hearing. The SOC functions in aiding the ability to localize sound source. The present study seeks to examine the effects of PCB exposure on the SOC in the auditory brainstem pathway and compare neuronal morphology and vesicular glutamate transporter-1 (VGLUT-1) expression in the SOC of control group and PCB treated rat brains.

B30 Title: Headed Compression Screw Fixation for Calcaneal Displacement Osteotomies: A Retrospective Review of Post-Operative Interventions

Introduction:
The calcaneal displacement osteotomy is frequently used by foot and ankle surgeons to correct hindfoot angular deformity but requires internal fixation. Unfortunately, prominent hardware frequently requires removal. We sought to compare hardware removal rates and analyze factors including screw size, position and angle. A basic cost analysis was also performed. Objectives: We hypothesize that there are multiple factors influencing hardware pain including larger screws and plantar location. We further hypothesize that the lower profile head associated with smaller screws will decreased the re-operation rate inherent with hardware pain and prove to be more cost effective. Materials and Methods: We collected epidemiologic data, type of fixation used and frequency of removal. We then performed a radiographic analysis of post-operative weight bearing films and mapped the Screw Entry Quadrant (SEQ) and angle of screw placement. A basic cost analysis was performed including hardware and facility costs. Results: With 30 patients in our screw removal cohort and 119 in our screws retained cohort we found statistically significant differences. The small screw group had a removal rate of 9% (4/45) compared to 25% (26/104) of the larger screw group. The cost analysis demonstrates smaller screws cost 44% of larger screws. Conclusion: Smaller screws have a statistically significant difference in removal rates when compared to larger and provide equivalent results with overall cost savings. This study suggests that technical factors can aid in reduction of removal rates in headed screw fixation and that size of the screw is more important than the SEQ or angle of screw insertion.
B31 Title: Osteopathic Medical Student Attitudes Towards the use of Osteopathic Manipulative Treatment in Dermatology
Authors: Bridget E. McLwhee, DO (PGY 1)
Affiliation: University Hospitals Regional Hospitals, Richmond Heights, Ohio

Introduction: Osteopathic physicians strive to care for their patients in a holistic manner, believing that the body is a unit in which structure and function are interrelated. Traditionally osteopathic physicians have practiced largely in primary care, but their numbers in medical subspecialties continue to increase. In theory, osteopathic manipulative treatment (OMT) should be useful in any area of medicine. However, despite the increasing number of osteopathic specialists, implementation of OMT in medical subspecialties – including dermatology – has been slow to occur. Objectives and methods: A paper survey was designed to anonymously investigate osteopathic medical student (OMS) attitudes towards the use of OMT in dermatology. The survey was administered to a diverse sample of 132 OMS during a national osteopathic conference. Results: 99.2% of OMS felt that osteopathic manipulation could play a beneficial role in some aspect of the practice of dermatology. However, only 5% of OMS surveyed felt that osteopathic lymphatic techniques could be helpful in dermatology. Discussion: A substantial number of OMS believe that OMT could be helpful. Burnout, depression, and distress are common in health professions students. Few studies address OMT modalities in stress reduction. Previous studies show that sIgA is inversely correlated with stress. OMT was hypothesized to reduce stress and increase sIgA in health professions students. Protocols were approved by the LECOM IRB. 102 participants were randomly assigned to control, direct treatment (DT), or non-directed treatment (NDT) groups. The DT (body core) and NDT (appendicular) groups received 20 minutes of therapy followed by 10 minutes resting supine once weekly for 4 weeks. Faculty-trained OMSII’s provided treatments. All groups completed Self-Perceived Stress Scale (PSS) questionnaires weekly, before (survey 0) and after (survey 5) the treatment period where they provided sIgA saliva samples. Data was analyzed using retrospective independent sample t-tests. Average PSS change between surveys 1 and 4 and sIgA between DT and NDT populations showed significant differences between surveys 1 and 4 (CI = 0.1 to 6.7, P < 0.044; CI = 1.095-20.417, P < 0.030, respectively). PSS between surveys 0 and 4 and sIgA between NDT and controls differed significantly (CI = 1.6 to 11, P = 0.09; CI = 7.400-24.469, P = 0.000). PSS between surveys 0 and 4 between NDT and DT groups significantly differed (CI = -0.95 to -2.7, P = 0.038). DTs and NDTs demonstrated reduced stress compared to controls. Greater reduction in stress was observed in NDT versus the DT group. OMT proved effective in reducing distress in recipients. Further studies should address possible provider error, differences in curriculum stressors, and the greater stress reduction observed in the NDT population.

B32 Title: Effects of Osteopathic Manipulative Treatment (OMT) in lowering perceived stress in medical, dental, and pharmacy student populations
Authors: Sean A. Mallon (OMS II); Brooke Johnson; Ryan Bowes (OMS II), LECOM-B; Thomas Quinn, DO, LECOM-B; Thomas Fotopoulos, DO, LECOM-B
Affiliation: Lake Erie College of Osteopathic Medicine – Bradenton, Bradenton, Florida

Introduction: Ankle fractures are a common injury treated by orthopedic surgeons. The distal tibiofibular syndesmosis can be injured during these fractures and proposes a significant challenge in regard to the diagnosis of instability as well as evaluating reduction after fixation. Multiple studies have demonstrated that traditional radiographic analysis fails to accurately identify syndesmotic diastasis, instability and malreduction. Ankle arthroscopy has been proposed as an alternative way to evaluate the syndesmosis. Materials and Methods: 10 trans-tibial amputation cadavers were utilized for this study. Two distinct analyses were undertaken. The first, analysis of instability, utilized two dissection groups, a superficial dissection only and a partial disruption model. The second analysis was of syndesmotic malreduction. For this all 10 specimens underwent complete disruption of the syndesmosis and subsequent fixation in either anatomic alignment or malreduction. Both analyses were performed by surgeons blinded to the condition of the syndesmosis. Results: Two groups of surgeons were able to identify syndesmotic instability a combined 75% of the time. Malreduction diagnosis was mixed with a 100% accurate diagnosis of sagittal plane displacement but only 50% accuracy for rotation and 17% for an anatomic reduction. Conclusion: Syndesmotic injury during ankle fracture presents a significant problem to the treating surgeon. Ankle arthroscopy has been shown in the literature to be highly sensitive for diagnosing instability but has not been evaluated in diagnosing malreduction. The current study shows moderate success in diagnosing both malreduction and instability.

B33 Title: Arthroscopic Evaluation of Syndesmotic Malreduction
Authors: Douglas E. Lucas, DO (PGY 5); B. Collier Watson, DO (PGY4); G. Alex Simpson, DO (Fellow); Gregory C. Berlet, MD
Affiliations: 1OhioHealth/Doctors Hospital Orthopedic Surgery Residency Program, Columbus, Ohio; 2Orthopedic Foot and Ankle Center, Westerville, Ohio

Introduction: Ankle fractures are a common injury treated by orthopedic surgeons. The distal tibiofibular syndesmosis can be injured during these fractures and proposes a significant challenge in regard to the diagnosis of instability as well as evaluating reduction after fixation. Multiple studies have demonstrated that traditional radiographic analysis fails to accurately identify syndesmotic diastasis, instability and malreduction. Ankle arthroscopy has been proposed as an alternative way to evaluate the syndesmosis. Materials and Methods: 10 trans-tibial amputation cadavers were utilized for this study. Two distinct analyses were undertaken. The first, analysis of instability, utilized two dissection groups, a superficial dissection only and a partial disruption model. The second analysis was of syndesmotic malreduction. For this all 10 specimens underwent complete disruption of the syndesmosis and subsequent fixation in either anatomic alignment or malreduction. Both analyses were performed by surgeons blinded to the condition of the syndesmosis. Results: Two groups of surgeons were able to identify syndesmotic instability a combined 75% of the time. Malreduction diagnosis was mixed with a 100% accurate diagnosis of sagittal plane displacement but only 50% accuracy for rotation and 17% for an anatomic reduction. Conclusion: Syndesmotic injury during ankle fracture presents a significant problem to the treating surgeon. Ankle arthroscopy has been shown in the literature to be highly sensitive for diagnosing instability but has not been evaluated in diagnosing malreduction. The current study shows moderate success in diagnosing both malreduction and instability.
**B35**

**Title:** Novel Hernia Mesh and Plug Deployment in a Swine Abdominal Model: A Pilot Study

**Authors:** Logan T. Mellow (OMS IV)\(^1\); Mark Pozgay, DO\(^2\); Michelle Chapman\(^2\); Harry C. Kellermi, MD\(^2\); Jacob Pilley, MD\(^2\)

**Affiliations:** \(^1\)Ohio University Heritage College of Osteopathic Medicine, Athens, Ohio; \(^2\)Summa Health System, Akron, Ohio

**Introduction:** Herniorrhaphy is one of the most frequently performed surgical procedures in the United States. This Pilot Study examines the in-vivo performance of one novel hernia plug and two novel hernia meshes compared to industry controls. **Objectives:** The preliminary evaluation of 3 proprietary hernia devices for intraoperative deployment, hernia recurrence, adhesion formation and biocompatibility. **Methodology:** Three swine were selected for this study. Subjects were anesthetized and five abdominal hernia defects were created such that all novel and control devices could be tested. Diagnostic laparoscopy was performed on post-op days 3, 7, 14, and 28 inspecting for abdominal adhesions and device failures. Following the day 28 laparoscopy, all implanted devices were harvested from the subjects en bloc. Harvested devices were graded histologically for tissue inflammation and incorporation. **Results:** There were no complications with surgical deployment or hernia recurrence in the three subjects. At harvest, all devices showed evidence of reperitonealization. Novel Mesh 2 showed a 50% reduction in adhesion formation compared to control. Novel Mesh 1 adhesion rates were similar to the control. The control mesh was associated with earlier adhesion formation and higher adhesion tenacity compared to the novel meshes. There were no differences in histologic incorporation or inflammation between all meshes. Neither hernia plug produced adhesions in the study. There were no differences in histologic incorporation or inflammation between hernia plugs. **Conclusion:** Novel devices in this pilot study showed equivocal or superior performance to industry controls and warrants a larger study to further examine efficacy.

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**B36**

**Title:** The Application of Osteopathic Manipulation to Psoriasis Therapy

**Author:** Miesha Merati, DO (PGY 1)

**Affiliation:** University Hospitals Regional Hospitals, Richmond Heights, Ohio

**Introduction:** Psoriasis is a chronic relapsing inflammatory disorder with cutaneous, psychological, and musculoskeletal consequences. It is prevalent in 2-3% of the population with psoriatic arthritis complicating 10-30% of cases. Psychological stress both exacerbates and causes recurrence of psoriatic flares by affecting the HPA axis as well as the immune system. Additionally, studies have documented sympathetic dysfunction and increased permeability of lymphatics in psoriatic plaques. Topical and systemic treatments have been well-documented, however, osteopathic manipulation remains an obscure therapy for psoriasis. **Methods:** A PubMed literature review from 2005 to present, of musculoskeletal therapies and applications to the treatment of psoriasis, was conducted. **Discussion:** An understanding of the main principals of osteopathy is vital to determining the role of osteopathic manipulation in psoriasis. Osteopathy dictates that the body is a unit and psoriasis not only worsens with stress but also, has a profound psychological impact on patients. Psoriasis is an inflammatory disorder, and therefore, supports the principle that the body is capable of self-regulation. Lastly, psoriasis exemplifies the relationship between structure and function, as it is an uncontrolled, nonmalignant proliferation of the epithelium, resulting in well-demarcated scaly and erythematous plaques. **Conclusion:** Osteopathic manipulative modalities such as muscle energy and myofascial release, lymphatic techniques, and methods which restore autonomic function may benefit psoriatic patients by reducing stress, restoring range of motion in patients affected by psoriatic arthritis, augmenting the clearance of lymphatics, and restoring sympathetic function. Randomized-controlled trials are necessary in delineating the use of osteopathic manipulation as an adjunctive therapy to psoriasis.

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**B37**

**Title:** Examining an association between gut motility and autonomic function

**Authors:** Alexandra Murray (OMS III); Craig Chappell, DO

**Affiliation:** Ohio University Heritage College of Osteopathic Medicine, Department of Family Medicine, Athens, Ohio

In this pilot study, a cross-sectional study design was used to determine if suboccipital release leads to a substantial increase in gut motility in healthy adult patients. Suboccipital release is a long standing osteopathic indirect cranial myofacial treatment that has been shown to supply relief from multiple ailments including headaches, asthma, blood flow abnormalities, hicups, and tender points. Suboccipital release is effective because it decompresses the vagus nerve, C1, and C2 to allow normalization of the parasympathetic nervous system. The parasympathetic nervous system regulates several important functions in the body including the gastrointestinal system’s ability to digest food. Although there has been past research that has documented the relationship between the vagus nerve with parasympathetic activity, there has been little done to investigate how gut motility is affected by vagal stimulation and how this relationship might be used to prevent gut motility complications such as post-operative ileus. Suboccipital release was used in this study to stimulate the parasympathetic system via the vagus nerve to stimulate gastric emptying and increase gut motility. Each participant’s borborygmus was measured before and after treatment to indirectly measure parasympathetic activity. A positive correlation between suboccipitall release and peristalsis was found in healthy participants in comparison to a sham treatment. Further investigation is needed to determine how effective this treatment is on a larger population and if it can be applied in a post-operative ileus setting.

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**B38**

**Title:** Minimalist running decreases knee and foot pain developed in traditional running shoes

**Authors:** Katrina Ostermann (OMS III); Lance Ridpath, MS; Jandy Hanna, PhD

**Affiliation:** West Virginia School of Osteopathic Medicine, Lewisburg, West Virginia

**Introduction:** Minimalist running is a popular exercise option in the United States. There is disagreement in the literature over whether minimalist running can prevent or reduce the incidence of running injuries as compared to traditional shoes. **Objectives:** The goal of this study is to determine whether the incidences (and severity) of injuries are reduced (improved) after switching to minimalist running, and to determine if transition times effect injury incidences. **Methodology:** An internet based survey regarding self-reported injury prior to switching to minimalist shoes, and whether the incidences of injuries are reduced, was conducted. Questions regarding whether subjects developed new injuries after switching, was conducted. **Results:** There were no complications with surgical deployment or hernia recurrence in the three subjects. At harvest, all devices showed evidence of reperitonealization. Novel Mesh 2 showed a 50% reduction in adhesion formation compared to control. Novel Mesh 1 adhesion rates were similar to the control. The control mesh was associated with earlier adhesion formation and higher adhesion tenacity compared to the novel meshes. There were no differences in histologic incorporation or inflammation between all meshes. Neither hernia plug produced adhesions in the study. There were no differences in histologic incorporation or inflammation between hernia plugs. **Conclusion:** Minimalist running decreases injuries compared to traditional running. Further research also is also needed to establish if such decreases in pain were the result of decreased mileage due to the transition period, changes in stretching pattern, or other variables.
The role of therapeutic anticoagulation in patients’ post-intracranial hemorrhage is consistently an area of debate among trauma physicians. The purpose of this retrospective study was (1) to evaluate maternal and fetal outcomes in patients with CVID in order to establish a standard of care. Methods: This was a prospective cohort study of 64 female CVID patients from a private Allergy and Immunology practice in Northeast Ohio. Each participant was mailed a questionnaire concerning obstetrical, neonatal and CVID treatment history, focusing in particular on the frequency of infections and hospitalizations. Completed questionnaires were analyzed for statistically significant relationships between categorical variables of interest. Results: Preliminary results demonstrated the frequencies of illness requiring antibiotics to be 40.4% for the first pregnancy, 35.9% for the second pregnancy, 12.0% for the third pregnancy, and 22.0% for the fourth pregnancy. Of those reported cases, hospitalization was required in 21.1%, 28.6%, 33.3%, and 50.0%, respectively. At 6 months of age, antibiotics were necessary for infection in 31.7% of infants for the first pregnancy, 45.2% for the second pregnancy, 26.7% for the third pregnancy, and 50.0% for the fourth pregnancy. The clinically recognized miscarriage rate was 15.9%. Conclusions: To date, this is the largest known report of maternal and fetal outcomes in regard to infection in patients with CVID.

Rosacea prevalence ranges from 1 to 10 percent and occurs more often in females aged 30 and older, but may occur in childhood and persist through adulthood. Rosacea is divided into four main subtypes. A rare complication of rosacea has been described and is characterized by persistent lymphedema of the upper half of the face known as Morbihan disease or rosacea lymphedema. The pathophysiology of rosacea is controversial although some mechanisms are better understood and accepted. Discussion: The object of this article is to review the classification, etiologies, medical treatments, and apply osteopathic principles and techniques that could be used as an adjunct in the management of rosacea.

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Real-time effect of centrotemporal spikes upon cognitive performance in BECTS

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B43  Title: Efficacy of Standardized Insulin in a Rural Hospital
Authors: Jessica Perkins (OMS IV); KA Childers, G Dogbey, JH Shubrook, D Jones and B Scharfenberg
Affiliations: Ohio University Heritage College of Osteopathic Medicine, Athens, Ohio; OhioHealth/O’Bleness Memorial Hospital, Athens, Ohio

Optimal inpatient hyperglycemia has been contested for years. Inpatient hyperglycemia contributes to increased morbidity and mortality. However, aggressive glucose control can increase mortality. Glucose guidelines have been based on recommendations from large academic hospitals with little data representing small rural hospitals. This study evaluated the efficacy of a standardized insulin protocol in a rural hospital. Retrospective chart analysis of patients receiving insulin therapy over the previous year was performed. Patients were grouped based on type of insulin therapy received: sliding scale alone or scheduled/meal time insulin. Several outcomes were recorded. Length of stay was shorter for patients receiving scheduled insulin (2.85 days) despite a greater disease burden as evident by a higher HbA1C (9.2%), mean admission glucose (248.7 mg/dl) and pre-admission insulin use (83.3%) when compared to patients receiving sliding scale only (length of stay = 3.31 days, HbA1C% = 6.8, mean admission glucose = 168.5 mg/dl, pre-admission insulin use = 18.2%). Scheduled insulin had higher rates of hypoglycemia (p ≤ 0.01) (12.3%) compared to sliding scale insulin (4.1%). Severe hypoglycemia (≤ 50 mg/dl) occurred in 6.1% of the scheduled insulin group and didn’t occur in patients receiving sliding scale insulin. Of note, the mean random glucose of patients receiving sliding scale insulin was higher than the mean admission glucose showing poor overall glucose control during their hospital stay. Overall, scheduled insulin therapy showed shorter length of stay and better control when compared to admission glucose but was accompanied by an increased risk of hypoglycemic episodes, similar to findings in the large urban hospitals.

B44  Title: Treatment of Unstable SCFE via the Modified Dunn Procedure: A Single Surgeon Experience
Authors: Freddie Persinger, DO (PGY IV); Kevin Klingele, MD; Walter Samora ,MD
Affiliations: 1Ohio University Heritage College of Osteopathic Medicine, Athens, Ohio; 2OhioHealth/Doctors Hospital, Columbus, Ohio; 3Nationwide Children’s Hospital, Columbus, Ohio

Introduction: The modified Dunn procedure (MDP) has been shown to be an effective way of treating unstable slipped capital femoral epiphysis (SCFE): multicenter analyses have shown restoration of anatomy and function with low rates of avascular necrosis (AVN). Objectives: The purpose of this study was to present a consecutive series of unstable SCFE managed by a single surgeon with a focus on timing of surgical intervention, post-operative complications and radiographic results. Methodology: Over six years, thirty-one consecutive SCFEs were treated with the MDP. Medical records and radiographs were reviewed. Demographics, presentation time to operation, surgical times, and complications were recorded. Bilateral hip radiographs were utilized to record slip angle (SA), greater trochanteric height (GTH), and femoral neck length (FNL). Results: Thirty-one consecutive hips in 30 patients were reviewed: average age 12.37 years. Mean follow-up was 23.1 months. Time from emergency room presentation to surgical intervention averaged 13.9 hours and mean total operative time was 112 minutes. Two patients developed AVN, both of which underwent initial surgery >20 hours after presentation. Mean postoperative SA measured 2.5 degrees, GTH averaged 3.5 mm below the center of femoral head and mean FNL difference measured [-17.75mm. Summary/Conclusion: This series of 31 consecutive unstable SCFEs treated via a MDP showed a 6% incidence of AVN. No cases of AVN were seen in patients treated within 20 hours of presentation. Radiographic analysis showed restoration of the slip angle with minimal change in greater trochanteric height and mild femoral neck shortening. This series reveals the safety of the MDP for SCFE.

B45  Title: Excessive fructose significantly increases expression of FAS and fat accumulation of HuH-7 hepatoma cells in long-term culture
Authors: Hailey Peterson (OMS I); A Hudder; MW Bradbury
Affiliation: Lake Erie College of Osteopathic Medicine, Erie, Pennsylvania

High fructose corn syrup (HFCS) is a popular sweetener that has replaced cane sugar in most food products. It has been suspected in the development of multiple metabolic disorders due to fructose sidestepping the regulatory mechanisms of sugar metabolism. Fructose bypasses PFK-1 resulting in excessive amounts of acetyl-CoA, the main substrate for de novo fatty acid synthesis. Consequently, acetyl-CoA is shunted into fatty acid and triglyceride synthesis, either accumulating within hepatocytes or being transported by the bloodstream to other tissues. While some tissues use fatty acids for fuel, excess quantities eventually lead to symptoms associated with obesity and the development of metabolic syndrome. To understand the impact of a constant high-sugar diet, we demonstrated the viability of the HuH-7 hepatoma cell line in long-term culture, then investigated the effects of fructose on key enzymes in the fat-synthesis pathway, as well as differences in fat accumulation. Results showed the HuH-7 cell line was viable in long-term cell culture and can be used to further investigate metabolomic studies. Triglyceride assays and lipid droplet analysis showed fructose produced significantly higher amounts of triglycerides at 6 weeks and lipid droplets throughout the course of the study, respectively. Real-time PCR and western blot analyses revealed significant increases in both gene and protein expression of FAS. We concluded that increased lipid droplets may contain more free fatty acids than triglycerides. This, in turn, may contribute significantly to the development of fatty liver diseases.

B46  Title: Active Management of the Third Stage of Labor: A comparison of the 2012 World Health Organization Recommendations for Prevention and Treatment of Postpartum Hemorrhage and Clinical Practice in a Mid-West Residency Program
Authors: Natalie Plevelich, DO (PGY IV); Yolanda Hsuan Lu (OMS III)
Affiliations: 1Mercy St. Vincent Medical Center, Toledo, Ohio; 2Kansas City University, Kansas City, Missouri

Introduction: In 2012 the World Health Organization (WHO) released 32 clinical practice evidence-based recommendations for the prevention and treatment of postpartum hemorrhage during the active management of the third stage of labor. These were developed in an effort to decrease the rate of postpartum hemorrhage which is a major contributor to maternal morbidity and mortality worldwide. Objectives: The objectives for this study were to identify clinical practice patterns during the 3rd stage of labor at an OB/GYN residency training site with the greatest similarities and differences from the 2012 WHO recommendations for prevention and treatment of postpartum hemorrhage. Methods: A retrospective chart analysis of all deliveries of singleton and multiple gestations at the training site in 2012 with a minimal estimated gestational age of greater than or equal to 24 0/7 weeks. An investigator-developed chart audit tool was used for manual chart review. Results: Data collection and entry complete. Currently in analysis phase with results available in February 2014. Conclusion: Conclusions will be available when the final results have been reviewed. The investigator initially hypothesized practice areas with the most deviation from WHO recommendations would be: timing of uterotonic agents, timing of cord clamping and controlled cord traction.
B47 Title: Establishing and Validating a Primary Cell Culture Method for Renal Proximal Tubular Epithelial Cells from Normal and STAT5 Knockout Mice
Authors: Monica Prasnal (OMS II); Debra Walters; Samantha Shaw; Ramiro Malgor; Karen T. Coschigano
Affiliations: Ohio University Heritage College of Osteopathic Medicine, Department of Biomedical Sciences and the Diabetes Institute of Ohio University, Athens, Ohio

Mounting evidence suggests that diabetic nephropathy is an inflammatory process and that the cytokines involved play an injurious role within the kidney. In order to better understand this process, there are two key features that need to be established - the genes involved in the pathogenesis and the location from which the inflammatory signal originates in high glucose conditions. Previous research performed in our lab demonstrated that diabetic mice lacking Signal Transducer and Activator of Transcription 5 (STAT5 knockout or SKO mice) showed an increase in expression of a number of inflammation-related genes in the kidney. Further, the tubulointerstitium appeared to be the damaged region within the kidney. Other labs have suggested a role for tubular epithelial cells in diabetic kidney damage. Therefore, the goal of this project was to culture renal tubular epithelial cells (RTECs) from wildtype (WT) and SKO mice and compare the activation of inflammation-related gene expression in “diabetic” conditions in an effort to establish an in vitro model for studying the role of STAT5 in this kidney damage. Experimental results suggested that a successful RTEC isolation suggested a role for tubular epithelial cells in diabetic kidney damage. Therefore, the goal of this project was to culture renal tubular epithelial cells and the location from which the inflammatory signal originates in high glucose conditions. Previous research performed in our lab demonstrated that diabetic mice lacking Signal Transducer and Activator of Transcription 5 (STAT5 knockout or SKO mice) showed an increase in expression of a number of inflammation-related genes in the kidney. Further, the tubulointerstitium appeared to be the damaged region within the kidney. Other labs have suggested a role for tubular epithelial cells in diabetic kidney damage. Therefore, the goal of this project was to culture renal tubular epithelial cells (RTECs) from wildtype (WT) and SKO mice and compare the activation of inflammation-related gene expression in “diabetic” conditions in an effort to establish an in vitro model for studying the role of STAT5 in this kidney damage. Experimental results suggested that a successful RTEC isolation and culture method was established. Gene expression responses to diabetic conditions were also observed, but increased gene expression due to the STAT5 deletion was not as robust as in vivo. Additional genes, alternative cell types or “diabetic” conditions may need to be assessed.

B48 Title: Colorectal cancer cell liver metastasis is promoted by c-Met activation and upregulation of CD44 expression
Authors: Ravi Raithatha (OMS II); Victoria A. Elliot2; Piotr Rychahou, MD2; Yekaterina Y. Zaytseva, PhD2; B. Mark Evers, MD2
Affiliations: 1University of Pikeville-Kentucky College of Osteopathic Medicine, Pikeville, Kentucky; 2University of Kentucky Markey Cancer Center, Lexington, Kentucky

Introduction: Colorectal cancer (CRC) is the second leading cause of cancer-related deaths in the United States. Metastatic disease is what causes death in these patients, however the mechanisms of CRC metastasis are not well characterized. Clinically, about 85% of CRC metastasizes to the liver, and 15% spreads to the lungs. This study sought to identify the genes that promote CRC liver metastasis in particular. Materials and Methods: As has been previously shown, metastatic activity to the liver was enriched by orthotopic injection and in vivo selection. A set of genes was identified, including CD44 and c-Met, which are essential for colorectal cancer liver metastasis. The study began with the HT29 GFP-pG3 LM0 cell line, which was introduced into nude athymic mice by splenic injection. After multiple cycles of re-injection, a more aggressively metastatic cell line, HT29 GFP-pG3 LM3, was established. Mice were anesthetized using isofluorane and imaged using bioluminescence technology in both dorsal and ventral positions four weeks after intrasplenic injection. Data were re-collected six months after intervention. The imaging allowed for observation of tumor size, as well as the site and aggressiveness of metastasis. Results: Upon Western blot and immunohistochemistry analysis, a significant increase in the expression of CD44 and c-Met proteins was observed in the more metastatic LM3 cell line as compared to the LM0 cell line. Additionally, the expression of CD44 and c-Met are significantly increased in the LM3 tumor tissue samples compared to LM0. Conclusion: These observations suggest that CD44 and c-Met signaling pathways may play a critical role in promoting CRC liver metastasis, and could be used as potential therapeutic targets for treatment of CRC metastasis.

B49 Title: Maximizing Efficiency on Trauma Surgeon Rounds
Authors: Aliaksandr Ramanuiik (OMS II), MBA2; BJ Dickson, CNP2; Sean Mahoney, MSN, RN2; Michael S. O'Mara, MD, MBA, FACS1
Affiliations: 1OhioHealth/Grant Medical Center, Columbus Ohio; 2Ohio University Heritage College of Osteopathic Medicine, Athens, Ohio

Background: Rounding by Trauma surgeons is a complex multidisciplinary team-based process. Implementation of lean methodology aims to increase understanding of the value stream and eliminate non-value added components. We hypothesized that analysis with education and intervention would improve surgeon efficacy. Materials and Methods: Level one trauma center with 4300 admissions per year. Average non-ICU census was 55. Five full-time attending trauma surgeons were evaluated. Value added and non-value added components of rounding were identified. The components of each patient interaction during daily rounds were documented. Summary data were presented to the surgeons. An action plan of improvement was provided at a group and at individual interventions. Change plans were presented to the multidisciplinary team. Data were re-collected six months after intervention. Results: The percent of interactions with non-value added components decreased (16.0% to 10.7%, p=0.0001). There was no change between the two time periods in time of evaluation of individual patients (4.0 to 3.5 minutes, p=0.43). No individual surgeon changed their time per patient a significant amount. Overall time to complete rounds did not change. Conclusions: A single lean intervention on improving rounding efficiency can be successful. The trauma surgeons were able to identify and reduce non-value added components of rounds. No decrease in rounding time or individual patient evaluation time was seen. This implies that surgeons were able to re-invest freed time into patient care, or that the non-value added components were somehow not contributing as much to process time as expected. Direct intervention for isolated improvements can be effective in the rounding process, and efforts should be focused upon improving the value of time spent rather than reducing time invested.

B50 Title: Evaluation of the HOPE Team: Determining Efficiency
Author: Karla Ruiz (OMS II)
Affiliations: William Carey University College of Osteopathic Medicine, Hattiesburg, Mississippi; Healthcare Center for the Homeless, Orlando, Florida

Introduction: In 1993, Dr. Rick Baxley founded a clinic, The Health Care Center for the Homeless (HCCH), whose goal was to give quality care to the homeless and chronically homeless. Through its Homeless Outreach Partnership Effort Team (HOPE Team), the HCCH connects those who live in places not intended for habitation (i.e. woods) to the services provided by the clinic and neighboring providers. Objective: In June 2013, a formative evaluation was performed to determine the efficiency of the HOPE Team in establishing new clients and connecting with the chronically homeless in Orange County, Florida. Methods: Analysis of HMIS intake forms and clinic EHR, observations, onsite visits, informal and formal interviews with the staff and the clients of the HOPE Team and clinic were conducted from June 3, 2013 to July 10, 2013. Conclusion/Results: With the current access to resources at their disposal, the HOPE Team performs at an efficient level: however, the program is not running at optimum efficiency. Three areas were discovered that hindered relationships with patients and access to care: technology, transportation, and providers. Recommendations: Increase laptop turnaround, install lockboxes, implement and enforce the use of better cellular technology, increase use of bus passes, require new employees to go on one outreach with the HOPE Team, keep a HOPE Team Provider spots open on scheduled days, have mental health specialist go to campsites twice a month, and if changes are not implemented, hire a part time case manager.
B51  Title: Assessing the Need of the Edinburgh Postnatal Depression Scale as a Primary Screening Tool for Postpartum Depression in a Resident Clinic: A Retrospective Review  
Authors: Scott Rynearson, DO (PGY 4); Ngozi Osuagwu, MD; James Jenkins II, PhD  
Affiliations: OhioHealth/Doctors Hospital, Columbus, Ohio  

Introduction: In 2011 we instituted at the Women’s Health Center (WHC) the use of the Edinburgh Postnatal Depression Scale (EPDS) to screen all postpartum women for postpartum depression (PPD) as there had previously been no universal screening method. Objectives: To evaluate the necessity of screening all postpartum women for PPD with the EPDS at our WHC and to identify risk factors for PPD specific to our patient population. Methodology: This was a retrospective descriptive study of 345 women who had postpartum visits at the WHC from February 2011 to June 2013. We compared EPDS results of positive (>10) and negative (<10) associated with previously established risk factors and other factors that might predispose to PPD. We analyzed the significant risk factors as a group to determine if they could be used as a primary screening tool prerequisite to the EPDS. Results: Of the 345 women studied, 257 women were included and 19% (49/257) developed PPD. For women with PPD significant risk factors included age at first intercourse (p=0.04), number of lifetime sexual partners (p=0.031), marital status (p=0.015), history of physical abuse (p=0.001), emotional abuse (p<0.001), sexual abuse (p=0.018), and history of psychiatric illness (p<0.001). Of the women with PPD, 80% (39/49) had at least one significant risk factor present (p=0.009, Sensitivity= 80%, Specificity= 40%). However, the risk factors as a group had a PPV of only 23% and a NPV of only 11%. Conclusion: It is necessary to screen all women at the WHC for PPD using the EPDS.

B52  Title: Tailoring Electronic Health Records to Ongoing Elder Risk and Functional Assessment  
Authors: Jason Sargent, DO (PGY 2); Carl Tyler, MD, MSc  
Affiliations: Cleveland Clinic-Fairview Hospital, Cleveland, Ohio  

Introduction: While a few elders undergo comprehensive multidisciplinary geriatric assessments in specialized clinics, most elder health screenings and assessments occurs in primary care settings, through brief, episodic, focused evaluations. Time constraints, staffing requirements, and documentation complexities make it difficult to track and fully utilize these assessments when conducted “piecemeal” over months or years. Objectives: To introduce a pilot pragmatic practice model that prompts primary care physicians to conduct, document, and retrieve information from geriatric screenings and assessments that occur naturally in primary care over time. Methodology: All physicians in a family residency practice agreed to add the category of “Risk and Functional Assessment” to the Problem Lists of their patients age 60 and older in their practice. Under that category, a template specified the following domains of assessment: Vision; Hearing; Cognitive Function; Fall Risk; Depression; ADLs; IADLs; Urinary Incontinence; and Physical Function. Physicians were directed to document the date a screening was conducted and to summarize the screening findings. Results: We will audit the uptake of the category of “Risk and Functional Assessment” in the Problem List and monitor the types and frequency of screenings conducted and documented. We also will to solicit resident and faculty feedback about the pilot intervention through our standard resident-faculty meeting forum. Summary/Conclusion: On-going geriatric assessments and screenings conducted in primary care are often buried in other documentation. We hope this tailoring of the electronic health record will promote more screening and assessment activity and incorporation of results into on-going care.

B53  Title: HbA1c: Current Use and Impact in the Inpatient Setting for Distinguishing Hyperglycemia  
Authors: Dustin Jones (OMS I); Brian Scharfenberg (OMS I); Jessie Perkins (OMS IV); Keri Childers (OMS IV), Jay Shubrook, DO  
Affiliation: Ohio University Heritage College of Osteopathic Medicine, Athens, Ohio  

The American Diabetes Association estimated the cost of diabetes was 245 billion dollars in 2012. The 2010 ADA approval has resulted in more widespread use of the HbA1c test as a means of diagnosing pre-diabetes and diabetes. The inpatient hospital setting offers a unique opportunity to identify a patient population via HbA1c testing that may be at risk for diabetes or patients with the disease that have yet to be identified. A 2013 study used HbA1c to identify undiagnosed patients with hyperglycemia in a large urban hospital setting. This study seeks to determine the current use of the HbA1c test in the presence or absence of a diagnosis of diabetes versus stress-induced or pharmacologic hyperglycemia in a rural inpatient setting. Of 430 admitted patients, 268 have been screened via HbA1c measurement. Of the 50 patients experiencing hyperglycemia in the hospital without a previous known diagnosis of diabetes, 29 were screened with the HbA1c test. Under the current ADA guidelines, 2 patients met criteria for the diagnosis of pre-diabetes, and 14 patients met criteria for the diagnosis of diabetes. Since it can take years for some patients to obtain a definitive diagnosis, HbA1c results obtained in an inpatient setting may hasten identification. Earlier detection of diabetes will reduce the likelihood of end organ damage and lead to earlier intervention. In conclusion, this hospital is working towards a standardized screening protocol for all patients experiencing hyperglycemia using the HbA1C test so that the gap between disease onset and intervention may be shortened.

B54  Title: Using Zebra fish (Danio rerio) to model Neural Stimulation for Epilepsy  
Authors: Saurabh Sharma (OMS I)\(^1\); Charles Hall Jr\(^2\)  
Affiliations: \(^1\)Ohio University Heritage College of Osteopathic Medicine, Athens, Ohio; \(^2\)Department of Neurology; The Ohio State University Wexner Medical Center, Columbus, Ohio  

A seizure is a sustained and synchronous elevation in brain electrical activity that can cause loss of consciousness and injury. Epilepsy is the condition of having recurrent and unprovoked seizures. Upwards of half of people with epilepsy will continue to have seizures despite optimum medical therapy. Neural stimulation is a viable adjunct in the treatment of medication refractory epilepsy (MRE). The most commonly employed neural stimulation paradigm is that of electrical stimulation of the left vagus nerve in the neck (VNS). VNS exhibits an anticonvulsant effect via retrograde activation of the locus coeruleus (LC) in the brainstem which elevates levels of norepinephrine (NE) within the cerebral cortex. Cortical NE in turn facilitates inhibitory Y-aminobutyric acid (GABA) release, which increases seizure threshold. Like rodents, the zebrafish is a model organism for many human diseases including epilepsy. The zebrafish is more amenable to high through put experimentation in which stringent experimental control is desired. In recently published works we have established that stimulation of the zebrafish hindbrain in the vicinity of the LC produces an anticonvulsant effect by noradrenergic mechanisms. The purpose of this study is to determine the effect of hindbrain stimulation on firing rate of single forebrain neurons. Our hypothesis is that we will see a predominantly inhibitory effect consistent with GABAergic transmission and increased seizure threshold.
**B55** Title: Osteopathic Manipulation and Home Exercises to Manage Notalgia Paresthetica  
Authors: Shannon Sharpe, DO (PGY 1); Jenifer R. Lloyd, DO, FAAD; Michael M. Rowane, DO, MS, FAAFP, FAAO  
Affiliation: University Hospitals Regional Hospitals, Richmond Heights, Ohio  

**Introduction:** Notalgia Paresthetica (NP) is a common condition seen in many physicians’ offices. The female: male ratio ranges from 2:3:1. The median age of onset is 54-62 years of age. Patients experience unilateral pruritus or dysesthesia of the inferomedial scapula in the distribution of the cutaneous dorsal rami of thoracic nerves T2-T6. Localized scratching may result in a lichenified patch or an area of post-inflammatory hyperpigmentation. **Objectives:** The goal of this literature review is to develop an osteopathic treatment module specific for NP. **Methods:** A comprehensive literature review was performed to collect information regarding the presentation, pathophysiology and current treatment options for NP. **Results:** NP is believed to be a sensory neuropathy due to trauma or entrapment of thoracic nerves. Cutaneous dorsal rami of T2-T6 emerge through multifidus spine muscles at right angles, making them more susceptible to mechanical trauma or entrapment. Current treatment options are rather unsuccessful or only provide transient relief. Small case studies show symptomatic improvement when Osteopathic Treatment is applied to the paraspinal musculature, thoracic ribs, thoracic vertebrae and scapulothoracic region. Encouraging results are noted with home exercises targeting the rhomboids, latissimus dorsi and pectoral musculature. **Conclusions:** The treatment limitations and irritating symptoms of NP make this a frustrating condition for both patients and physicians. The pathophysiology of NP makes this an ideal condition to treat with osteopathic manipulation. Techniques showing improvements in small case studies were compiled to develop a treatment plan using Osteopathic Manipulative Treatment and Home Exercises. The treatment module aims to improve symptoms, correct the underlying pathology and prevent recurrence of NP.

**B56** Title: Rosacea and its Association with Skin Cancer  
Authors: Pezhman S. Shoureshi, DO (PGY 4), MS; Douglas Y. Rowland, PhD; Jeremy S. Bordeaux, MD, MPH  
Affiliations: Department of Dermatology, University Hospitals Case Medical Center, Cleveland, Ohio; Department of Epidemiology and Biostatistics, Case Western Reserve University, Cleveland, Ohio; Department of Dermatology, Case Western Reserve University School of Medicine, Cleveland, Ohio  

**Introduction:** Rosacea is a chronic inflammatory skin disease of unknown etiology and similar to skin cancer, it is commonly found among fair skinned individuals with chronic actinic damage. The relationship between rosacea and skin cancer is unclear with no reported studies since the classification of rosacea in 2002. **Objective:** Our objective is to investigate for any potential association between rosacea and skin cancer. **Methods:** Questionnaires were distributed to a voluntary cohort of twins at the 2012 and 2013 annual Tweensdays Festival in Twinsburg, OH. The survey included each participant’s age, gender, ethnicity, Fitzpatrick skin type, sun exposure history by age and geographic location, and skin cancer history. Adults were evaluated for rosacea by a dermatologist using the global assessment of subtypes as defined by the National Rosacea Society. After excluding individuals under the age of 50, participants were divided into a rosacea group and a rosacea-free control group. **Results:** Descriptive statistics showed no significant differences except for an increased number of skin cancers among the rosacea group (19.15%) as compared to controls (2.22%). Univariate and multivariate analyses showed an odds ratio (OR) of 10.42 (p=0.025) and 12.00 (p=0.02), respectively, for skin cancer development among rosacea cases as compared to controls. **Conclusion:** Our findings indicate that rosacea patients are more likely to develop skin cancer. Clinical practitioners should consider skin cancer screening among their rosacea patients as it may represent a potential risk factor.

**B57** Title: Impact of Duty Hours on Surgical Resident Case Logs – A Review of Publicly Available ACGME Electronic Data Records  
Author: Andrew Skattum, DO (PGY 5)  
Affiliation: Mercy St. Vincent Medical Center, Toledo, Ohio  

**Introduction:** As graduate medical education becomes more regulated, there is a need to continuously reevaluate educational programs and standards for efficacy and educational effectiveness. In training, surgical residents the impact of duty hours on resident case logs needs to be examined. **Objectives:** To review characteristics of resident case logs before and after the implementation of duty hour restrictions and describe any statistically significant differences **Methodology:** A retrospective, descriptive study which includes a cohort of general surgery residents from the ACGME database covering graduate years from 1999-2012. Information was publicly available from the ACGME website. Data collected included total number of cases, total number of chief cases, and total number of surgeon junior cases. **Results:** The total average number of cases completed (940) did not vary much during the study period. This was also true for cases logged as surgeon junior (average 696) and surgeon chief (average 244). **Conclusion:** Case logs appear to be largely unaffected by the duty hour restrictions. There is some newer data that is in conflict with this. According to a recently published article in JAMA intern case logs have suffered after the advent of the 16 hour shift restriction in 2011. If there is a question of the overall effectiveness of current surgical resident education, further work needs to be done to examine the effect of duty hours on case logs and perhaps, if a difference exists secondary to the nature of modern surgery.

**B58** Title: OMT as an ancillary revenue stream: The effect of different payment modalities on OMT utilization and fees  
Authors: Jason Springer, MBA (OMS III); Sean Baskin, MS (OMS III)  
Affiliation: Lake Erie College of Osteopathic Medicine, Erie, Pennsylvania  

**Introduction:** Changing reimbursement rates have had some physicians attempting to find different revenue streams to maintain their practice income. The investigators feel that OMT could be considered as an ancillary revenue stream for Osteopathic physicians. **Objectives:** Determine if patients are willing to pay for and/or change the frequency of receiving OMT if insurance acceptance changed and Calculate the monetary value of OMT based upon patient demographics. **Methodology:** The researchers utilized two surveys distributed to osteopathic physician offices. The offices included a cash-only/OMT only practice, and three offices performing OMT with varying patient demographics. General demographic information, area[s] treated, level of symptom relief, frequency and payment method were collected. Surveys additionally asked about the change in frequency of receiving OMT based upon the office’s insurance policy and asked patients how much out of pocket the patient would be willing to spend on OMT if insurance was not accepted. **Results:** Generally, frequency of OMT would not change or decrease slightly if patients had to pay out of pocket for the treatment regardless of education, income, age with males more likely to maintain their current treatment frequency. Surveyed patients were inconsistent in the amount they were willing to pay with most responding $21-$30 per treatment area. In the office that operated on a cash-only basis, a preponderance of respondents indicated they would greatly increase the frequency of treatment if the provider accepted insurance. **Conclusion:** OMT is a cost and time effective way of increasing ancillary revenue in practices not currently utilizing OMT.

**B59** WITHDRAWN
B60  Title: Reduction in the Incidence of Type 2 Diabetes with Shared Medical Appointments
Authors: Justin Watkins (OMS I); Daniel Hoffman (OMS II); Byron Haney, MD; Bernadette Howlett, PhD
Affiliation: Pacific Northwest University of Health Sciences, Yakima, Washington

Introduction: Options for prevention of type 2 diabetes (DM2) are limited in the general population. Thus, prevention of progression to DM2 has not been standardized. The purpose of this analysis was to assess the viability of Shared Medical Appointments (SMA) as prevention for progression from preDM2 (defined as fasting plasma glucose, FPG: 100-125 mg/dL) to DM2. Methods: The study was a pilot, cross-sectional, practice-based chart-review involving records from 42 adult patients. The average baseline age was 60.3 years (38-86 years): 28 males and 14 females. FPG values at 12-month intervals for three years were assessed. SMAs were conducted every three months. To be included, patients must have participated in SMA for at least one year. The sample was comprised of adult patients attending a family medicine practice in western state. A qualitative comparison of proportions was conducted, based on data from a NEJM (n=3234) study of preDM2, which reported 11% of preDM2 adults receiving placebo (n=1082), 7.8% of those receiving Metformin (n=1073), and 4.8% of those receiving lifestyle intervention (n=1079) converted to DM2 within three years. Results: In this analysis, 0% (0/42) of the SMA participants with preDM2 converted to DM2 within 3 years. Conclusion: Study results indicate further research is needed. The sample size was not adequate to achieve sufficient power to conduct a hypothesis test. This analysis showed a reduction in absolute risk for development of DM2 within three years among patients who participated in SMA for at least 12 months.

B61  Title: Arthroscopic Evaluation of Syndesmotic Instability in a Cadaveric Model
Authors: B. Collier Watson, DO (PGY4);1 Douglas E. Lucas, DO (PGY3);2 G. Alex Simpson, DO1 (fellow); Gregory C. Berlet, MD3; Christopher F. Hyer, DPM, MS4
Affiliations: 1OhioHealth/Doctors Hospital Orthopedic Surgery Residency Program, Columbus, Ohio; 2Orthopedic Foot and Ankle Center, Westerville, Ohio

Introduction: Ankle fractures are among the most common lower extremity injuries in adults. To our knowledge, no other studies have focused on the amount of force that it takes to show syndesmotic instability under arthroscopic evaluation with an intact or partially disrupted syndesmosis. Our focus is to evaluate the amount of displacement produced in multiple planes with a graded, objective force visualized through ankle arthroscopy. Methods: Seven below-knee specimens were used in this study. Group 1 (control) underwent a superficial dissection but no ligamentous disruption. Group 2 underwent disruption of the Anterior Inferior Tfibiofibular Ligament (AITFL) and Interosseous Ligament (IL). Group 3 had AITFL and IL disruption plus Anterior Talofibular Ligament (ATFL) and Calcaneofibular Ligament (CFL) disruption. Group 4 included Posterior Inferior Tfibiofibular Ligament (PITFL) and Transverse Ligament (TL) disruption. Force was applied to and measured in each specimen using a digital scale. The amount of displacement was viewed and measured under arthroscopic evaluation. Results: The intact syndesmosis and lateral ankle ligaments in Group 1 provided multilobar stability. Clinically significant displacement occurred in Group 2 with just 6 pounds of force, and even greater displacement was observed in every specimen in Group 3 with as little as 2 pounds of force. The completely disrupted model in Group 4 was not tested because of gross instability. Conclusion: Determination of clinically relevant syndesmotic instability represents a challenging and difficult problem at times. Ankle arthroscopy clearly has the potential to evaluate even partial disruption of the syndesmotic ligament complex.

B62  Title: Medial Release, Petrie Casting, and Pelvic Containment Surgery for Patients with Lateral Pillar B and C Legg-Calve-Perthes Disease: Quality of Life and Radiographic Outcomes
Authors: Ayesha Yahya (OMS II);1 Charles T. Mehlman, DO, MPH;2 Junichi Tamai, MD;3 Godwin Dogbey, PhD4
Affiliations: 1Ohio University Heritage College of Osteopathic Medicine, Athens, Ohio; 2Cincinnati Children’s Hospital Medical Center, Cincinnati, Ohio

Purpose: Legg-Calve-Perthes Disease is the most common pediatric hip disorder in children between the ages of 4-12. The purpose of our study was to determine the radiographic and quality of life outcomes of the surgical treatment protocol utilized for such patients at our institution. Methods: 66 patients who underwent the Cincinnati Treatment Protocol (medial release with Petrie casting, followed by Salter osteotomy and/or shelf acetabuloplasty) were retrospectively reviewed. Preoperative radiographs were used for Herring’s lateral pillar classification. Postoperative radiographs were used for the Stulburg classification system for analyzing outcomes. Fisher’s Exact Test was used for subgroup analysis. PedsQL Survey was administered to assess patients’ current quality of life. Results: 45 patients had lateral pillar type B and 21 had C hips. 2 hips were included in class I, 28 in class II, 20 in class III and 16 in class IV according to Stulburg classification. Subgroup analysis revealed no significant difference (P=0.206) in outcomes of B and C hips. 37 patients responded to the PedsQL survey and had a mean score of 82/100. Class I and II hips combined had a mean PedsQL score of 86.33, class III had a score of 76.8, and class IV had a score of 78.1. Conclusions: The PedsQL survey revealed good quality of life outcomes scores despite the variability in radiographic outcomes. There was no significant difference between the PedsQL scores among the good, fair, or poor Stulburg groups; they were all equally likely to have good scores.

B63  Title: Carriage rate of Neisseria meningitidis serogroup B among University Undergraduates
Authors: Andrew Young (OMS I); Daryn Straley, DO
Affiliation: Ohio University Heritage College of Osteopathic Medicine, Athens, Ohio

Outbreaks of meningococcal meningitis have been linked to increased asymptomatic carriage rates within the affected population. In March, 2010 the Centers for Disease Control confirmed an outbreak of meningococcal meningitis on a university campus. Seven students were confirmed to have had meningitis caused by a genetically identical strain of Neisseria meningitidis serogroup B. The goal of this study is to identify the carriage rate of N. meningitidis among Ohio University undergraduates as well as demographic, health and behavioral factors that correlate with carriage. This study’s hypothesis is that the Ohio University student carriage rate of N. meningitidis is above the 23.7% (most estimates 10-20%) average overall, and more specifically, above the 2% average carriage rate of N. meningitidis serogroup B. In order to test this hypothesis, collection events were held at campus dormitories. The student volunteers participated in an educational session about meningitis, then completed an anonymous behavioral/demographic questionnaire. A throat swab was collected and evaluated for the presence of N. meningitidis serogroup B with confirmation by Polymerase Chain Reaction (PCR). Preliminary findings show an increased carriage rate of 28% of N. meningitidis. Behavioral factors that rose to the level of significance included increased bar/club attendance per week and the sharing of cigarettes. Meningococcal meningitis can lead to significant disability, as well as death, therefore efforts to identify the asymptomatic carriage rate as well as demographic, health and behavioral factors of carriers on the university campus may help authorities design and implement programs to raise awareness and protect students.
C1 Title: Ankylosing Spondylitis: A Strange Case of Back Pain
Authors: Forrest P. Allen, DO (PGY 2); Sangili Chandran, MD
Affiliation: Advocate Christ Medical Center, Oak Lawn, Illinois

Introduction: Ankylosing Spondylitis is a unique spondyloarthropathy that, if missed, can have devastating long-term effects. As its insidious progression can make it difficult to diagnose, an astute clinician must note subtle and unique clinical exam findings to help lead to the correct diagnosis. Case Presentation: A 31-year old male with no significant past medical history presents with a complaint of acute low back pain for 3 weeks. Upon further questioning, the patient states he has had intermittent chronic back pain for approximately 3 years, for which previous x-ray studies were negative. The patient admits to morning stiffness and pain in the lumbar region that responds to NSAIDs. Patient denies a history of psoriasis or uveitis. On physical exam, he was noted to have lumbar paraspinal muscle tenderness, as well as normal thoracic forward flexion, with a Schober test value of 16 cm. The patient was found to have a chest expansion of only 1.5 cm. Strength and neurologic exam was intact. Additionally, testing, including ESR, and 3V lumbar and sacroiliac joint XR were ordered as well. Patient was ordered to go to physical therapy with a referral to rheumatology. Discussion: Patients with Akylosing Spondylitis will not always present with the classic signs such as those presenting with inflammation of the eye, chest pain or fatigue. Diagnosis is typically made at a much younger age as well. Therefore, it is important to keep a broad differential and consider specific tests such as HLA-B27 that might otherwise be overlooked if not for strong clinical suspicion.

C2 Title: Inguinal Endometriosis: A Rare Diagnosis
Author: Amanda Allen (OMS III)
Affiliation: William Carey University-College of Osteopathic Medicine, Hattiesburg, Mississippi

This is a case report of a patient who presented with bilateral inguinal masses originally thought to be enlarging lymph nodes. Upon further observation and work up, a biopsy was obtained. Histological evidence revealed endometrial tissue giving the diagnosis of inguinal endometriosis. Although a diagnosis of endometriosis is not uncommon in gynecology, inguinal endometriosis is rare and requires a high index of suspicion based on a detailed history and physical exam. The ovary is often the most common site of endometrial implants, followed by the posterior broad ligament, the anterior cul-de-sac, the posterior cul-de-sac, and the uterosacral ligament. A history of cyclical pain and enlarging masses in the inguinal area is often a complaint of the patient due to the presence of endometrial tissue that has implanted outside of the uterine cavity. That being said, inguinal endometriosis should be included in a differential diagnosis of painful inguinal masses in childbearing women that may or may not also have a history of pelvic endometriosis. The purpose of this case study is to discuss the rarity of extra-peritoneal endometrial implants and the difficulty in making a diagnosis. A discussion regarding this patient’s presentation as well as further information on the current literature about the topic will also be included. Finally, management and potential treatment options will be discussed with hopes to bring awareness of this gynecological pathology to the medical field.

C3 WITHDRAWN

C4 Title: Severe Hyponatremia Secondary to Herpes Simplex Encephalitis
Author: Garrett Bassett, DO (PGY 1)
Affiliation: Department of Emergency Medicine, Adena Regional Medical Center, Chillicothe, Ohio

Herpes simplex encephalitis is a devastating infection with a mortality rate approaching 70% in untreated individuals. Delayed onset of appropriate treatment is associated with increased morbidity, so it is important to have a high index of suspicion and low treatment threshold. A 74-year-old female presented from an outing hospital with unresponsiveness and refractory hyponatremia. She had initially presented for nausea, vomiting, and weakness. Despite antibiotics, fluid resuscitation, and supportive care, the patient developed worsening hyponatremia and lethargy. Her only past medical history was hypertension. Physical exam was remarkable for tonic-clonic seizure and temperature of 102 F. Serum sodium was 115, potassium 3.2, chloride 82, and osmolarity 241. She was intubated and the seizure was controlled with midazolam. Non-contrast head CT scan showed mild chronic small vessel ischemic change without acute changes. Hypertonic saline was given and clinical seizure activity did not recur. However, over the next 4 days the patient’s mental status did not improve and her hyponatremia persisted at 124-126. Contrast-enhanced brain MRI showed basal ganglia, peri-sylvian, and temporal hyperintensity concerning for herpetic encephalitis. CSF showed: TNCs 56, 90% lymphocytes, glucose 52, protein 94, and HSV1 DNA positive. Patient was started on acyclovir and had gradual clinical improvement with increased responsiveness. However, she has severe persistent neurologic deficits. Syndrome of inappropriate ADH can occasionally complicate encephalitis, rarely including HSV1 encephalitis. The etiology is uncertain; however, it is thought to be due to limbic encephalitis. Infectious encephalitis should be considered in a hyponatremic patient with mental status change or seizure.

C5 Title: Isolated Traumatic Greater Trochanter Avulsion in an 11-Year-Old Male: A case report and Review of the Literature
Authors: Christopher S. Blanchard, DO (PGY 3); Roger Wiltfong, MD (PGY 4); Matt Beran, MD
Affiliations: 1OhioHealth/Doctors Hospital, Columbus, Ohio; 2Mount Carmel Medical Center, Columbus, Ohio; 3Nationwide Children’s Hospital, Columbus, Ohio

Introduction: Isolated greater trochanter fractures in skeletally immature individuals are an exceedingly rare injury. There is a paucity of literature regarding treatment for these injuries. Description: An 11-year-old morbidly obese (341 lbs.) male presented with an acute injury to his left hip after a low energy fall. He was unable to bear weight and complained of severe left proximal thigh pain. Examination showed that the left lower extremity was flexed, abducted, and externally rotated. Initial x-rays of the left hip demonstrated a displaced avulsion of the left greater trochanter. In the emergency department, his left lower extremity was brought to neutral alignment. Repeat x-rays and CT scan of the left hip demonstrated near anatomic reduction of the greater trochanter. After discussion it was felt that due to his weight, he would not be a candidate for non-operative bracing. Therefore, surgical treatment was recommended. The patient underwent open reduction and internal fixation of his greater trochanter. Discussion: A review of the literature revealed 6 relevant articles. A total of 7 total cases were described, all but 1 occurring in adolescent males. Treatments included both internal fixation and non-operative management. Three cases resulting in avascular necrosis of the femoral head have been described. Conclusion: Avulsion of the greater trochanteric apophysis is a rare injury and can occur through both traumatic and non-traumatic etiologies. There may be an underlying predisposition to this “physeal” injury similar to slipped capital femoral epiphysis, though this is not confirmed. Unfortunately, avascular necrosis is known to occur.
**C6**

**Title:** Dermatofibrosarcoma Protubera nses in the Mons Pubis: A case report  
**Authors:** Lauren Britt, DO (PGY 4); Joseph A. Rakowski, DO, FACOOG  
**Affiliations:** 1Department of Gynecology Oncology, Sparrow Cancer Center, Lansing, Michigan; 2Mercy Obstetrics/Gynecology Residency Program, Toledo, Ohio

**Introduction:** Dermatofibrosarcoma protubera nses (DFSP) is a very rare sarcoma with less than 35 cases on the vulva reported in the literature. The presentation of DFSP varies and is typically asymptomatic but can become painful with rapid growth. This sarcoma rarely metastasizes but is locally aggressive with its hallmark storiform histologic pattern and CD34 positive expression. **Case Description:** The patient is a 28 year old G0 with a firm lesion on her mons pubis originally found on self-examination. Over course of 12 years, cyst was examined several times and determined to be benign, although biopsy was never performed. It eventually was seen and biopsied by a dermatologist making the diagnosis of Dermatofibrosarcoma. After referral to gynecologic-oncology, patient was examined and surgical options discussed. The patient underwent a wide radical resection of the mass with myocutaneous flap and z-plasty reconstruction. Subsequent follow-ups continue to reveal excellent cosmetic results without evidence of recurrence or need for adjunctive therapy. **Discussion:** Dermatofibrosarcoma is most commonly found on the trunk, and rarely on the vulva. Patients typically have a delay in diagnosis due to the indolent nature of the sarcoma. Wide local excision with at least 2 margins is required and recurrence correlates with margin status. DFSP rarely exhibits lymphatic metastasis therefore chemotherapy is not warranted. **Conclusion:** Dermatofibrosarcoma of the vulva is rare and its indolent and locally aggressive nature highlights the importance of early diagnosis, both for anatomical preservation and psychosocial functioning.

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**C7**

**Title:** A case of previously misdiagnosed basosquamous carcinoma  
**Authors:** Jordan Brown, DO (PGY 1); James Ouellette, DO  
**Affiliation:** Grandview Medical Center, Dayton Ohio

**Introduction:** Basosquamous cell carcinoma (BSC) is a more aggressive subtype of basal cell carcinoma (BCC) that carries an increased risk of metastasis and recurrence. With a current incidence of 1.2–2.2 cases annually and only about 200 documented cases, very little data is present about this lesion’s indolent course. As a result appropriate treatment modalities are still poorly described in the literature. **Case Description:** RH is 54-year-old male who presented to our clinic with a four-year history of a worsening 9x6.5cm right shoulder and a 4.5x2.5cm chest wall lesion. Pathology revealed BSC of the right shoulder and BCC of the chest wall. Given the size and location of the lesion, the patient underwent wide excisional biopsy with at least 6mm margins and subsequent 36cm² autologous split-thickness skin grafting. Pathology revealed negative margins and revealed that both lesions were in fact BSC. **Discussion:** PCPs can be expected to diagnose approximately 6-7 BCCs and 1-2 SCCs a year. Unfortunately, there are no specific clinical features to definitively distinguish BSC from other skin cancers and the diagnosis is usually made only after histopathological examination alone. Since BSC lesions have high proliferative activity, propensity for local destruction, and potential for an early regional and distant metastasis, it is important to know about this histologic subtype and correctly advise patients about appropriate treatments modalities. **Conclusion:** At this time, we recommend complete surgical excision with wide surgical margins for non-facial lesions as the preferred approach to these aggressive carcinomas, and patients with this diagnosis require close monitoring for local recurrence.

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**C8**

**Title:** Thrombus-In-Transit Resulting in Stroke  
**Authors:** Johnny Cheng, DO, CPT (PGY 2); Jennifer Cheng (OMS III); Blaine Evans (OMS III); Marcel Junqueira, MD  
**Affiliations:** 1Parkview Medical Center Internal Medicine Residency program, Pueblo, Colorado; 2Rocky Vista University College of Osteopathic Medicine, Parker, Colorado; 3Parkview Medical Center Pulmonary & Critical Care Medicine, Pueblo, Colorado

**Introduction:** Thrombus-in-transit is a free-floating right atrial embolus originating in the systemic venous circulation and entering the systemic arterial circulation through a cardiac defect. Diagnosis requires two of the following: deep venous thrombosis with or without pulmonary thromboembolism; intracardiac defect with right-to-left shunting; and an arterial embolism not in cardiac origin. Thrombus-in-transit is verified with an echocardiogram. We report the case of a thromboembolic stroke that occurred after a pulmonary embolism caused elevated right heart pressure to open a patent foramen ovale. **Case Presentation:** 83-year-old male with past medical history of hypertension and CLL complaining of fatigue. He was being evaluated when there was witnessed neurological deficits in the left upper and lower extremities and subsequently sent to the ER. CT noted extensive clot burden of the lung. Echocardiogram revealed severe Pulmonary HTN, right ventricular pressure overload and highly mobile thrombi in the atria. **Discussion:** Treatment of choice for thrombus-in-transit is a matter of debate and there are no recommendations whether a PFO should be closed. Surgical embolectomy is preferred when the thrombus traverses a PFO to the left atrium, since thrombolytic therapy is controversial. In 18% of acute massive pulmonary embolism cases, thrombi-in-transit are noted. As 20% of the population can have a PFO open when right atrial pressure is greater than left, a screening echocardiogram may assess the risk of stroke. In the setting of acute pulmonary embolism, if there is evidence of right ventricular strain or elevated pulmonary vascular resistance we recommend echocardiogram to assess for thrombus-in-transit.

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**C9**

**Title:** Successful Therapeutic Obliteration of a Superior Gluteal Artery Pseudoaneurysm from Penetrating Trauma  
**Authors:** Mabel M. Chu, DO, MSPH (PGY 6); Ingrid Asfaw, MD; David Forster, DO; Dana Busch, DO  
**Affiliation:** Cleveland Clinic/South Pointe Hospital, Warrenville Heights, Ohio

**Introduction:** Gluteal artery pseudoaneurysms are extremely rare and are only represented in less than 1% of all arterial aneurysms. They are typically induced by pelvic fractures, blunt or penetrating trauma and a few reported cases by iatrogenic cause. Definitive treatment is usually achieved by transcatheter embolization and/or surgery. **Case Report:** A 56 y/o male presented to our clinic with clinical signs of sciatica and a large gluteal mass of the left extremity. Ten years prior, patient suffered a gunshot wound with a retained bullet deep in the left gluteus. Clinical examination revealed a firm, painful mass in the left gluteus without any noticeable bruits. Both Ultrasound and IV contrast-enhanced CT scan revealed a 15cm x 10cm pseudoaneurysm. Selective angiography confirmed a large pseudoaneurysm of the superior gluteal artery. **Outcome:** Endovascular occlusion of the pseudoaneurysm using a total of thirteen steel coils was subsequently performed, and postembolization angiography confirmed successful embolization. One month later, the patient underwent surgery for evacuation of large hematoma and bullet removal of the left buttocks with wound VAC therapy. No active bleeding was observed during resection of the left gluteal mass. After the operation, patient was discharged home on postoperative Day 2. **Conclusion:** Gluteal artery pseudoaneurysms are uncommon, but should be considered in the workup of a patient with sciatic nerve palsy following gluteal trauma. Early diagnosis can prevent fatal vascular and/or permanent neurogenic complications. Endovascular embolization is the preferred method of treatment, with open surgery needed on a selective basis.
April 26, 2014

The International Society of Cutaneous Lymphoma for early mycosis fungoides published an algorithm, which is reviewed here, for diagnosing early mycosis fungoides. Special attention shall be paid to the prognosis of this unique diagnosis in future patients. We hope to stress the importance of clinical suspicion as well as attention to the diagnostic options available in this rare disease entity.

An 82 year old female 14 year-old male presents one year after sustaining a grade 3 spleen laceration, due to a fall from a zip line, that was treated non-operatively. He had been asymptomatic for a year and presented with early satiety, abdominal pain, nausea, vomiting, and weight loss. A repeat CT scan demonstrated a residual cyst. The patient was scheduled for a removal of the cyst from the spleen. During surgery, it was noted that the transverse colon was adhered to the spleen. As the colon was dissected away from the spleen, purulent material began to drain from the spleen. Cultures were taken and sent off for microbiology. A drain was left inside the spleen and the abdomen was closed. On post-operative day two, cultures came back, and to our surprise, showed Salmonella group and moderate Streptococcus. His was started on Invanz secondary to sensitivities. Upon further investigation, the patient liked to play with frogs, fish, snakes, and his friend’s iguana. The patient did well the rest of his stay and was able to be discharged maintaining a full diet. Splenic abscess is a rare entity with 0.2-0.7% based on autopsy studies. Trauma is an uncommon cause of splenic abscess accounting for roughly 17%. Most infections are polymicrobial and salmonella is a very rare microbe to be identified from an abscess.

Our objective is to provide evidence of an improbable type of quadruplets. Our case also illustrates the application of guidelines for management of selective intrauterine growth restriction in twins to a higher order pregnancy, and exhibits the challenges and results of conservative management. We present a case of a 19 year old primigravid with spontaneously conceived quadruplets consisting of two pairs of monochorionic diamniotic twins, complicated by selective intrauterine growth restriction. This case proceeded to elective caesarian section without aggressive interventions. While successful delivery of all the newborns was accomplished, it could be argued that more aggressive antenatal interventions would have resulted in better outcomes in the neonatal period. While the incidence of high order pregnancies has increased, spontaneous quadruplets still remain an obstetrical rarity. Even more uncommon is a set of quadruplets consisting of two pairs of monochorionic diamniotic twins. A crude estimation using data from previous studies gives a theoretical probability of this phenomenon at about 1 in 33 million. As with all higher order gestations, these pregnancies are at increased risk of containing a monochorionic pair. With monochorionicity comes the risk of twin-to-twin transfusion syndrome or selective intrauterine growth restriction, complicating management. Guidelines for management of these disorders in single twin pregnancies have been well established. The decisions made in this case were in agreement with those guidelines, given the patients refusal for aggressive intervention. Our hope is that our approach will provide guidance in applying these guidelines to the management of these complications in high order pregnancies.

Duplication of the Inferior Vena Cava is found in 0.2-3% of the population. Etiology of Duplicate IVCs can be attributed to failure of anastomosis between the primitive cardinal veins and failure of regression of the left supracardinal vein. Case Description: An 82 year old female with history of DVT and lifestyle limiting claudication presents for revascularization of her right leg. Patient was noted to having duplicated Inferior Vena Cava. Dual IVC filters were placed infra-renal. Discussion: Venous thromboembolism (VTE) is an important factor of morbidity and mortality in healthcare today. Pulmonary embolism is linked to as high as 16% of all hospital death. Treatment of DVT is important due to the sequelae that can be caused secondarily. These include acute pulmonary embolism, extension of the clot and recurrence of thrombosis. Anticoagulation is indicated in patients with acute proximal lower extremity DVTs. Pulmonary embolism may occur in up to 50% of patients with acute DVTs that are not anticoagulated. Initial therapy includes unfractioned heparin, low molecular weight heparin (Lovenox) or fondaparinux (Arixtra). Current 2012 ACCP recommend LMWH or fondaparinux. LMWH and fondaparinux allow for the treatment of DVT on an outpatient basis. These two medications should be given in conjunction with warfarin until the patient’s INR is therapeutic (2.0-3.0). Conclusion: The correct treatment of VTE is an important skill for the inpatient and/or outpatient based physician. In this review, the current standards of treatment have been discussed along with a case report of the most common anomaly seen in the Inferior Vena Cava.
C14 Title: A case report of Aerococcus urinae urosepsis in a female
Authors: Kenneth Klein (OMS III); Heather Slees, MD
Affiliation: West Virginia School of Osteopathic Medicine, Lewisburg, West Virginia

Introduction: Fungal keratitis, or keratomycosis, is becoming a more common cause of microbial keratitis, particularly in warmer climates. Common fungi species include C. albicans, F. solani, and Aspergillus. There are, to our knowledge, no cases of fungal keratitis induced by pepper spray and only 2 other cases in the world of Chrysosporium parvum endophthalmitis. Case Description: A 35-year-old male, referred by an optometrist for a cornea ulcer, presented with a red, watery, painful left eye for the previous 6 days. The patient revealed that his eye had actually been painful and photophobic for 6 weeks prior following an intentional spraying by his superiors in the eyes with pepper spray during a police academy training session. A month later, after multiple antibiotics, steroids, cultures, and a corneal biopsy the lab grew the fungus Chrysosporium parvum. Discussion: Chrysosporium parvum infection, of any kind, is not typically found in humans. It is a rare cause of dermatophytosis, but is often considered a contaminant in cultures. The fungus is notoriously difficult to culture, explaining why it took 23 days to grow anything from the initial culture. Based on studies of this fungus, we presume it was inoculated into the eye by the pepper spray or, after the pepper spray induced damage, the fungus subsequently entered the eye. Conclusion: Pepper spray can cause significantly more damage than previously known, including permanent blindness from infection. Police academies should be more cautious in using pepper spray in training exercises, if they must use it at all.

C15 Title: A case report of Aerococcus urinae urosepsis in a female
Authors: Vasim Lala, BSc (OMS III); Christopher Sciamanna, DO (PGY 4); Adam Allan, DO (PGY 1); Mathew LaCasse, BSc (OMS III); David Lang, DO
Affiliation: Michigan State College of Osteopathic Medicine, East Lansing, Michigan

Introduction: Urinary tract infections (UTIs) are very common bacterial infections acquired in the community and in hospitals. It is caused by multiple types of pathogens most commonly enterobacteriaceae species but rarely caused by Aerococcus urinae. Case Report: An 88-year-old African American female with preexisting diabetes mellitus type II, hypertension, Bell’s palsy and dementia presented with a two days history of vomiting. She was not oriented to person, place or time and refused to answer any questions at admission. She came in with a temp 102.7 F. Urine analysis was significant for >100,000 cfu/ml of Aerococcus urinae. Blood cultures and smear showed gram positive cocci in clusters, catalase negative confirming Aerococcus urinae. It was also confirmed by using Vitech 2 gram positive identification. PNA Fish results were negative for Staphylococcus aureus and negative coagulase Staphylococcus. Discussion and Conclusion: There are very few cases published of Aerococcus urinae sepsis and are of elderly men. In best of our knowledge we are reporting first case of an Aerococcus urinae urosepsis of an elderly female. A. urinae is gram-positive cocci that grows in pairs and clusters, produces alpha-hemolysis on blood agar, and is negative for catalase.

C16 WITHDRAWN

C17 Title: Primary Extragastrintestinal stromal tumor (EGIST) of the Retroperitoneum: a case report
Authors: George J. Myers, IV, DO (PGY 2)
Affiliation: Mercy St. Vincent Medical Center Osteopathic General Surgery Residency Program, Toledo, Ohio

Introduction: Gastrointestinal stromal tumors (GIST), although rare and with an incidence estimated at 7 to 14 per 1 million in the general population, are the most common mesenchymal spindle-cell or epithelioid neoplasms of the GI tract and are located mainly in the stomach and small bowel. Extragastrintestinal stromal tumors (EGIST) are tumors which can originate in sites outside the gastrointestinal tract with clinico-pathological and molecular similarities to GISTs. EGISTs are extremely rare and few cases have been described within the retroperitoneum. Case Description: A 70 year male with a radiological evaluation demonstrating a retroperitoneal mass along with a pre-operative biopsy proved primary EGIST of the retroperitoneum which was treated surgically. Discussion: GISTs are usually composed of spindle cells and/or epithelioid cells. GISTs have been documented most commonly in the stomach, less so in the small intestine, and rarely in the omentum, retroperitoneum, colon, esophagus, biliary, pancreas, etc. EGISTs have been described from a histological and immunohistochemical standpoint as having similar features with GISTs including staining for KIT and markers for Interstitial Cells of Cajal. It remains unclear why these cells, which normally are in the gut wall, are found in the retroperitoneum, omentum or mesentery. Conclusion: As a result of the rarity of reports of primary EGISTs, particularly of the retroperitoneum, we need to gather sufficient data of reported cases in order to determine whether EGISTs have an analogous pathogenesis and prognosis to GISTs and whether the treatment of GISTs are suitable for retroperitoneal EGISTs.

C18 Title: Fungal Endophthalmitis
Authors: Steffi Nadarajah (OMS III); Stephanie D’Agostino, DO (PGY 2); Joseph Dougherty, DO
Affiliation: West Virginia School of Osteopathic Medicine, Lewisburg, West Virginia

Fungal endophthalmitis is a rare fungal infection of the eye with poor visual outcomes. This patient is a 62 year old male with a history of metastatic colorectal cancer, several failed ileostomies, and peritonitis who presents with fungal endophthalmitis due to Candida albicans. His cultures grew Candida albicans and he was intubated in the nursing home. He was admitted to the intensive care unit with septic shock and respiratory failure. Ophthalmology was consulted and slit lamp exam exhibited lesion in left eye consistent with candida endophthalmitis. For candida infection, he was started on fluconazole and micafungin. He was transferred to a different facility for further evaluation by an ophthalmologist and to receive liposomal amphotericin B and possible vitrectomy and is still currently being treated as inpatient. This case demonstrates the progression of fungal endophthalmitis and treatment options. Exogenous causes of fungal endophthalmitis usually result from eye surgery, trauma, or corneal fungal infection. Endogenous causes are usually fungal or bacterial. Common etiologies of fungal endophthalmitis include Candida spp., Aspergillus spp., Fusicarium spp., and Coccidioe immitis. Several studies have shown that the most effective treatment for Candida induced endophthalmitis is liposomal amphotericin B and alternatively, fluconazole. New studies have proven the success with echinocandins such as micafungin in combination with caspofungin and voriconazole. Vitrectomy is advised in cases of Candida endophthalmitis and moderate to severe vitritis. Therefore, it is important to detect cases early in order to decide what treatment is appropriate for patients to have a better chance of successful outcome.
C19  Title: Contained Rupture of a Gastroduodenal Artery Aneurysm  
Authors: Christine Ou, DO (PGY 3); Mohammad Afridi; Gregory Walker; Gregory Kasper; Marvin Morris  
Affiliation: Mercy St. Vincent Medical Center, Toledo, Ohio  
Introduction: Gastroduodenal artery aneurysms (GDAA) are rare and comprise a small subset of all visceral artery aneurysms. Clinically, GDAA rupture present with abdominal pain, gastrointestinal bleeds or hemodynamic instability due to rupture. A high clinical suspicion is required as GDAA rupture is associated with a high mortality rate. Risk factors include atherosclerosis, pancreatitis, and ethanol abuse. GDAA are detected, often incidentally, by computed tomography (CTA). Therapeutic options include selective angiography with coil embolization or covered stent placement to widely patent coil and operative ligation.  
Case Description: We present a case of a 67 year old female presenting with escalating abdominal pain with transient hypotension. CTA of the abdominal and pelvis showed intraperitoneal hemorrhage at the region of the GDA. A contained rupture of GDA was diagnosed and patient was repaired with operative ligation after attempted endovascular closure.  
Discussion: GDAA are a subset of visceral artery aneurysms encompassing only 1.5% of all visceral artery aneurysms. CTA is often the diagnostic method of choice in the setting of abdominal pain of unclear etiology. Selective visceral angiography is the gold standard for diagnosis. GDAA that are diagnosed early or in hemodynamically stable patients with rupture are amendable to endovascular repair. In the setting of GDAA rupture and hemodynamic instability, operative repair is warranted. Mortality rates can approach up to 21% in GDAA ruptures indicating the need for high clinical suspicion.  
Conclusion: Ruptured GDAA are rare with potential fatal consequences. Therapeutic options include both operative and endovascular approaches predicted by anatomy and the hemodynamic stability upon presentation.

C20  Title: Atypical presentation of a traumatic Carotid Artery Dissection (CAD): A case study  
Authors: Kruti Patel (OMS III); P. Davis, MD  
Affiliation: West Virginia School of Osteopathic Medicine, Lewisburg, West Virginia; United Health Center, Bridgeport, West Virginia  
Introduction: Dissection is tearing of the intima and/or media of arteries. It can lead to vessel occlusion, thrombus with consequent distal emboli, aneurysm formation and subjacent hemorrhage. We report a case of a patient with upper respiratory infection (URI) symptoms and isolated, unilateral pain whose imaging showed an incidental internal carotid artery dissection (ICAD).  
Case study: A 50 year old female with history of hypertension and hyperlipidemia presented with worsening, intermittent left laterocervical pain, retroauricular and retroorbital pain preceded by diffuse frontotemporal headache. Symptom onset was gradual, accompanied by URI symptoms treated with antibiotics. Due to worsening URI symptoms and pain, CT scan of maxillofacial sinuses was ordered to rule out chronic sinusitis. Imaging showed unremarkable paranasal sinuses with evidence of right ICAD. To further investigate, a brain/neck CT was performed which showed a 6.5mm intimal flap with no carotid stenosis or intracranial abnormalities. Patient later revealed that she was involved in a ‘fender bender’ 2 weeks prior to symptom onset. Heparin therapy was warranted. Mortality rates can approach up to 21% in GDAA ruptures indicating the need for high clinical suspicion.  
Conclusion: Careful clinical assessment and appropriate imaging of patients with cervical trauma will lead to the diagnosis of CAD. Patients with pre-existing arterial disease presenting with atypical contralateral symptoms following a traumatic injury warrant further investigation to identify CAD.
C23  **Title:** Transethmoidal Encephalocele  
**Author:** Nandan Raval (OMS III)  
**Affiliation:** West Virginia School of Osteopathic Medicine, Lewisburg, West Virginia  

Nasal encephalocele is a relatively rare condition with an incidence of 1:4000. Failure of anterior neuroepithelial fusion in the early stages of embryogenesis results in herniations of meninges, brain and CSF through the skull and into the nasal openings. Multiple genetic and environmental factors contribute to this deformity. One such subtype is referred to as transethmoidal encephalocele. This subtype only accounts for 8% of all anterior encephaloceles. To classify an encephalocele as transethmoidal, there must be herniation of mass through the cribiform plate into the nasal cavity. Transethmoidal encephaloceles may resemble dermoid sinus cysts, nasal gliomas, hemangiomas and other nasal masses, which is why we must rely on CT and MRI as our main diagnostic modalities. CT is useful to identify any bony deformities in the skull whereas MRI allows us to differentiate nasal encephalocele from a glioma. On MRI, one should look for hyper intensity on T2 and variable intensity on T1 images when diagnosing encephaloceles. Treatment focuses on determining the location, origin, size and most importantly the presence or absence of a pulse within the mass, accomplished by performing a nasal endoscopy. Immediate surgery is required to close the dura and any skull defects via craniotomy, which will decrease the likelihood of any structural deformities or infection from occurring. An alternative to craniotomy is an endoscopic repair, which has gained more attention in recent years due to fewer complications. Reconstruction of facial defects must follow to improve patient’s appearance. As with any surgery, there is associated risk of hemorrhage, frontal lobe damage, seizures, cerebral edema, meningitis and agnosia.

C24  **Title:** Severe hemolytic anemia presenting with B12 deficiency: A case report  
**Authors:** Samer Riaz (OMS III); Yaser Homsi, MD  
**Affiliation:** West Virginia School of Osteopathic Medicine, Lewisburg, West Virginia

Vitamin B12 (Cobalamin) is an essential vitamin predominantly synthesized by bacteria in the gut and derived from animal food products. Although not very common, any cause of Vitamin B12 malabsorption will lead to its deficiency, the most common cause being autoimmune atrophic gastritis (Pernicious anemia). Much literature exists that compares the circumstantial hemolytic effect of B12 deficiency due to ineffective erythropoiesis from intramedullary hemolysis. Recent literature suggests increased homocysteine levels may have an association with the concomitant hemolytic anemia in these patients. This report presents a case of a 28 year old white male presenting to the ER with chronic fatigue. Physical examination is unremarkable except for pallor. His hemoglobin was 5.3 g/dL, platelet count 69,000, serum LDH 3413 U/L. Peripheral smear showed evidence of shistocytes. On initial evaluation the patient seemed to be in DIC (Disseminated Intravascular Coagulation) or TTP (Thrombotic Thrombocytopenic Purpura) and was recommended for a bone marrow biopsy several times. However the patient refused and was managed as an outpatient. The patient was transfused with 1 unit of packed red blood cells. The next day, he vomited dark red coffee ground material and remained tachycardic. Esophagogastroduodenoscopy was performed and revealed a large polypoid mass with central ulceration on the greater curvature of the body of the stomach. The mass was excised. Histology revealed pleomorphic epithelioid and spindled cells in a myxoid background. Discussion: Immunohistochemistry was positive for CD117, DOG1, CD34, supporting a diagnosis of GIST. DOG1, a novel protein of unknown function, is expressed strongly on the cell surface of GISTs (Pericardial effusion). It is believed that her immunosuppression resulted in an unfortunate outcome from an unexpected source.

C25  **Title:** Symptomatic Severe Anemia secondary to GIST  
**Authors:** Charles F. Sineri (OMS III); Jeffery A. Stead, MD, FACP; Jan C. Kletter, MD, FACS  
**Affiliation:** West Virginia School of Osteopathic Medicine, Lewisburg, West Virginia

Introduction: Gastrointestinal Stromal Tumors (GIST) are relatively rare tumors of the GI system. They arise from the interstitial cells of Cajal, which regulate contraction of gastrointestinal smooth muscle. We report a case of a 56 year old Caucasian male who developed symptomatic anemia due to bleeding from a GIST. Case description: A 56 year old Caucasian male presented to the emergency department following multiple syncopal episodes. He noted palpitations that were new in origin, exacerbated with rising from a seated position. Physical examination revealed tachycardia and cool, clammy, pale skin. Laboratory results showed hemoglobin of 7.3 g/dL, hematocrit 22.7% and RBC count of 2.44M/μL. The patient was transfused with 1 unit of packed red blood cells. The next day, he vomited dark red coffee ground material and remained tachycardic. Esophagogastroduodenoscopy was performed and revealed a large polyoid mass with central ulceration on the greater curvature of the body of the stomach. The mass was excised. Histology revealed pleomorphic epithelioid and spindled cells in a myxoid background. Discussion: Immunohistochemistry was positive for CD117, DOG1, CD34, supporting a diagnosis of GIST. DOG1, a novel protein of unknown function, is expressed strongly on the cell surface of GISTs and rarely expressed in other soft tissue tumors. An important diagnostic feature of GISTs, with therapeutic implications, is more than 90% of them overexpress the k-it proto-oncogene (CD117). Small GISTs with low mitotic rate are cured by surgical excision. Tumors which are larger and mitotically active can benefit from treatment with imatinib, an inhibitor of CD117.

C26  **Title:** A Fatal Case of Gastric Mucormycetes.  
**Authors:** Elizabeth Waldman, DO (PGY 2); Dr. Rachel Novakovic, Department of Trauma and Acute Care Surgery; Dr. Arlette Aouad, Department of Infectious Disease; Brian Pugh, DO, Chief Osteopathic General Surgery Resident; Carrie Watson, DO (PGY 2)  
**Affiliation:** Mercy St. Vincent Medical Center, Toledo, Ohio

Introduction: Mucormycosis or zygomycosis is a rare infection resulting from the inoculation with the fungus class Mucoromycotina. This fungus is ubiquitous in the environment. A competent immune system is able to combat environmental exposure. Immunocompromised patients are identified as at risk for infection. In an updated active population-based survey by the CDC in 2012, 1.7 people per million have documented mucormycosis. Case Description: A 57-year female tobacco dependent diabetic was transferred to the medical intensive care unit at Mercy St. Vincent Medical Center for altered mentation, headache, respiratory distress and septic shock. Three days prior she had bilateral myringotomy tubes placed by an Otolaryngologist for a 4 month history of sinus infection. Patient’s hospital course was complicated. An exploratory laparotomy was performed for pneumoperitoneum with colon resection and subtotal gastrectomy. Surgical pathology resulted ischemia of the colon and stomach and mucormycosis of the stomach. She was started on LAMB and Posaconazole but continued to deteriorate. She ultimately succumbed to multisystem organ failure. Discussion: In the United States, documented mucormycosis is far and away a disease of transplant patients and most commonly present as rhinocerebral infections. While diabetes is a risk factor, evidence of gastric infection is rare. Conclusion: It is believed that her gastric mucormycosis resulted either from her pre-existing severe pansinusitis via inoculation with the nasogastric tube or as disseminated disease. This coupled with her immunosuppression resulted in an unfortunate outcome from an unexpected source.
C27 Title: Incidental Finding of a Rare Lung Nodule in a Non-smoking Patient – Or How a Really Ugly Finding on Lung CT Turned Out to be Benign
Authors: Margaret Ching-Feng Wang, DO (PGY3); Troy Hampton, DO
Affiliation: Family Medicine Program, Fairfield Medical Center, Lancaster, Ohio

Physicians are often confronted by “incidentalomas”, happenstance findings discovered on imaging often unrelated to the condition for which the imaging test was ordered. Lung nodules are usually followed according to the recommendations proposed by the Fleischner Society. In this case study, a suspicious-appearing lung “incidentaloma” discovered on a chest X-ray for rib pain in a nonsmoker was found to be a rare but usually benign lung tumor known as an inflammatory fibroblastic tumor. Of additional interest is there is substantial debate in the literature as to how to classify or name this type of tumor. This case study discusses a 49-year-old, non-smoking female who was found to have a suspicious lung nodule (“incidentaloma”) on an ED chest X-ray ordered for rib pain. This nodule was found to be a rare, but usually benign, inflammatory fibroblastic tumor (IMT). Initially, a hamartoma or granuloma was suspected but since a neoplastic process could not be ruled out, a PET scan was performed. When this PET scan showed suspicious metabolic activity, a needle biopsy was performed which elucidated inflammatory and fibrotic changes but no malignancy. Since no causal mechanism for the inflammatory changes could be delineated, a surgical wedge resection for definitive diagnosis was recommended to the patient. The final pathology ruled out neoplasm and showed IMT. To date, the surgical resection appears to have been curative and the patient has had no recurrence.

C28 Title: Abdominal Wall Metastatic Adenocarcinoma from Primary Colon Cancer: A Case Report
Author: Carrie D. Watson, DO (PGY 3)
Affiliation: General Surgery, Mercy St. Vincent Medical Center, Toledo, Ohio

Introduction: Interest in abdominal wall metastasis increased during the 1990s when researchers investigated if laparoscopy for cancer surgery increased risk of trocar site cancer recurrence. Case studies reporting implants at sites of trocar placement and within scar tissue of incisions associated with cancer surgeries such as colon and ovarian cancer have been published. It is, however, rare to have a distinct metastatic abdominal wall mass that is in no way associated with the patient’s original operation technique. Case Description: 67 year old female with a history of colon adenocarcinoma who underwent hemicolectomy via midline exploratory laparotomy incision, presented with a palpable mass along her right rectus muscle. Notably, the mass was well away from the original incision site. We performed paramedian abdominal wall exploratory laparotomy with excision of segment of the abdominal wall with reconstruction. Final pathology confirmed metastatic adenocarcinoma from colon primary. Discussion: Colon cancer is systemic in 19% of patients. Metastasis is most common to liver and lung. For stage IV disease, surgery is an option when colorectal cancer has spread in a limited way outside of the intestine. In most cases, chemotherapy is recommended to reduce symptoms and prolong survival. Conclusion: Disease recurrence and metastasis in the abdominal wall from a primary colorectal cancer is poorly studied, unlike metastasis to liver and lungs. More data collection is indicated to determine the best management strategy as well as to predict morbidity and mortality associated with this form of colorectal metastatic disease.
The purpose of this retrospective study was to assess infection rates after facial surgery using various types of new and reprocessed electrocautery. **Methods:** A retrospective chart review was conducted and over 7,500 consecutive functional and cosmetic facial surgery cases from 01/01/2005 to 07/09/2010 were reviewed. Postoperative infections were identified using hospital and surgery center infection surveillance records, office chart review with CPT and ICD9 cross referencing, and surgeon recall. Infections were considered postoperative if they occurred within 30 days of surgery. Cautery types included monopolar with Colorado Needle, blade paddle, or ball tips, and bipolar. Both new and reprocessed cautery tips were used. Appropriate statistical tests were used to compare infection rates between cautery types and procedures. Statistical analysis was conducted at the 0.05 alpha level for all tests. **Results:** There was no statistically significant difference in infection rates between any of the cautery types or procedures. Overall infection rate for all cautery types was 0.09%. **Conclusion:** The infection rate following functional and cosmetic facial surgery is low and similar for all reviewed cautery types, independent of procedure. The results show no difference between the safety profiles of new and reprocessed cautery types. This validates the use of reprocessed cautery as a viable option and allows increased cost effectiveness and waste reduction.
E5 Title: Risk of Blood Splatter during Oculofacial Plastic Surgery
Authors: Andrew W. Stacey, MD; Craig N. Czyz, DO, FACOS; Srinivas Sai A. Kondapalli, MD; Robert H. Hill, MD; Kenneth V. Cahill, MD, FACS; Jill A. Foster, MD, FACS; Kelly R. Everman, MD
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Introduction: Prospective, controlled, cohort study to assess intraoperative blood splatter to the ocular surface and adnexa during oculofacial surgery.

Methods: Participants wore a total of 331 protective, plastic eye shields during 131 surgeries. Postoperatively, a luminol blood detection system was used to identify blood splatter on the shields. Each shield was evaluated for any blood splatter. In addition, a post-operative questionnaire was given to all surgeons and assistants after each case which asked whether or not they noticed intraoperative blood splatter. Results: Blood was detected on 61% of eye shields and in a total of 80% of surgical cases. However, only 2% of blood splatters were recognized intraoperatively by the surgical participants. Surgeons (64%) were splattered slightly more frequently than assistants (60%) and surgical technicians (58%). Shields worn during full-thickness eyelid procedures, direct brow lifting, orbitotomy with bony window, and orbital fracture repairs were more likely to be splattered (p=0.03) and there was a significant difference between surgeon splatter rates (range 29% - 90%, p=0.0004) suggesting that blood splatter rate may be both case-dependent and surgeon-dependent.

Conclusions: Mucocutaneous and transconjunctival transmission of human immunodeficiency virus and viral hepatitis has been documented. These results suggest that oculofacial plastic surgeons should consider eye protection for patients with known blood borne diseases and in cases where blood splatter is expected. This precautionary practice is supported by the high incidence of splatter (98%) that is undetectable to the surgeon or assistants.

E6 Title: Absence of Air in the Nasolacrimal Drainage System by CT scan: A Possible Association with Primary Acquired Nasolacrimal Duct Obstruction
Authors: Craig N. Czyz, DO, FACOS; Eva N. Cahill; Andrew W. Stacey, MD; Boris L. Karanfilov, MD; Kenneth V. Cahill, MD, FACS
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Introduction: To study the effects of gender, age, and body position on the size of the nasolacrimal duct (NLD) and presence of air within this system by CT scan.

Methods: A retrospective review of 52 supine CT scans of 44 patients and 43 upright scans of 35 patients was conducted. The size of the canal at its smallest diameter and the area corresponding to this point were measured for each eye. The presence or absence of air was also evaluated and categorized within the nasolacrimal sac, the duct, or both the sac and the duct.

Results: Age and gender were comparable in both the supine and the upright groups. There was no significant difference in mean narrowest NLD diameter when comparing men to women (p = 0.14). Mean narrowest NLD diameter was not significantly different when the same subjects underwent scans in both positions (p = 0.77). Significant differences were found when comparing presence of air. Air was also more common in younger patients than older as nearly 50% of subjects in their 20’s had air present while none of the subjects in their 70’s did. Conclusions: Women and older patients are at higher risk for primary acquired nasolacrimal duct obstruction (PANDO). Narrower NLD’s seen in females have been thought to contribute to the increased risk. However, a recent study found higher rates of PANDO and DCR in a subpopulation with larger NLD diameter raising questions concerning the relationship between duct size and duct obstruction. In our study, there was no difference in NLD dimensions between men and women but air was present more often in males and in younger subjects. Air may play a role in normal tear drainage and absence of air may predispose to PANDO.

E7 Title: Analysis of temporal artery biopsy techniques and neurologic complications
Authors: Craig N. Czyz, DO, FACOS; Bradley Allen, MD; Kenneth V. Cahill, MD, FACS; Jill A. Foster, MD, FACS; Kelly R. Everman, MD
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Introduction: Giant Cell Arteritis is a vision and potentially life threatening condition requiring prompt and accurate diagnosis. The current gold standard of diagnosis is temporal artery biopsy. The purpose of this study is to review the techniques of temporal biopsy in regard to incision placement; and to determine the incidence and nature of complications, specifically sensory nerve injury, motor nerve injury, and scarring.

Methods: Retrospective chart review and interview of consecutive patients who underwent temporal artery biopsy from 2009 to 2013. Data concerning the procedure was collected and patient interviews were conducted. Results: Seventy-three biopsies of 67 patients were reviewed. The patient population was 79% female and 78% Caucasian. The average age at the time of the biopsy was 73.8 (SD=8.7). Biopsies were 40% right-sided, 51% left-sided, and 9% bilateral. Doppler localization was used on 40% of patients. The mean intraoperative specimen length was 2.6cm. The fixed specimen length showed a mean of 1.6cm. Fifty-five percent of patients were on anticoagulant therapy at time of biopsy. There were no physician reported cases of brow ptosis or other nerve palsy at time of last follow-up exam. Seven percent of patients reported persistent brow ptosis after surgery, 5% reported noticeable scarring, and 2% local sensory abnormalities. Conclusion: Demographic data for the study population undergoing temporal artery biopsy was similar to that of patients affected by the disease. There was no incidence of seventh nerve injury with incision placed behind the temporal hairline. The prevalence of patient reported persistent postoperative brow ptosis is noted, but may be influenced by several factors. Posterior placement of the biopsy incision reduces the risk of seventh nerve injury without decreasing the yield of biopsy results.
**E8**  
**Title:** Faculty Development: The Ball Is In Your Court  
**Authors:** Stephen Davis, PhD; Olivia Ojano-Sheehan, PhD  
**Affiliation:** Director and Assistant Director, Ohio University Heritage College of Osteopathic Medicine, Office of Faculty Development, Athens, Ohio  

**Introduction:** Most physicians and residents are expected to provide medical education but have never been given the skills and tools to meet that expectation. Given that physicians as a profession recruit, train and police their own, it is imperative to do it well. The OU-HCOM Office of Faculty Development employs three PhD educators dedicated to helping you master the skills needed to do it with excellence. **Case Description:** There is a plethora of faculty development materials available for free on the Web...but where do I start?, what is best?, what is most important?, who can help?, how do I get what I need?, I know I’m a OU-HCOM Group IV faculty member but what does that really get me? All these questions and more have a GREAT ANSWER!  

**Discussion:** While many, even most, of our premier Ohio hospitals are associated with OU-HCOM'S CORE (Centers for Osteopathic Research and Education) few know of the faculty development resources available to them through that relationship. Exposing the resource and partnering with hospital medical education offices should help doctors answer the questions above and find rich resources to identify and satisfy their faculty development needs.  

**Conclusion:** A poster outlining the faculty development resources. The poster will then be reproduced and posted in all the OU-HCOM CORE hospital medical education offices to help esteemed educators identify, develop, and hone their medical education skills.

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**E9**  
**Title:** Adequacy of Depression Management  
**Authors:** Stacy Emile, MD; Mayur Rali, MD  
**Affiliation:** Dept. of Family Medicine, Hofstra NSLIJ School of Medicine, Southside Family Medicine Residency Program, New York  

**Introduction:** Depression is often under diagnosed in the community and it is important that our patients are appropriately screened and properly followed up when the screening tool is positive. Necessary laboratory workup and referrals should be obtained. **Methods:** A retrospective analysis of 31 random charts with a diagnosis of Depression at Residency continuity clinic was done. Demographics, Laboratory Results (TSH and Iron Studies), Date of Depression diagnosis, Age at diagnosis, PHQ-9 Scores, PMH, Psych History, Referrals to Social Work and Psychiatry, Psych Medications, and patient compliance were used for data analysis. **Results:** 39 % were male and 61 % were female with age range 21 to 63 years. Iron studies were not available in any of the charts, however only 1 patient was anemic. 23 % of the patients were referred to Psychiatry and 35 % of them were referred to Social Worker (of which 16 % were referred to both Psychiatry and Social Worker). 23 % of the patients had a documented TSH and 10 % had a T3 Uptake and/or T4. 38.7% were not on medication, 38.7% were on SSRI, 3.22 were on TCA, 6.45% were on mood stabilizers. Only 3 patients had PHQ9 score, of which 1 had a repeat 3 months later. HIV patients were regularly screened for Depression as per protocol. One patient was post-partum and had the Edinburgh Score noted in the chart. **Conclusion:** We found lack of documentation, screening and appropriate referral of the patients. There are inherent difficulties in following all of the recommended screenings, documentation and follow up. The plan is to develop a Depression Screening Algorithm with a flow sheet including all pertinent data and medications for ongoing monitoring and management. It is work in progress.

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**E10**  
**Title:** Physicians in civilian medical practice perceptions of veterans’ issues related to health care  
**Authors:** Todd Fredricks, DO; Masato Nakazawa, PhD  
**Affiliation:** Ohio University Heritage College of Osteopathic Medicine, Athens, Ohio  

**Introduction:** The United States (US) has been in continuous combat operations for over a decade. Despite the persistent involvement of US combat forces in Iraq, Afghanistan and Africa media coverage has ebbed and flowed. The number of Americans in the military is lower than ever in history when measured as a percentage of the total population. Many US citizens have little to no knowledge of US actions or the day to day experiences and working environments of veterans. This study was designed to develop a general understanding of physician knowledge regarding veteran’s issues among the surveyed group. **Methodology:** We conducted a survey of 140 physicians at two primary care focused medical conferences in Ohio to test self-reported levels of comfort and familiarity with 9 separate veteran oriented topics. 350 surveys were distributed and 140 were returned. Results: The data collected reveal moderate to high levels of comfort/familiarity with the surveyed items with the exception of comfort with referral and consultation services. Overall, the data collected with the survey displayed high degree of reliability (Cronbach’s α=0.88). **Conclusions:** While the data seem to indicate a moderate level of familiarity overall with general topics affecting veterans, no single parameter measured indicated that most of the surveyed physicians felt very comfortable with that topic. This result indicates that more study is needed to determine reasons behind this finding and methods to improve civilian physician comfort with various veteran issues.

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**E11**  
**Title:** Data-Driven Faculty Development Strategic Planning: Preparing for the future of Medical Education  
**Authors:** Joyce Jadwin; Larry Hurtubise; Olivia Ojano-Sheehan; Steve Davis  
**Affiliation:** Ohio University Heritage College of Osteopathic Medicine, Athens, Ohio  

There is a growing recognition that medical education has to reconfigure itself in response to changing scientific, social, and economic circumstances in order to flourish from one generation to the next. There are also some converging trends in medical education. These trends include adoption of a competency based model and the emergence of new instructional technologies; and the accelerating rate of change, especially related to technology. As the Ohio University Heritage College of Osteopathic Medicine (HCOM) Office of Faculty Development (FD) undertakes strategic planning in support of HCOM’s programmatic, organizational and geographic growth over the next five years, the FD staff has gathered data including a needs assessment and a readiness assessment to inform FD program development, document outcomes, and disseminate findings.
Neck-pain is a common musculoskeletal problem and the reason many patients attend osteopathic manipulative clinics. The majority of neck pain is non-specific; diagnoses include myofascial pain syndrome, neck sprain or posture-related pain. Tender zones (TZs), such as the Jones’ tender point described by osteopath Dr. Lawrence H. Jones and the myofascial trigger point, reported by Dr. Janet Travell, are frequently associated with non-specific pain and/or dysfunction. Although various theories have been proposed to describe the pathophysiology of TZs, including increased gain of muscle spindles, end-plate noise and central sensitization, there is little supportive experimental evidence. Diagnosis of TZs is primarily dependent on subjective tissue palpation and elicitation of tenderness. The project aims to investigate neurophysiological mechanisms present in TZs and their relationship with chronic pain, specifically by recording electromyography (EMG) of upper trapezius (UT) during a range of shoulder movements and reflexes in 30 pain-free subjects and 30 subjects with chronic neck/shoulder pain. Motor unit recruitment patterns in UT with TZs will be determined indirectly through wavelet and principal component analysis of the EMG signals recorded during voluntary muscle contractions. Changes in latency and magnitude of reflexes in UT with TZs will be investigated by electrical stimulation to C3, 4 and spinal accessory nerves of UT, and mechanical taps bilaterally to elicit reflex responses. The results will enhance the understanding of the neurophysiological mechanisms responsible for the development of TZs, provide objective diagnostic criteria, and clarify the relationship between TZs and chronic neck pain.

E13 Title: Project IMPACT: Diabetes- American Pharmacist Association Foundation in partnership with the Bristol-Myers Squibb Foundation’s Together on Diabetes Initiative

Introduction: Project IMPACT: Diabetes improved patient outcomes in 25 diverse communities across 17 states. Through a collaborative care model developed by the American Pharmacist Association (APhA), patients learned how to better self-manage their condition resulting in improved health and reducing their risk of developing the major complications associated with diabetes. Targeted patient populations: Areas with a high incidence of diabetes, Patients with sub-optimal hemoglobin A1C and other outcomes, Patients with limited access to quality diabetes care, Communities with socioeconomic challenges and factors that impact access to care. Case Description & Discussion: The Pharmacists’ Role on the Collaborative Care Team as a partner in the project representing one of the diverse communities, the Central Ohio Diabetes Association has been able to expand its diabetes education team to include a pharmacist. Using both a class presentation and a one-on-one private consultation, the pharmacist explains the variety of medications used to manage diabetes as well as the important role the retail pharmacist can play in ongoing diabetes care. During the private consultation, the pharmacist also reviews the patient’s individual medication regimen, provides education regarding the specific function of each medication, proper administration, possible side-effects, and noncompliance issues. The pharmacist’s task is to provide education and thereby support the physician’s medication decisions. Conclusion: The addition of the pharmacist to the education team has been very well received by patients. Clinical outcomes gathered by APhA across the study support the importance of this additional intervention.

E14 Title: Improving Diabetic Coding in a Family Practice Residency

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The current ICD9 coding information is over 50 years old. In October 2014 a new system, ICD-10CM, will be introduced which will increase the number of possible codes from the current 13,000 to over 68,000. The family practice residents at Doctors Hospital Family Practice receive training in coding office visits for all diagnoses utilizing ICD-9CM. One of the most complicated diagnoses to code is diabetes mellitus. There are currently thirty-nine separate codes for diabetes; this will be expanded with the introduction of ICD-10CM. Observations of the residents over a period of time revealed that they tended to select one code to describe the patient’s diabetes mellitus and seldom varied that code regardless of changes in the status of the disease. A pretest and posttest were given to the eighteen family practice residents at Doctors Hospital Family Practice. Between the two tests a one hour education presentation was made focusing on correct use of diabetic codes for patient visits. The billing data for all diabetic visits within a six week prior to the educational experience as well as six weeks following were collected and compared for the use of diabetic codes. There was demonstrated improvement on the posttest with an increase of 11.6%. Review of the billing data did not reveal an overall change in the number of diabetic codes utilized however the distribution of the diabetic cases within the codes selected was demonstrated.