

OAKLAND UNIVERSITY WILLIAM BEAUMONT SCHOOL OF MEDICINE

PUBLICATION LIST

April - June 2015

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Abbas AE, Ed. (2015). Aortic stenosis: Case based diagnosis and therapy. London, Springer.

[Full-Text](#)

Department of Internal Medicine

With the advent of less invasive treatments for aortic stenosis including percutaneous and apical replacement, more patients are being offered this technology. As such, determining the true severity of aortic stenosis is becoming paramount. Many clinical scenarios occur where the area and gradient estimates of severity do not match. This book will present case by case examples of different patients with a wide variety of aortic stenosis. It will assist cardiologists in identifying patients with true aortic stenosis who may benefit from valve replacement. It will also highlight the role and advent of new technology as the role of CTA, MRI, and 3D echo for diagnosis and TAVR and mini surgery for treatment. The audience will range from clinical cardiologists, imaging cardiologists and interventionalists alike.

Abbas AE, Ed. (2015). Interventional cardiology imaging: An essential guide. London, Springer.

[Full-Text](#)

Department of Internal Medicine

Interventional cardiology has transitioned from angiographic subjective analysis of stenosis severity into assessment of plaque characteristics and objective assessment of stenosis severity. The evolution of novel interventional imaging modalities is progressively altering our understanding of coronary artery disease diagnosis and prognosis. This book will be an essential companion to assist interventional cardiologists in better assessing patients with Coronary Artery Disease. It will encompass and review all interventional imaging modalities and provide guidance for interventional cardiologists to use these modalities.

Abbas AE and Lester SJ (2015). "Reverse area and gradient mismatch: The discordance of a large valve area and high gradients," In Abbas AE (ed). Aortic Stenosis: Springer. pp: 129-145.

[Full-Text](#)

Department of Internal Medicine

Abbas AE and Pibarot P (2015). "Physiological basis for area and gradient assessment: Hemodynamic principles of aortic stenosis," In Abbas AE (ed). Aortic Stenosis: Springer. pp: 29-48.

[Request Form](#)

Department of Internal Medicine

Abuelroos D, Dabaja E, Martin K, Swanberg S, Jurva S, Reed-Hendon C and Yeow RY (2015). "Nurturing cultural competence in the medical school community: An extracurricular education series for students, faculty and staff (iCollaborative)." MedEdPortal Resource ID 4029

[Full-Text](#)

OUIWB Medical Student Author

Department of Diversity and Inclusion

Medical Library

Department of Student Services

Description: Fostering diversity and cross-cultural capacity in medical students is vital, especially in today's diverse society. Exposure and experience are imperative in order to enrich students understanding and appreciation of their heterogeneous environment. Medical schools must produce culturally competent, compassionate physicians who can recognize and care for patients from diverse backgrounds including race, ethnicity, socioeconomic status, age, gender, religion and literacy level. It is just as important for faculty and staff to support students and nurture this cultural awareness. However, medical school curricula are extremely tight and including these topics just in the curriculum would exclude faculty and staff. A unique voluntary extracurricular programming series, called Diversity Dialogues, was developed spanning the first two years of undergraduate medical education to raise awareness of local health care disparities and provide community involvement opportunities for not only students, but also faculty and staff. This poster discusses the Diversity Dialogue series held at the Oakland University William Beaumont School of Medicine and its outcome.

Aggarwal A, Smith JL, **Chinnaiyan KM, Mehta N, Boura J**, Khoury Abdulla R, **Lauter CB** and **Raff GL** (2015).

" β -Blocker premedication does not increase the frequency of allergic reactions from coronary CT angiography: Results from the Advanced Cardiovascular Imaging Consortium." Journal of Cardiovascular Computed Tomography 9(4): 270-277.

[Full-Text](#)

Department of Internal Medicine

OUIWB Medical Student Author

Department of Biomedical Sciences (BHS)

Background: β -Blockers are often used for heart rate control during coronary CT angiography (CTA).

Increased frequency and severity of allergic reactions to radiocontrast media (RCM) have been reported with concomitant use of β -blockers. Objectives: The objectives of this study were to determine whether there is a higher incidence of allergic reactions to low-osmolar nonionic RCM in patients undergoing coronary CTA with concomitant β -blockers and to define the overall incidence and severity of allergic reactions in patients undergoing coronary CTA with and without a history of allergy to RCM. Methods: Patients undergoing coronary CTA at 47 institutions participating in the Advanced Cardiovascular Imaging Consortium registry were analyzed. The incidence and severity of allergic reactions were compared between those patients who did and those who did not receive β -blockers, as well as in subgroups of patients with and without a history of prior allergy to RCM. Results: The incidence of allergic reaction in patients who received β -blockers was 45 of 23,867 (0.19%) compared with those who did not receive β -blockers, which was 9 of 5232 (0.17%; $P = .84$; odds ratio = 1.1). Of the patients with history of allergy to RCM, 4 of 706 patients (0.6%) on β -blockers

experienced allergic reactions compared to 1 of 77 patients (1.3%) without β -blockers (. P = .40; odds ratio = 0.43). Conclusions: β -Blocker pretreatment had no effect on the frequency or severity of allergic reaction in patients undergoing coronary CTA, even in patients with a past history of allergy to RCM.

Ahmed S, Shaffer A, Geddes T, Studzinski D, Mitton K, Pruetz B, Long G and **Shanley C** (2015). "Evaluation of optimal RNA extraction method from human carotid atherosclerotic plaque." Cardiovascular Pathology 24(3): 187-190.

[Full-Text](#)

Department of Surgery

Abstract Investigating molecular mechanisms involved in the formation of carotid atherosclerotic plaques has been challenging. Isolating high-quality RNA from plaque tissue can be difficult because of acellularity, calcification, and degradation. It is essential that the mRNA isolated from this tissue preserves and reflects the actual relative gene expression. Two common methods for RNA preservation, snap-freezing and stabilizing reagent, were compared using surgically resected human carotid atherosclerotic tissue. In addition, isolation methods were compared for integrity and quantity: column-based extraction, phenol-based extraction, and a combination of the two. We found that using a stabilizing reagent with column filtration resulted in the lowest yield and quality. Phenol-based extraction resulted in higher yields but also increased fragmentation. Snap-frozen tissue coupled with column-based extraction yielded the highest quality. The higher quality and quantity RNA obtained when processing snap-frozen tissue with column-based extraction make it possible to use difficult sample types for molecular downstream applications.

Aldasouqi S and **Grunberger G** (2014). "The traditions and risks of fasting for lipid profiles in patients with diabetes." Postgraduate Medicine 126(7): 98-107.

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Department of Internal Medicine

Fasting overnight has been traditionally recommended by clinicians when ordering laboratory tests for lipid profiles for the purposes of health screening or monitoring of the effects of lipid-lowering medications. Patients with diabetes are tested for lipid profiles at least annually. This deeply rooted tradition of fasting for lipid testing has recently been challenged. Several studies have shown little benefit obtained by testing lipids in fasting compared with postprandial states. Furthermore, recent studies have shown the importance of postprandial lipid spikes in the pathogenesis of cardiovascular disease. At the same time, recent reports have alerted the medical community to the risk of hypoglycemia in patients with diabetes on antidiabetic medications (particularly insulin and sulfonylureas) who are asked to fast for lab tests. This article reviews the literature on these emerging issues in lipid testing in patients with diabetes, and offers recommendations for lipid testing in these patients in view of these emerging discussions.

Al-Faham Z, **Boyer AC, Oliver Wong CY** and **Wu D** (2015). "Detection of aberrant right subclavian artery by PET/CT." Journal of Nuclear Medicine Technology 43(2): 129-130.

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Department of Diagnostic Radiology and Molecular Imaging

An aberrant right subclavian artery can be diagnosed by PET/CT, as demonstrated in this case of a 70-y-old man undergoing PET/CT for staging of squamous cell carcinoma of the right lung. It is important to report this finding during the evaluation of oncologic patients, to prevent severe complications that may arise from various oncologic interventions.

Al-faham Z, Jolepalem P and **Oliver Wong CY** (2015). "The appearance of congenitally corrected transposition of the great arteries on myocardial perfusion imaging." Journal of Nuclear Medicine Technology 43(1): 68-69.

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Department of Diagnostic Radiology and Molecular Imaging

We present a case of incidentally discovered congenitally corrected transposition of the great arteries (ccTGA), initially seen on stress-rest myocardial perfusion imaging (MPI). ccTGA has a characteristic appearance on MPI, which reflects the functional alterations associated with this condition.

Al-Katib S, Al-Faham Z and **Balon H** (2015). "Liver uptake on bone scanning: A diagnostic algorithm." Journal of Nuclear Medicine Technology 43(2): 135-136.

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Department of Diagnostic Radiology and Molecular Imaging

In this report, we present a case of liver uptake seen on a bone scan that was due to diffuse metastatic disease from breast carcinoma. We discuss possible etiologies for the uptake and offer an algorithm to narrow the differential diagnosis.

Al-Katib S, Al-Faham Z, Grant P and **Palka JC** (2015). "The appearance of maffucci syndrome on $¹⁸F-FDG PET/CT." Journal of Nuclear Medicine Technology 43(2): 131-132.$

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Department of Diagnostic Radiology and Molecular Imaging

Maffucci syndrome is a rare condition with multiple enchondromas and hemangiomas. Fewer than 200 cases have been reported in the United States. There is a high predilection for neoplastic changes, and PET/CT has an important role in detecting these changes.

Anderson M, **Goldstein J**, Morris L, Milano C, Kormos R, Bhama J, Kapur N, Bansal A, Garcia J, Silvestry S, Holman W and O'Neill W (2015). "A prospective multicenter study to evaluate safety and probable benefit of a novel percutaneous ventricular assist device for right ventricular: Failure: The recover right study." Journal of Heart and Lung Transplantation 34(4): S84.

[Full-Text](#)

Department of Internal Medicine

Purpose: Right ventricular failure (RVF) increases morbidity and mortality. This study was designed to evaluate the safety and efficacy of a novel percutaneous right ventricular assist device, the Impella RP, in an FDA approved prospective, multicenter study under investigational device exemption. Methods: Thirty patients with RVF refractory to medical treatment were enrolled at 15 US institutions. RVF (defined as Cardiac Index (CI) <2.2 l/min/m² on high dose inotropes/pressors and Central Venous Pressure (CVP) >15 mmHg or TAPSE ≤ 14 mm) was developed either post durable LVAD implantation (Cohort A) or post cardiac surgery/heart transplant or post myocardial infarction (Cohort B). Baseline, procedural, and hemodynamic data were collected. Primary study endpoint was survival to 30 days or hospital discharge (whichever is longer) after device explant. Major secondary endpoints included both safety and efficacy endpoints. Results: Of the 30 patients enrolled in the study, 18 were in Cohort A (post LVAD implantation) and 12 in Cohort B (5 post heart transplant, 2 post valve surgery and 5 post myocardial infarction). Patient characteristics included a mean age of 59 ± 15 years, male 77%, diabetes 53%, history of congestive heart failure 88.5% and renal dysfunction 37.5%. Baseline hemodynamics included CI: 1.8 ± 0.2 l/min/m², CVP: 19.2 ± 4 mmHg, mm despite patients being in average on 3.2 inotropes/pressors. Delivery of the device was possible in all but one patient. Hemodynamics improved immediately after initiation of Impella RP support, with an increase in CI from 1.8 ± 0.2 to 3.3 ± 0.23 L/min/m² ($p < 0.001$) a decrease in CVP from 19.2 ± 4 to 12.6 ± 1 mmHg ($p < 0.001$) and in Cohort A, LVAD flows improvement from 3.96 ± 0.16 L/min to 4.62 ± 0.14 L/min ($p = 0.004$). Patients were supported on average for 3.04 ± 1.5 days [0.5, 7.8 days]. The overall survival at 30 days or discharge and at 180 days was 73.3%. Conclusion: The use of a novel percutaneous RVAD in a multicenter clinical trial demonstrated that the device can be used safely and reliably with immediate hemodynamic benefit. These data support its probable benefit in this gravely ill patient population.

Anderson W, McGlynn S, Singh S and **Bastani A** (2015). "Do all septic patients with an elevated lactate need an ICU bed in the community hospital setting?" Academic Emergency Medicine 22(5): S335-S336.

[Full-Text](#)

Department of Emergency Medicine

Background: Lactate is considered the biomarker of choice to predict mortality in patients with severe sepsis [SS]. SS patients with an initial serum lactate ≥ 4.0 mmol/L [HILAC] are considered high risk for in-house mortality [IMORT]. In our health system of two community (Table presented) hospitals [COMs] and one

academic institution [ACAD], the COMs typically mandate ICU admission for SS patients with an ED HILAC regardless of an otherwise favorable clinical picture. This is done to offset the lack of manpower available to follow these patients on stepdown units. Objectives: Given continued improvements in sepsis care, we sought to identify whether an ED HILAC continues to predict IMORT in SS patients at our COMs. Methods: We conducted a retrospective review of all SS patients admitted across our health system from Jan 1st, 2004 to June 30th, 2014. Our ACAD is a 1,070 bed institution with 120,000 ED visits/year and a full complement of resident and fellow staffing across all major specialties. Our community hospitals include a 458 bed hospital [COM1] with 80,000 ED visits/year and a 250 bed hospital [COM2] with 35,000 visits/year. To identify all potential study patients, we queried a quality assurance database which identifies SS patients based on DRG codes at our institutions. This database automatically imports data from our electronic medical records for review on a monthly basis by our sepsis quality team. Our primary outcome measure was to identify whether HILAC increases IMORT in SS patients at the COMs. Our secondary outcome was to describe the difference in IMORT between the ACAD and the COMs. Data was analyzed using descriptive statistics and Fisher's exact test were applicable. Results: A total of 259 SS patients across all three institutions were included for analysis. There were 147 patients at ACAD, 93 patients at COM1 and 19 patients at COM2. IMORT rates for SS patients across all three institutions were 26.5 [95% CI 20.0% - 34.2%] at ACAD, 18.3% [95% CI 11.6% - 27.4%] at COM1, and 10.6% [95% CI 1.7% - 32.6%] at COM 2. The HILAC and IMORT data from all sites are included in Table 769. In neither the COMs nor the ACAD did HILAC statistically significantly increase IMORT. Conclusion: In the community hospital setting, an initial elevated serum lactate ≥ 4.0 mmol/L did not predict an increased in-house mortality in ED severe sepsis patients.

Anton-Martin P, Thompson MT, Sheeran PD, **Fischer AC**, Taylor D and Thomas JA (2014). "Extubation during pediatric extracorporeal membrane oxygenation: A single-center experience." *Pediatric Critical Care Medicine* 15(9): 861-869.

[Full-Text](#)

Department of Surgery

Objectives: Describe aspects of one center's experience extubating infants and children during extracorporeal membrane oxygenation. Design: Retrospective review of medical records. Setting: Seventy-one-bed critical care service (PICU and cardiovascular ICU) in a large urban tertiary children's hospital. Patients: Pediatric and neonatal patients supported on extracorporeal membrane oxygenation between 1996 and 2013 who were either not intubated or extubated greater than 24 hours during their extracorporeal membrane oxygenation course. Interventions: None. Measurements and Main Results: Sixteen of 511 patients on extracorporeal membrane oxygenation were extubated for at least 24 hours during their extracorporeal membrane oxygenation courses. Fourteen had respiratory failure and two had cardiac disease. Five patients died while on extracorporeal membrane oxygenation, but the cause of death was not related to complications associated with extubation. Extubated patients were supported a median of 19.7 days on extracorporeal membrane oxygenation, with a median extubation latency (time between cannulation and first extubation) of 6.2 days and a median extubation duration of 5.5 days. Mean time extubated was 43% of the total time on extracorporeal membrane oxygenation. Two patients were reintubated briefly or had a laryngeal mask airway placed for decannulation (n = 1). The remaining patients were extubated within 5 days of decannulation, weeks afterward (n = 2), transferred to outside facilities (n = 2), or died during extracorporeal membrane oxygenation support (n = 5). We also observed no complications directly attributable to extubation and spontaneous re-aeration of consolidated lungs in acute respiratory distress syndrome in extubated patients on extracorporeal membrane oxygenation. Conclusion: Extubation and discontinuation of mechanical ventilation appear feasible in patients requiring long-term extracorporeal membrane oxygenation. Emergency procedure planning may need to be modified in extubated patients on extracorporeal membrane oxygenation.

Arslanturk S, Siadat MR, Ogunyemi T, Killinger K and **Diokno A** (2015). "Analysis of incomplete and inconsistent clinical survey data." *Knowledge and Information Systems*. ePub Ahead of Print.

[Full-Text](#)

Department of Urology

It is common for clinical data in survey trials to be incomplete and inconsistent for several reasons.

Inconsistent data occur when more than one set of exclusive alternative questions are answered. One objective of this study was to identify and eliminate inconsistent data as an important data mining preprocessing step. We define three types of incomplete data: missing data due to skip pattern (SPMD), undetermined missing data (UMD), and genuine missing data (GMD). Identifying the type of missing data is another important objective as all missing data types cannot be treated the same. This goal cannot be achieved manually on large data of complex surveys since each subject should be processed individually. The analyses are accomplished in a mathematical framework by exploiting graph theoretic structure inherent in the questionnaire. An undirected graph is built using mutually inconsistent responses as well as its complement. The responses not in the largest maximal clique of complement graph are considered inconsistent. This guarantees removing as few responses as possible so that remaining ones are mutually consistent. Further, all potential paths in questionnaire's graph are considered, based on the responses of subjects, to identify each type of incomplete data. Experiments are conducted on MESA data. Results show 15.4 % GMD, 9.8 % SPMD, 12.9 % UMD, and 0.021 % inconsistent data. Further utility of the approach is using a) the SPMD for data stratification, and b) inconsistent data for noise estimation. Proposed method is a preprocessing prerequisite for any data mining of clinical survey data. © 2015 Springer-Verlag London

Austin E, Betz B and **Arndt D** (2014). "The value of 3-T magnetic resonance imaging in acute transverse myelitis." *Pediatric Neurology* 51(6): 860-861.

[Full-Text](#)

Department of Pediatrics

Azoury SC, Grimm JC, Tuffaha SH, Broyles JM, **Fischer AC**, Yang SC and Tufaro AP (2015). "Chest wall reconstruction: Evolution over a decade and experience with a novel technique for complex defects." *Annals of Plastic Surgery*. ePub Ahead of Print.

[Full-Text](#)

Department of Surgery

BACKGROUND: Chest wall reconstruction (CWR) with biologic matrices has gained popularity over the last decade; however, data on this topic remain sparse. The aim of this study is to review the different methods and materials used for CWR while reviewing and highlighting a novel approach using a biologic inlay and synthetic onlay technique for larger, complex high-risk defects. **METHODS:** A retrospective review was performed of all patients who underwent full thickness chest wall resection and reconstruction during a 10-year period. Patient characteristics, comorbidities, operative data, as well as postoperative wound complications and outcomes were reviewed. Different reconstructive methods and materials were reviewed and compared. **RESULTS:** From December 2003 to January 2014, a total of 81 patients underwent CWR. The indications for resection/reconstruction included oncologic in 49 patients (60.5%), desmoids tumors in 10 (12.3%), bronchopleural fistula in 3 (3.7%), infection in 7 (8.6%), and anatomic deformity in 7 (8.6%) patients. Synthetic and/or acellular dermal matrices (ADM) reconstruction was used in 59 patients (10 biologic, 22 synthetic, and 27 biologic ADM inlay/synthetic onlay combination). On average, 2.5, 3.5, and 3.6 ribs were resected in the biologic, synthetic, and combination group, respectively ($P = 0.1$). A greater number of patients in the combination group had a history of chemotherapy and/or radiation therapy ($P = 0.03$) than the synthetic or biologic alone groups. Risk analysis demonstrated an association between the number of ribs resected and postoperative chest wall complications. The incidence of chest wall/wound complications in the synthetic, combination, and biologic groups was 31.8%, 22.2%, and 10%, respectively ($P = 0.47$). **CONCLUSIONS:** In the largest single institution study comparing the use of different reconstructive materials, including ADM in CWR, the authors demonstrate that a biologic inlay/synthetic onlay may be used effectively for high-risk, large complex defects. Early outcomes with this technique are promising. The authors believe this combination highlights benefits from both materials because the ADM facilitates tissue ingrowth and revascularization, whereas the synthetic component provides structural durability. Additional studies with larger sample sizes are necessary to further explore the benefits of the combination technique to determine if outcomes are better than either material alone when used to reconstruct high-risk wounds after larger resections.

Bahado-Singh RO, Ertl R, Mandal R, Bjorndahl TC, Syngelaki A, Han B, Dong E, Liu PB, **Alpay-Savasan Z**, Wishart DS and Nicolaides KH (2015). "Metabolomic prediction of fetal congenital heart defect in the first trimester EDITORIAL COMMENT." [Obstetrical and Gynecological Survey](#) 70(1): 3.

[Full-Text](#)

Department of Obstetrics and Gynecology

Bahado-Singh RO, Syngelaki A, Akolekar R, Mandal R, Bjondahl TC, Han B, Dong E, **Bauer S**, **Alpay-Savasan Z**, Graham S, Turkoglu O, Wishart DS and Nicolaides KH (2015). "Validation of metabolomic models for prediction of early-onset preeclampsia." [American Journal of Obstetrics and Gynecology](#). ePub Ahead of Print.

[Full-Text](#)

Department of Obstetrics and Gynecology

OBJECTIVE: We sought to perform validation studies of previously published and newly derived first-trimester metabolomic algorithms for prediction of early preeclampsia (PE). STUDY DESIGN: Nuclear magnetic resonance-based metabolomic analysis was performed on first-trimester serum in 50 women who subsequently developed early PE and in 108 first-trimester controls. Random stratification and allocation was used to divide cases into a discovery group (30 early PE and 65 controls) for generation of the biomarker model(s) and a validation group (20 early PE and 43 controls) to ensure an unbiased assessment of the predictive algorithms. Cross-validation testing on the different algorithms was performed to confirm their robustness before use. Metabolites, demographic features, clinical characteristics, and uterine Doppler pulsatility index data were evaluated. Area under the receiver operator characteristic curve (AUC), 95% confidence interval (CI), sensitivity, and specificity of the biomarker models were derived. RESULTS: Validation testing found that the metabolite-only model had an AUC of 0.835 (95% CI, 0.769-0.941) with a 75% sensitivity and 74.4% specificity and for the metabolites plus uterine Doppler pulsatility index model it was 0.916 (95% CI, 0.836-0.996), 90%, and 88.4%, respectively. Predictive metabolites included arginine and 2-hydroxybutyrate, which are known to be involved in vascular dilation and insulin resistance and impaired glucose regulation, respectively. CONCLUSION: We found confirmatory evidence that first-trimester metabolomic biomarkers can predict future development of early PE.

Baker KC, **Tristan Maerz MS**, Saad H, Philip Shaheen BS and Kannan RM (2015). "In vivo bone formation by and inflammatory response to resorbable polymer-nanoclay constructs." [Nanomedicine: Nanotechnology, Biology, and Medicine](#). ePub Ahead of Print.

[Full-Text](#)

Department of Orthopedic Surgery

Department of Surgery

The development of synthetic bone graft materials with requisite mechanical and morphological properties remains a key challenge in orthopaedic surgery. Supercritical carbon dioxide (scCO₂)-processed nanocomposites consisting of organically-modified montmorillonite clay dispersed in poly-D-lactide (PDLA) have shown structural and mechanical properties similar to corticocancellous bone. Using quantitative undecalcified histology and micro-computed tomography (muCT), time and material-dependent influences on in vivo bone formation, and inflammatory response were characterized. This study represents the first in vivo evidence of the ability of porous, scCO₂-processed PDLA-nanoclay constructs to support osteogenesis, while eliciting an inflammatory response comparable to PDLA-hydroxyapatite materials. Histologic analyses demonstrated that the in vivo performance of nanoclay-containing PDLA constructs was similar to pure PDLA constructs, though nanocomposites demonstrated more radiodense bone at all time points (muCT analysis), and higher bone volume at 6 weeks. Taken with previous structural and mechanical studies, these in vivo analyses suggest that scCO₂-processed, polymer-clay nanocomposites may be suitable structural bone graft materials.

Balog MJ, Loghmanee D, Thomas J and Bhushan B (2015). "Characteristics of patients who missed polysomnography appointments in a tertiary care facility." [Sleep](#) 38: A389.

[Request Form](#)

Department of Family Medicine

Introduction: Missed appointments, or “no shows” delay care for both the patient missing the appointment and others who could have been scheduled in their place. This is especially problematic in pediatric sleep medicine where the paucity of centers leads to long wait times. We evaluated whether patients who no showed at our center shared characteristics. Methods: We queried our electronic medical record for no shows within 9 months and collected the following variables: Ordering service, study order date, schedule date, and date missed, language, race, age, gender, diagnoses, distance from center, and date of any surgical interventions for sleep disordered breathing. Results: 131 subjects were identified. Most frequent referring divisions were Primary Care (55.7%), Otolaryngology (22.9%), and Pulmonary (13%). Lack of problem list or symptoms on the study order was characteristic in 48.9%. Patients living 0-10 miles and 11-20 miles from the center represented 40% and 35% respectively. Time from scheduling to appointment was 8-10 weeks (35%), 6-8 weeks (23%), and 0-1 week (11%). 17% underwent surgery for SDB. Gender, race and insurance were representative of our population: 54% Boys, 42% Latino, 37% African-American, and 86% Medicaid. Conclusion: No shows decreased productivity by 8%. These results suggest setting target wait times between 2-6 weeks, enhancing communication with families who live close to our center about why Polysomnography has been ordered, and working with physicians in Primary Care and Otolaryngology to order studies appropriately and improve adherence to recommendations.

Banes-Berceli A, Singhal S, Fulton M, Geddes T, Thibodeau B, Wilson G and **Hafron J** (2014). "Alterations in janus (JAK2)/signal transducer of activated transcription signaling pathway in human renal cell carcinoma." FASEB Journal 28(1): 1.

[Full-Text](#)

Department of Urology

Barnes GD, Kurlander JE, Gu X, Haymart K, Kline-Rogers E, **Almany S**, Kozlowski J, Krol GD, Kaatz S, Saini SD and Froehlich JB (2015). "Use of proton pump inhibitors among anticoagulated patients: the Michigan Anticoagulation Quality Improvement Initiative (MAQI2) experience." Journal of Thrombosis and Haemostasis 13: 733.

[Full-Text](#)

Department of Internal Medicine

Bartley J, Killinger KA, **Boura JA**, **Gilleran J**, Ehlert M, Gupta P, Wolfert C and **Peters KM** (2015). "The impact of prior back surgery on urologic diagnoses and neuromodulation outcomes." Neurourology and Urodynamics 34: S27-S28.

[Full-Text](#)

Department of Urology

Department of Biomedical Sciences (BHS)

Introduction: The impact of spine surgery on bladder symptoms/ treatments is not well known. We evaluated patients with a history of back surgery to explore primary indication for neuromodulation and whether prior back surgery impacted treatment outcomes. Methods: Adults enrolled in our prospective observational neuromodulation study that had a lead placed at the sacral or pudendal nerve were evaluated. Those with comorbid neurological diagnosis were excluded. Medical records were reviewed for history/operative details, and outcomes were measured at three, six, 12 and 24 months with Interstitial Cystitis Symptom/Problem Indices (ICSI-PI), Overactive Bladder Questionnaire (OAB-q) symptom severity (SS)/health related quality of life (HRQOL), voiding diaries, and Global Response Assessments (GRA). Data were examined with Pearsons Chisquare, Fishers Exact, and Wilcoxon rank sum tests. Results: Of 405 patients (mean age 58.2 ± 17 years; 86% female; 80% had a sacral lead placed), 64 (16%) had history of back surgery; 37 surgeries were lumbar. Back surgery patients were older than the no back surgery group (mean 65±14 vs. 57 ±17 years; p=0.001) and a higher proportion had urge urinary incontinence (UUI) (65.6% vs. 45.8%; p=0.001); generator implant rates were similar (92.2% vs. 91.2%; p=0.80). For ICSI-PI composite scores, both groups improved but were only significantly different at 12 months, where scores were better in the back surgery group (mean 11.8 ± 7.7 vs. 15.8 ± 7.5, p=0.013). OAB-q scores also improved in both groups; HRQOL was significantly better in the back surgery group at 12 months (median 85 vs. 71, p=0.041). Average volume/void, voids/24 hours, urgency, and proportion of patients using catheters did not differ at any time point. The back surgery group had more incontinence episodes/day at preimplant (mean 5.6 ± 4.9 vs. 4.0 ± 5.4; p=0.007) and in the two

weeks following lead implant (3.3 ± 4.0 vs. 2.1 ± 3.2 ; $p=0.004$). No other time points were significantly different. Most patients in both groups reported moderate/marked improvement in overall bladder symptoms at 3, 6, and 12 months and groups did not differ on the GRA at any time point. Conclusion: Overall, prior back surgery does not affect clinical outcomes of neuromodulation and the higher prevalence of UUI may reflect older age in the back surgery group compared to controls.

Baxter KR, Robinson JE and **Ruby AJ** (2015). "Occlusive vasculitis due to hyperacute streptococcus mitis endophthalmitis after intravitreal ranibizumab." Retinal Cases and Brief Reports 9(3): 201-204.

[Request Form](#)

Department of Ophthalmology

Purpose: To report a case of hyperacute Streptococcus mitis endophthalmitis after intravitreal ranibizumab resulting in occlusive vasculitis. Methods: Retrospective case report with ultra-wide-field color fundoscopic and fluorescein angiographic imaging. Results: An 83-year-old woman received an intravitreal injection of ranibizumab to her right eye and was evaluated the next day (less than 24 hours from the injection) because of acute loss of vision. Her vision had decreased from 20/50 to hand motions in the right eye at the time of reevaluation. Wide-field fundus photography demonstrated pallid optic nerve head edema, generalized vascular attenuation, diffuse vascular sheathing, and scattered large postequatorial intraretinal hemorrhages. Ultra-wide-field fluorescein angiography revealed a severely delayed AV transit time associated with extensive areas of retinal nonperfusion and late retinal vascular leakage consistent with occlusive vasculitis. She underwent immediate pars plana vitrectomy with extensive irrigation of the vitreous cavity and intravitreal injection of antibiotics. In light of a worsening clinical course, she was taken for repeat vitrectomy 1 week later with panretinal endolaser photocoagulation, instillation of silicone oil, and sub-Tenon triamcinolone acetonide. At postoperative month 1, she maintained 20/200 vision with improved retinal perfusion on fluorescein angiography. Conclusion: We describe a hyperacute case of S. mitis endophthalmitis after intravitreal injection with ranibizumab, associated with severe occlusive vasculitis on ultra-wide-field fluorescein angiography. Aggressive early surgical intervention may be associated with better outcomes than previously reported.

Beaudoin FL, Gutman R, Peak D, Jones J, **Swor R**, Domeier R, Lee DC, Rathlev N, Hendy PA and McLean SA (2015). "Treatment effects of opioids versus NSAIDs prescribed from the emergency department following motor vehicle collision: The effect on pain outcomes at 6 weeks." Academic Emergency Medicine 22(5): S263.

[Full-Text](#)

Department of Emergency Medicine

Background: More than four million Americans present to U.S. EDs each year after motor vehicle collisions (MVC). More than 90% of these individuals have acute musculoskeletal pain (MSP) alone and are discharged to home after evaluation. At the time of ED discharge, these individuals are most commonly discharged with a prescription for a non-opioid (most commonly an NSAID) or an opioid medication. A substantial proportion (20-30%) of these individuals transition to chronic MSP after ED discharge, however to our knowledge the influence of opioid vs. non-opioid medication choice at discharge on persistent MSP outcomes has never been evaluated. Objectives: In this study we evaluated the effect of opioid versus NSAID medication prescription at the time of ED discharge on the presence of moderate or severe MSP six weeks after MVC. Methods: Data was obtained from a large prospective cohort of adult European Americans ($n=948$) who presented to the ED after MVC. Participants were interviewed in the ED and at six weeks. Propensity score matched analysis was used to compare the risk of moderate or severe MSP (MSMSP, Numerical rating score ≥ 4 on 1-10 NRS) at six week follow-up. Participants were propensity-matched on demographic and clinical characteristics, ED pain scores, and MVC characteristics. Modified Poisson regression was used to assess the treatment effect of opioids vs. NSAIDs on MSMSP among the matched sample. Results: Six week follow-up data was obtained in 859/948 (91%) of participants, 23% (198/859) of these individuals were discharged with opioid analgesics alone and 39% (338/859) were discharged with NSAIDs alone. At 6-weeks, 49% of those receiving NSAIDs alone and 56% of those receiving opioids reported MSMSP. After propensity matching, there was no significant difference in MSMSP at six weeks between those discharged with opioids vs. those discharged with NSAIDs (RR=1.17; 95% CI 0.91 - 1.43).

Conclusion: These results suggest that initial ED provider choice of NSAID versus opioid medication at discharge following MVC does not influence the development of MSMSP six weeks after MVC. ED-based secondary preventive interventions are needed which reduce the transition to chronic MSP after common traumatic events such as MVC.

Bilollikar AN, Abbas AE and Goldstein JA (2015). "Non-invasive correlation of invasive imaging," In Abbas AE (ed). *Interventional Cardiology Imaging*; Springer. pp: 203-224.

[Request Form](#)

Department of Internal Medicine

Boncy PJ, Adrien P, Lemoine JF, Existe A, Henry PJ, Raccurt C, Brasseur P, Fenelon N, Dame JB, Okech BA, Kaljee L, **Baxa D**, Prieur E, El Badry MA, Tagliamonte MS, Mulligan CJ, Carter TE, Beau De Rochars VM, Lutz C, Parke DM and Zervos MJ (2015). "Malaria elimination in Haiti by the year 2020: An achievable goal?" *Malaria Journal* 14(1): 1-11.

[Full-Text](#)

Department of Biomedical Sciences (OU)

Haiti and the Dominican Republic, which share the island of Hispaniola, are the last locations in the Caribbean where malaria still persists. Malaria is an important public health concern in Haiti with 17,094 reported cases in 2014. Further, on January 12, 2010, a record earthquake devastated densely populated areas in Haiti including many healthcare and laboratory facilities. Weakened infrastructure provided fertile reservoirs for uncontrolled transmission of infectious pathogens. This situation results in unique challenges for malaria epidemiology and elimination efforts. To help Haiti achieve its malaria elimination goals by year 2020, the Laboratoire National de Santé Publique and Henry Ford Health System, in close collaboration with the Direction d'Épidémiologie, de Laboratoire et de Recherches and the Programme National de Contrôle de la Malaria, hosted a scientific meeting on "Elimination Strategies for Malaria in Haiti" on January 29-30, 2015 at the National Laboratory in Port-au-Prince, Haiti. The meeting brought together laboratory personnel, researchers, clinicians, academics, public health professionals, and other stakeholders to discuss main stakes and perspectives on malaria elimination. Several themes and recommendations emerged during discussions at this meeting. First, more information and research on malaria transmission in Haiti are needed including information from active surveillance of cases and vectors. Second, many healthcare personnel need additional training and critical resources on how to properly identify malaria cases so as to improve accurate and timely case reporting. Third, it is necessary to continue studies genotyping strains of *Plasmodium falciparum* in different sites with active transmission to evaluate for drug resistance and impacts on health. Fourth, elimination strategies outlined in this report will continue to incorporate use of primaquine in addition to chloroquine and active surveillance of cases. Elimination of malaria in Haiti will require collaborative multidisciplinary approaches, sound strategic planning, and strong ownership of strategies by the Haiti Ministère de la Santé Publique et de la Population.

Boyer AC, Krishnan A, Goncalves LF, Williams L and Chaiyasate K (2015). "Prenatal diagnosis of nasal glioma associated with metopic craniosynostosis: Case report and review of the literature." *Journal of Radiology Case Reports* 9(4): 1-8.

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Department of Diagnostic Radiology and Molecular Imaging

Department of Obstetrics and Gynecology

Department of Surgery

Nasal gliomas (nasal glial heterotopia) are rare benign congenital frontonasal lesions occurring in approximately 1: 20,000 - 40,000 live births. The diagnosis is rarely reported prenatally. Nasal gliomas are typically isolated lesions, with syndromic association being exceedingly rare. Metopic craniosynostosis can occur as an isolated abnormality or in association with multiple syndromes. This case is the first reported case of nasal glioma in association with craniosynostosis in the published literature.

Brown EA, Singer L and Lanni T (2015). "Margins in breast-conserving surgery: The financial cost and potential savings associated with the new margin guidelines." Annals of Surgical Oncology 22(2): 39.

[Full-Text](#)

Department of Surgery

OUWB Medical Student Author

Objective The definition of clear margins for patients diagnosed with breast cancer who elect to undergo a lumpectomy has been an area of controversy for years. Past literature has demonstrated a lack of consensus regarding the definition of a clear margin and that which may require re-excision. Recently, a consensus statement by the Society of Surgical Oncology and the American Society of Radiation Oncology has defined a clear margin as no "ink on tumor," seemingly putting an end to the controversy. In this study, we compared the indications for reexcision, the findings of additional tumor (invasive or DCIS) in the re-excision specimen as they relate to margin status, and costs associated with re-excision. **Methods** A retrospective analysis was performed on 581 patients who underwent at least 1 lumpectomy at our institution. The procedures were performed between January 2011 and December 2013. Patients who underwent an initial mastectomy were excluded. Postoperative data included margin status of the initial and any additional surgery. The decision to perform a re-excision was at the discretion of the surgeon and radiation oncologist. We also analyzed the number of re-excision lumpectomy where additional disease was found, as it relates to the margins status of the initial lumpectomy and the additional direct costs associated with these procedures. **Results** Of the 581 patients sampled, 205 underwent a re-excision surgery, either 1 or 2 re-excisions (35.3%). At reexcision, 26.3% of patients were found to have additional disease (54/205). Of the patients with additional disease found on re-excision, 51 (94.4%) of them had a margin of <1 mm on their initial lumpectomy. The mean cost of the surgery for all 581 patients was \$1,907.63. For the 205 total patients who underwent a re-excision surgery, the mean cost was \$1,556.74. Thus, in order to find residual disease, a total of \$319,132.40 was spent, with an average of \$5,909.86 spent for each patient (total = 54) with additional positive margins found on re-excision. **Conclusion** Our data suggest that a margin of <1 mm was most predictive of finding residual tumor on re-excision, as would be expected. Using old criteria, approximately 74% of patients who had undergone re-excision surgery with margins >1 mm did not have additional tumor, at a total cost of \$243,456. Thus, the new consensus guidelines will lead to less overall cost at no clinical risk to patients. Furthermore, not having to undergo additional surgeries will reduce a patient's surgical risk and essentially eliminate delays in adjuvant care.

Burkhardt JC, Stansfield RB, Vohra T, Losman E, **Turner-Lawrence D** and Hopson LR (2015). "Prognostic value of the multiple mini-interview for emergency medicine residency performance." Journal of Emergency Medicine 49(2): 196-202.

[Full-Text](#)

Department of Emergency Medicine

Background: The Multiple Mini-Interview (MMI) uses short, structured contacts, and is known to predict medical school success better than traditional interviews and application materials. Its utility in Emergency Medicine residency selection is untested. **Objectives:** We investigate whether it provides additional information regarding future first-year resident performance that can be useful in resident selection. **Methods:** From three Emergency Medicine residency programs, 71 interns in their first month completed an MMI developed to focus on desirable resident characteristics. Application data were reviewed. First-year resident performance assessments covering the American Council for Graduate Medical Education (ACGME) core competencies, along with professionalism and performance concerns, were obtained. Multiple logistic regressions were employed and MMI correlations were compared with program rank lists and typical selection factors. **Results:** An individual's score on the MMI correlated with overall performance ($p < 0.05$) in single logistic regression. MMI correlated with ACGME individual competencies patient care and procedural skills at a less robust level ($p < 0.1$), but not with any other outcomes. Rank list position correlated with the diagnostic skill competency ($p < 0.05$), but no others. Traditional selection factors correlated with overall performance, disciplinary action, patient care, medical knowledge, and diagnostic skills ($p < 0.05$). MMI was not correlated significantly with the outcomes when included in multiple ordinal logistic regression with other selection factors. **Conclusions:** MMI scores correlate with overall performance, but are not statistically

significant when other traditional selection factors were considered. The MMI process seems potentially superior to program rank list at correlating with first-year performance. The MMI may provide additional benefit when examined using a larger and more diverse sample.

Burriss AC, **Boura JA, Raff GL** and **Chinnaiyan KM** (2015). "Triple rule out versus coronary CT angiography in patients with acute chest pain results from the ACIC consortium." JACC: Cardiovascular Imaging 8(7): 817-825.

[Full-Text](#)

Department of Biomedical Sciences (BHS)

Department of Internal Medicine

Objectives This study sought to evaluate the diagnostic yield of triple rule out (TRO) versus coronary computed tomography angiography (CTA) scanning in patients with acute chest pain enrolled in a large statewide registry. **Background** Although TRO scans provide simultaneous evaluation of coronary artery disease (CAD), pulmonary embolism (PE), and aortic disease (AD), their use is not well defined. **Methods** Patients undergoing TRO or coronary CTA at 53 Michigan institutions for acute chest pain (in the emergency department or inpatient setting) in the ACIC (Advanced Cardiovascular Imaging Consortium) were included. Demographic characteristics, scan findings, and image quality parameters were compared between coronary CTA and TRO scans. The primary outcome was diagnostic yield, defined as obstructive CAD (>50% stenosis), PE, or AD; secondary outcomes were radiation dose, contrast volume, and image quality. **Results** From July 2007 to September 2013, 12,834 patients underwent computed tomography scanning (TRO, n = 1,555; coronary CTA, n = 11,279). The TRO group had more women (57.1% vs. 47.8%, p < 0.001). Diagnostic yield was similar (TRO, 17.4% vs. coronary CTA, 18.3%; p = 0.37), driven by CAD (15.5% vs. 17.2%, p = 0.093); PE and AD were 1.1% and 0.4% (p = 0.004) and 1.7% and 1.1% (p = 0.046). TRO had higher median radiation (9.1 mSv vs. 6.2 mSv; p < 0.0001) and mean contrast (113 ± 6 ml vs. 89 ± 17 ml; p < 0.0001) doses. Nondiagnostic images were frequent in TRO (9.4% vs. 6.5%; p < 0.0001). In emergency department patients, PE and AD were more often detected on TRO. Among inpatients, there were no differences in overall yield or in that of PE, AD, or CAD. **Conclusions** TRO was associated with slightly higher yield of PE and AD, specifically in the emergency department. This benefit comes with higher nondiagnostic image quality, radiation, and contrast doses. Although TRO may be of value in selected patients, its indiscriminate use is not warranted. The appropriate use of TRO needs to be further defined. (Advanced Cardiovascular Imaging Consortium [ACIC]; NCT00640068).

Butala S, Kuwajerwala N and **Lucia V** (2015). "Is obesity consultation a role for all physician providers?" Annals of Surgical Oncology 22(2): 39-40.

[Full-Text](#)

OUWB Medical Student Author

Department of Surgery

Department of Biomedical Sciences (OU)

Objective Being overweight or obese is an established risk factor for the development of breast cancer in postmenopausal women, especially those who have not been previously exposed to hormone replacement therapy. The primary goal of this pilot study is to assess the prevalence of lifestyle modification counseling by primary care and specialist physicians among breast cancer patients and patients with a history of breast cancer. **Methods** An anonymous survey about patient-physician interactions, as well as knowledge about the relationship between obesity and comorbidities, including cancer recurrence, patient motivation to pursue lifestyle modifications, and weight loss was distributed to all patients ≥ 25 years old presenting with breast symptoms. Additional patient information, such as BMI, was obtained from the medical record. **Results** Seventy-six patients responded to the survey. There was a significant association (p < 0.05) found between success with weight loss and the type of physicians discussing importance of maintenance of health; patients lost more weight when consulted by more than 1 type of physician (Table 1). A majority of patients were aware that being overweight or obese is linked to an increased risk of postmenopausal breast cancer, hypertension, and diabetes. In addition, nearly one-third of patients with a current diagnosis or previous personal history of breast cancer were aware that being overweight or obese is linked to an increased risk of recurrence and lower overall survival. More than half of the patients surveyed were moderately motivated or

highly motivated to adapt lifestyle modifications (ie, implement diet modification or exercise). However, no significant association was found between the type of physician speaking to the patient vs the patient's level of motivation. Conclusion Results of this study reiterate the importance of educating all patients periodically on lifestyle modifications. Data show lifestyle modifications reduce the risk of de novo postmenopausal breast cancers, as well as decrease recurrences and improve overall survival and outcome in breast cancer survivors. In addition, this study highlights the importance for all physicians, regardless of specialty, to communicate and motivate obese patients to lose weight. Obesity is a major public health problem and is being increasingly linked to various diseases (hypertension, diabetes, colorectal, postmenopausal breast, and endometrial cancer). As such, the obesity epidemic is linked to almost every specialized field of medicine, and addressing this issue is not the responsibility of only the primary care physician. (Figure Presented).

Cappell MS (2015). "Predatory journals: List predatory journal publications separately from genuine scholarly publications as standard for CVs." [Bmj-British Medical Journal](#) 350: 1.

[Full-Text](#)

Department of Internal Medicine

Cappell MS, Mogrovejo E, Manickam P and **Batke M** (2015). "Consideration of endoclips to help cannulate an ampulla hidden in a duodenal diverticulum at ERCP." [Digestive Diseases and Sciences](#) 60(6): 1870.

[Full-Text](#)

Department of Internal Medicine

Cappell MS, **Nojkov B**, **Amin M** and Xiong T (2015). "Clinical utility of recently published clinical and endoscopic predictors of diagnosis of gastrointestinal kaposi sarcoma." [Minerva Gastroenterologica e Dietologica](#) 61(3): 173-175.

[Request Form](#)

Department of Internal Medicine

Department of Pathology

Chan TM, Thoma B, Radecki R, **Topf J**, Woo HH, Kao LS, Cochran A, Hiremath S and Lin M (2015). "Ten steps for setting up an online journal club." [Journal of Continuing Education in the Health Professions](#) 35(2): 148-154.

[Full-Text](#)

Department of Surgery

Journal clubs have an extensive history that dates back to the time of Sir William Osler. They provide a venue to discuss the latest medical literature among groups of peers and are an innovative method for translating knowledge into practice within individual institutions. With advances in social media, journal clubs are poised to take an evolutionary step by harnessing digital connectivity. Online journal clubs are uniting hundreds of medical practitioners from around the world under the banner of one cause: enhancing knowledge translation of the medical literature without the limitations of geography. This article describes 10 steps for creating online journal clubs based on the experiences of a multidisciplinary team of clinicians and medical educators. © 2015 The Alliance for Continuing Education in the Health Professions, the Society for Academic Continuing Medical Education, and the Council on Continuing Medical Education, Association for Hospital Medical Education.

Chancellor M, Versi E, Dvergsten C and Toler S (2015). "Clinical efficacy and tolerability of the nicotinic channel modulator dexmecamylamine in subjects with overactive bladder." [Journal of Urology](#). ePub Ahead of Print.

[Full-Text](#)

Department of Urology

PURPOSE: - To evaluate the efficacy and tolerability of the nicotinic channel modulator, dexmecamylamine, in overactive bladder MATERIALS AND METHODS: - This was a, randomized, double-blind, placebo controlled trial in 768 randomized subjects. Subjects with at least a 6-month history of overactive bladder were randomized to 0.5, 1.0mg, 2mg dexmecamylamine or placebo in a ratio of 1:1:1:2, respectively. Subjects completed a 3-day diary before each visit associated with the 12 week treatment period. Subjects were required to have ≥ 8 micturitions/day and ≥ 3 urinary urge incontinent episodes/day, if OAB wet, at the

end of a placebo run-in period. Co-primary endpoints for the study included (i) change from baseline in micturition frequency/24 hours at Week 12 and (ii) change from baseline in UUI episodes/24 hours at Week 12. Secondary endpoints were volume voided, nocturia episodes, OABq, and Urgency Questionnaire. RESULTS: -2mg dexmecamylamine produced a statistically significant decrease in micturition frequency ($p = 0.03$) but did not produce a statistically significant decrease in urge incontinence (wet) episodes ($p = 0.38$). Secondary endpoints including volume voided (in 1 mg group only), CGI-I, the VAS urgency impact, intensity and impact were statistically significant at Week 12 for the 2 mg dose. Dexmecamylamine was well tolerated in this subject population with a low incidence of discontinuations due to AEs. Constipation, dry mouth, and urinary tract infection showed a dose-dependent increase in frequency. CONCLUSIONS: - DEX does not appear to offer an enhanced therapeutic profile in the treatment of OAB relative to current therapies.

Chehab M, Copelan A, Al-Faham Z, Bahoura L and **Wong CYO** (2015). "Systemic mastocytosis: A rare cause of single vertebral body uptake on bone scan." Journal of Radiology Case Reports 9(2): 31-41.

[Full-Text](#)

Department of Diagnostic Radiology and Molecular Imaging

Systemic Mastocytosis is a rare condition characterized by the abnormal proliferation of Mast Cells.

Presentation as a solitary vertebral body lesion is extremely uncommon and may be confused with more ominous conditions such as metastasis. Familiarity with the condition can heighten clinical suspicion, direct tissue diagnosis, guide management and indicate appropriate follow up. We present a case of a 64-year-old woman undergoing staging for recently diagnosed breast cancer who was found to have Systemic Mastocytosis of a single vertebral body.

Chehab M, Friedlander J, **Handel J, Wong CO, Vartanian S, Ciacci J, Korman H, Seifman B** and **Krishnan A** (2015). "Percutaneous cryoablation versus partial nephrectomy: Cost comparison of T1a tumors." Journal of Endourology. ePub Ahead of Print.

[Request Form](#)

Department of Diagnostic Radiology and Molecular Imaging

Department of Urology

Chehab M, **Noujaim S**, Qahwash O, **Mezwa D** and **Roy A** (2015). "Intractable hiccups due to posterior inferior cerebellar artery aneurysm." Journal of Neurological Surgery Reports 76(1): e120-e122.

[Full-Text](#)

Department of Diagnostic Radiology and Molecular Imaging

This is the third reported case of a posterior inferior cerebellar artery (PICA) aneurysm presenting as intractable hiccups (IH). A previously healthy 29-year-old woman was admitted with a 2-week history of hiccups occurring >100 times per minute. Symptoms persisted despite numerous noninvasive therapies. Magnetic resonance imaging and magnetic resonance angiogram of the brain showed a left PICA aneurysm that was confirmed by catheter angiography. Symptoms resolved following suboccipital craniotomy and resection. Although rare, PICA aneurysm is a potentially curable cause of IH.

Chen KP, Lee J, Mark RG, Feng M, Celi LA, **Malley BE** and Danziger J (2015). "Proton pump inhibitor use is not associated with cardiac arrhythmia in critically ill patients." Journal of Clinical Pharmacology 55(7): 774-779.

[Full-Text](#)

Department of Radiation Oncology

OUWB Medical Student Author

Hypomagnesemia can lead to cardiac arrhythmias. Recently, observational data have linked chronic proton pump inhibitor (PPI) exposure to hypomagnesemia. Whether PPI exposure increases the risk for arrhythmias has not been well studied. Using a large, single-center inception cohort of critically ill patients, we examined whether PPI exposure was associated with admission electrocardiogram readings of a cardiac arrhythmia in more than 8000 patients. There were 25.4% PPI users, whereas 6% were taking a histamine 2 antagonist. In all, 14.0% had a cardiac arrhythmia. PPI use was associated with an unadjusted risk of arrhythmia of 1.15 (95% CI, 1.00-1.32; $P = .04$) and an adjusted risk of arrhythmia of 0.91 (95% CI, 0.77-1.06; $P = .22$). Among

diuretic users (n=-2476), PPI use was similarly not associated with an increased risk of cardiac arrhythmia. In summary, in a large cohort of critically ill patients, PPI exposure is not associated with an increased risk of cardiac arrhythmia.

Chen L, Khan M, Alapati K, **Hsieh M** and **Barry K** (2015). "SU-E-P-49: Evaluation of image quality and radiation dose of various unenhanced head CT protocols." *Medical Physics* 42(6): 3237.

[Full-Text](#)

Department of Pathology

Department of Diagnostic Radiology and Molecular Imaging

PURPOSE: To evaluate the diagnostic value of various unenhanced head CT protocols and predicate acceptable radiation dose level for head CT exam. **METHODS:** Our retrospective analysis included 3 groups, 20 patients per group, who underwent clinical routine unenhanced adult head CT examination. All exams were performed axially with 120 kVp. Three protocols, 380 mAs without iterative reconstruction and automAs, 340 mAs with iterative reconstruction without automAs, 340 mAs with iterative reconstruction and automAs, were applied on each group patients respectively. The images were reconstructed with H30, J30 for brain window and H60, J70 for bone window. Images acquired with three protocols were randomized and blindly reviewed by three radiologists. A 5 point scale was used to rate each exam. The percentage of exam score above 3 and average scores of each protocol were calculated for each reviewer and tissue types. **RESULTS:** For protocols without automAs, the average scores of bone window with iterative reconstruction were higher than those without iterative reconstruction for each reviewer although the radiation dose was 10 percentage lower. 100 percentage exams were scored 3 or higher and the average scores were above 4 for both brain and bone reconstructions. The CTDIvol are 64.4 and 57.8 mGy of 380 and 340 mAs, respectively. With automAs, the radiation dose varied with head size, resulting in 47.5 mGy average CTDIvol between 39.5 and 56.5 mGy. 93 and 98 percentage exams were scored great than 3 for brain and bone windows, respectively. The diagnostic confidence level and image quality of exams with AutomAs were less than those without AutomAs for each reviewer. **CONCLUSION:** According to these results, the mAs was reduced to 300 with automAs OFF for head CT exam. The radiation dose was 20 percentage lower than the original protocol and the CTDIvol was reduced to 51.2 mGy.

Chennamsetty A, Ehlert MJ, **Peters KM** and Killinger KA (2015). "Advances in diagnosis and treatment of interstitial cystitis/painful bladder syndrome." *Current Infectious Disease Reports* 17(1): 454.

[Full-Text](#)

Department of Urology

Interstitial cystitis/bladder pain syndrome (IC/BPS) is a prevalent chronic condition that can be challenging not only to diagnose but also to treat. We review recent diagnostic markers and therapies for IC/BPS from non-medication-based therapies, oral therapies, intravesical therapies, and surgical treatments.

Chennamsetty A, Khourdaji I, **Burks F** and Killinger KA (2015). "Contemporary diagnosis and management of Fournier's gangrene." *Therapeutic Advances in Urology* 7(4): 203-215.

[Full-Text](#)

Department of Urology

Fournier's gangrene, an obliterative endarteritis of the subcutaneous arteries resulting in gangrene of the overlying skin, is a rare but severe infective necrotizing fasciitis of the external genitalia. Mainly associated with men and those over the age of 50, Fournier's gangrene has been shown to have a predilection for patients with diabetes as well as people who are long-term alcohol misusers. The nidus for the synergistic polymicrobial infection is usually located in the genitourinary tract, lower gastrointestinal tract or skin. Early diagnosis remains imperative as rapid progression of the gangrene can lead to multiorgan failure and death. The diagnosis is often made clinically, although radiography can be helpful when the diagnosis or the extent of the disease is difficult to discern. The Laboratory Risk Indicator for Necrotizing Fasciitis score can be used to stratify patients into low, moderate or high risk and the Fournier's Gangrene Severity Index (FGSI) can also be used to determine the severity and prognosis of Fournier's gangrene. Mainstays of treatment include rapid and aggressive surgical debridement of necrotized tissue, hemodynamic support with urgent

resuscitation with fluids, and broad-spectrum parental antibiotics. After initial radical debridement, open wounds are generally managed with sterile dressings and negative-pressure wound therapy. In cases of severe perineal involvement, colostomy has been used for fecal diversion or alternatively, the Flexi-Seal Fecal Management System can be utilized to prevent fecal contamination of the wound. After extensive debridement, many patients sustain significant defects of the skin and soft tissue, creating a need for reconstructive surgery for satisfactory functional and cosmetic results.

Chisti MM, Tan L, Klamerus JF, Lin PL, **Jaiyesimi I**, Rehman A and Zeng X (2014). "Quartz Crystal Microbalance (QCM) piezo-immunosensors: A novel technique to study CD20 antigen interaction with rituximab and its clinical implications." Blood 124(21): 4.

[Request Form](#)

Department of Internal Medicine

Chuang YC, Plata M, Lamb LE and **Chancellor MB** (2015). "Underactive bladder in older adults." Clinics in Geriatric Medicine. ePub Ahead of Print.

[Full-Text](#)

Department of Urology

Overactive bladder is one of the most common bladder problems, but an estimated 20 million Americans have underactive bladder (UAB), which makes going to the bathroom difficult, increases the risk of urinary tract infections, and even leads to institutionalization. This article provides an overview of UAB in older adults, and discusses the prevalence, predisposing factors, cause, clinical investigations, and treatments. At present, there is no effective therapy for UAB. A great deal of work still needs to be done on understanding the pathogenesis and the development of effective therapies.

Co MJ, **Ghaith G**, **Amin M** and **Cappell MS** (2014). "Chronic vomiting from esophageal stenosis due to a congenital, ectopic, tracheobronchial ring within the esophagus: endoscopic and endoscopic ultrasound findings."

Gastrointestinal Endoscopy 80(6): 1178-1179.

[Full-Text](#)

Department of Internal Medicine

Department of Pathology

Copelan A, George D, Kapoor B, **Nghiem HV**, Lorenz JM, Ery B and Wang W (2015). "Iatrogenic-related transplant injuries: The role of the interventional radiologist." Seminars in Interventional Radiology 32(2): 133-155.

[Request Form](#)

Department of Diagnostic Radiology and Molecular Imaging

As advances in surgical techniques and postoperative care continue to improve outcomes, the use of solid organ transplants as a treatment for end-stage organ disease is increasing. With the growing population of transplant patients, there is an increasing need for radiologic diagnosis and minimally invasive procedures for the management of posttransplant complications. Typical complications may be vascular or nonvascular. Vascular complications include arterial stenosis, graft thrombosis, and development of fistulae. Common nonvascular complications consist of leaks, abscess formation, and stricture development. The use of interventional radiology in the management of these problems has led to better graft survival and lower patient morbidity and mortality. An understanding of surgical techniques, postoperative anatomy, radiologic findings, and management options for complications is critical for proficient management of complex transplant cases. This article reviews these factors for kidney, liver, pancreas, islet cell, lung, and small bowel transplants.

Cosner D, Zeng X and **Zhang PL** (2015). "Proximal tubular injury in medullary rays is an early sign of acute tacrolimus nephrotoxicity." J Transplant 2015: 142521.

[Full-Text](#)

Department of Pathology

Tacrolimus (FK506) is one of the principal immunosuppressive agents used after solid organ transplantations

to prevent allograft rejection. Chronic renal injury induced by tacrolimus is characterized by linear fibrosis in the medullary rays; however, the early morphologic findings of acute tacrolimus nephrotoxicity are not well characterized. Kidney injury molecule-1 (KIM-1) is a specific injury biomarker that has been proven to be useful in the diagnosis of mild to severe acute tubular injury on renal biopsies. This study was motivated by a patient with acute kidney injury associated with elevated serum tacrolimus levels in whom KIM-1 staining was present only in proximal tubules located in the medullary rays in the setting of otherwise normal light, immunofluorescent, and electron microscopy. We subsequently evaluated KIM-1 expression in 45 protocol and 39 indicated renal transplant biopsies to determine whether higher serum levels of tacrolimus were associated with acute segment specific injury to the proximal tubule, as reflected by KIM-1 staining in the proximal tubules of the cortical medullary rays. The data suggest that tacrolimus toxicity preferentially affects proximal tubules in medullary rays and that this targeted injury is a precursor lesion for the linear fibrosis seen in chronic tacrolimus toxicity.

Cuaron JJ, **Harris AA**, Chon B, Tsai H, Larson G, Hartsell WF, Hug E and Cahlon O (2015). "Anterior-oriented proton beams for prostate cancer: A multi-institutional experience." *Acta Oncologica* 54(6): 868-874.

[Request Form](#)

OUWB Medical Student Author

Background. Proton beam therapy (PBT) for prostate cancer generally involves the use of two lateral beams that transverse the hips. In patients with hip replacements or a previously irradiated hip, this arrangement is contraindicated. The use of non-lateral beams is possible, but not well described. Here we report a multi-institutional experience for patients treated with at least one non-lateral proton beam for prostate cancer. Material and methods. Between 2010 and 2014, 20 patients with organ-confined prostate cancer and a history of hip prosthesis underwent proton therapy utilizing at least one anterior oblique beam (defined as between 10° and 85° from vertical) at one of three proton centers. Results. The median follow-up was 6.4 months. No patients have developed PSA failure or distant metastases. The median planning target volume (PTV) D95 was 79.2 Gy (RBE) (range 69.7-79.9). The median rectal V70 was 9.2% (2.5-15.4). The median bladder V50, V80, and mean dose were 12.4% (3.7-27.1), 3.5 cm³ (0-7.1), and 14.9 Gy (RBE) (4.6-37.8), respectively. The median contralateral femur head V45 and max dose were 0.01 cm³ (0-16.6) and 43.7 Gy (RBE) (15.6-52.5), respectively. The incidence of acute Grade 2 urinary toxicity was 40%. There were no Grade ≥ 3 urinary toxicities. There was one patient who developed late Grade 2 rectal proctitis, with no other cases of acute or late ≥ Grade 2 gastrointestinal toxicity. Grade 2 erectile dysfunction occurred in two patients (11.1%). Mild hip pain was experienced by five patients (25%). There were no cases of hip fracture. Conclusion. PBT for prostate cancer utilizing anterior oblique beam trajectories is feasible with favorable dosimetry and acceptable toxicity. Further follow-up is needed to assess for long-term outcomes and toxicities.

Dailey WA, Gryc W, Garg PG and **Drenser KA** (2015). "Frizzled-4 variations associated with retinopathy and intrauterine growth retardation. A potential marker for prematurity and retinopathy." *Ophthalmology* 122(9): 1917-1923.

[Full-Text](#)

Department of Ophthalmology

Purpose: To present the association between mutations affecting the Wnt-signaling receptor protein (FZD4), inherited vitreoretinopathies, and retinopathy of prematurity (ROP). Design: Retrospective analysis of prospective samples at a tertiary referral center. Participants: Patients referred to our practice for management of a variety of pediatric vitreoretinopathies were offered participation in an ophthalmic biobank (421 participants with vitreoretinopathies were included in this study). Full-term healthy infants (n= 98) were recruited to the study as controls. Methods: Patients with various vitreoretinopathies were prospectively enrolled in an ophthalmic biobank, approved by the Human Investigation Committee at William Beaumont Hospital. Retrospective genetic analysis of the FZD4 gene was performed (Sanger sequencing). Participants with a diagnosis of familial exudative vitreoretinopathy (FEVR), Norrie disease, Coats' disease, bilateral persistent fetal vasculature, and ROP were reviewed for the presence of a FZD4 variant. Data retrieval included status of retinopathy (including staging when possible), gestational age (GA),

birth weight (BW) (when available), and family and birth histories. Main Outcome Measures: The association of FZD4 variants with the presence of vitreoretinopathy. Results: The sequence variation p.[P33S(;)P168S] is the most prevalent FZD4 variant and is statistically significant for ROP and FEVR (P= 4.6E-04 and P= 2.4E-03, respectively) compared with full-term newborns (P=1.7E-01). In addition, infants expressing the sequence variation tended to have significantly lower BWs for respective GA (P= 0.04). This suggests that the FZD4 p.[P33S(;)P168S] variant may be a risk factor for retinopathy and restricted intrauterine growth. Conclusions: Testing for FZD4 gene mutations is useful in patients with suspected FEVR and ROP. The relatively high prevalence of the p.[P33S(;)P168S] variant in ROP and intrauterine growth restriction suggests that it also may be a marker for increased risk of developing ROP and preterm birth. © 2015 American Academy of Ophthalmology.

Daniel E, Quinn GE, Hildebrand PL, Ells A, Hubbard GB, **Capone A**, Martin ER, Ostroff CP, Smith E, Wade KC, Baumritter A, Duros TB, Erbring L, Repka MX, Shepard JA, Emmert D, Herring CM, VanderVeen D, Johnston S, Wu C, Mantagos J, Ledoux D, Winter T, Weng F, Mansfield T, Bremer DL, McGregor ML, Jordan CO, Rogers DL, Fellows RR, Brandt S, Mann B, Wallace D, Freedman S, Jones SK, Tran-Viet D, Young R, Barr CC, Bhola R, Douglas C, Fishman P, Bortorff M, Hubbuch B, Keith R, Bothun ED, DeBecker I, Anderson J, Holleschau AM, Miller NE, Nyquist DN, Siatkowski RM, Trigler L, Escobedo M, Corff K, Huynh M, Satnes K, Mills MD, Anninger W, Binenbaum G, Karp KA, Pearson D, Gong A, Stokes J, Harper CA, Weaver L, McHenry C, Conner K, Heemer R, Cokley E, Hoffman R, Dries D, Farnsworth KJ, Harrison D, Carlstrom B, Frye CA, Morrison D, Donahue S, Benegas N, Owings S, Phillips S, Ruark S, Mitchell P, Ingram A, Sorbie R, Maguire M, Brightwell-Arnold M, McWilliams K, Harris S, Wheary C, Sepielli K, Davis K, Gibson GC, Hansen R, Kemper AR, Prosser L, Musch DC, Christiansen SP, Hess DJ, Kymes SM, Sadda SR, Spaulding R and Schron EB (2015). "Validated system for centralized grading of retinopathy of prematurity: Telemedicine approaches to evaluating acute-phase retinopathy of prematurity (e-ROP) study." *JAMA Ophthalmology* 133(6): 675-682.

[Request Form](#)

Department of Ophthalmology

IMPORTANCE: Measurable competence derived from comprehensive and advanced training in grading digital images is critical in studies using a reading center to evaluate retinal fundus images from infants at risk for retinopathy of prematurity (ROP). Details of certification for nonphysician trained readers (TRs) have not yet been described. **OBJECTIVE:** To describe a centralized system for grading ROP digital images by TRs in the Telemedicine Approaches to Evaluating Acute-Phase Retinopathy of Prematurity (e-ROP) Study. **DESIGN, SETTING, AND PARTICIPANTS:** Multicenter observational cohort study conducted from July 1, 2010, to June 30, 2014. The TRs were trained by experienced ROP specialists and certified to detect ROP morphology in digital retinal images under supervision of an ophthalmologist reading center director. An ROP reading center was developed with standard hardware, secure Internet access, and customized image viewing software with an electronic grading form. A detailed protocol for grading was developed. Based on results of TR gradings, a computerized algorithm determined whether referral-warranted ROP (RW-ROP; defined as presence of plus disease, zone I ROP, and stage 3 or worse ROP) was present in digital images from infants with birth weight less than 1251 g enrolled from May 25, 2011, through October 31, 2013. Independent double grading was done by the TRs with adjudication of discrepant fields performed by the reading center director. **EXPOSURE** Digital retinal images. **MAIN OUTCOMES AND MEASURES:** Intragrader and intergrader variability and monitoring for temporal drift. **RESULTS:** Four TRs underwent rigorous training and certification. A total of 5520 image sets were double graded, with 24.5% requiring adjudication for at least 1 component of RW-ROP. For individual RW-ROP components, the adjudication rate was 3.9% for plus disease, 12.4% for zone I ROP, and 16.9% for stage 3 or worse ROP. The weighted κ for intergrader agreement (n = 80 image sets) was 0.72 (95%CI, 0.52-0.93) for RW-ROP, 0.57 (95%CI, 0.37-0.77) for plus disease, 0.43 (95%CI, 0.24-0.63) for zone I ROP, and 0.67 (95%CI, 0.47-0.88) for stage 3 or worse ROP. The weighted κ for grade-regrade agreement was 0.77 (95%CI, 0.57-0.97) for RW-ROP, 0.87 (95%CI, 0.67-1.00) for plus disease, 0.70 (95%CI, 0.51-0.90) for zone I ROP, and 0.77 (95%CI, 0.57-0.97) for stage 3 or worse ROP. **CONCLUSIONS AND RELEVANCE:** These data suggest that the e-ROP system for training and certifying nonphysicians to grade ROP images under the supervision of a reading center director reliably detects potentially serious ROP with good intragrader and intergrader consistency and minimal temporal drift.

de Jong MD, Ison MG, Monto AS, Metev H, **Clark C**, O'Neil B, Elder J, McCullough A, Collis P and Sheridan WP (2014). "Evaluation of intravenous peramivir for treatment of influenza in hospitalized patients." Clinical Infectious Diseases 59(12): E172-E185.

[Full-Text](#)

Department of Emergency Medicine

Background. Seasonal influenza causes >200 000 annual hospitalizations in the United States. Current antiviral treatment options are limited to oral or inhaled agents. There is an urgent unmet need for intravenous antiviral treatments. Methods. Patients hospitalized with suspected influenza were randomized to 5-day treatment with intravenous per-amivir (600 mg once daily) or placebo; all received the institution's standard of care (SOC) treatment. Time to clinical resolution and change in viral shedding in nasopharyngeal specimens were the primary and key secondary end points. Results. Influenza infection was confirmed in 338 of 405 enrolled patients. At the time of a preplanned interim analysis, the primary efficacy analysis population comprised 121 patients who did not receive a concurrent neuraminidase inhibitor as part of the SOC. The median (95% confidence interval) time to clinical resolution was 42.5 (34.0-57.9) hours for per-amivir versus 49.5 (40.0-61.9) hours for placebo (P=.97). A larger treatment effect was observed in patients with history of symptoms <48 hours or admitted to an intensive care unit. Greater reductions in viral shedding, based on median tissue culture infective dose, were observed in patients who received peramivir than in placebo recipients, although this difference was not statistically significant. The incidence and severity of adverse events and laboratory abnormalities were similar between the 2 treatment groups. The study was terminated for futility after a preplanned interim analysis. Conclusions. A significant clinical benefit was not demonstrated for peramivir plus SOC compared with placebo plus SOC. Peramivir was generally safe and well tolerated. These findings highlight the challenges in designing studies to evaluate influenza antiviral agents in a hospitalized setting.

Dejam A, **Malley BE**, Feng ML, Cismondi F, Park S, Samani S, Samani ZA, Pinto DS and Celi LA (2014). "The effect of age and clinical circumstances on the outcome of red blood cell transfusion in critically ill patients." Critical Care 18(4): 9.

[Full-Text](#)

OUWB Medical Student Author

Introduction: Whether red blood cell (RBC) transfusion is beneficial remains controversial. In both retrospective and prospective evaluations, transfusion has been associated with adverse, neutral, or protective effects. These varying results likely stem from a complex interplay between transfusion, patient characteristics, and clinical context. The objective was to test whether age, comorbidities, and clinical context modulate the effect of transfusion on survival. Methods: By using the multiparameter intelligent monitoring in intensive care II database (v. 2.6), a retrospective analysis of 9,809 critically ill patients, we evaluated the effect of RBC transfusion on 30-day and 1-year mortality. Propensity score modeling and logistic regression adjusted for known confounding and assessed the independent effect of transfusion on 30-day and 1-year mortality. Sensitivity analysis was performed by using 3,164 transfused and non-transfused pairs, matched according the previously validated propensity model for RBC transfusion. Results: RBC transfusion did not affect 30-day or 1-year mortality in the overall cohort. Patients younger than 55 years had increased odds of mortality (OR, 1.71; P < 0.01) with transfusion. Patients older than 75 years had lower odds of 30-day and 1-year mortality (OR, 0.70; P < 0.01) with transfusion. Transfusion was associated with worse outcome among patients undergoing cardiac surgery (OR, 2.1; P < 0.01). The propensity-matched population corroborated findings identified by regression adjustment. Conclusion: A complex relation exists between RBC transfusion and clinical outcome. Our results show that transfusion is associated with improved outcomes in some cohorts and worse outcome in others, depending on comorbidities and patient characteristics. As such, future investigations and clinical decisions evaluating the value of transfusion should account for variations in baseline characteristics and clinical context.

Dhou S, Cai W, Hurwitz M, Williams C, Cifter F, Myronakis M, **Ionascu D** and Lewis J (2015). "SU-E-J-151: Day-to-day variations in fraction-specific motion modeling using patient 4DCBCT images." *Medical Physics* 42(6): 3299.

[Full-Text](#)

Department of Radiation Oncology

PURPOSE: The goal of this study is to quantify the interfraction reproducibility of patient-specific motion models derived from 4DCBCT acquired on the day of treatment of lung cancer stereotactic body radiotherapy (SBRT) patients. **METHODS:** Motion models are derived from patient 4DCBCT images acquired daily over 3-5 fractions of treatment by 1) applying deformable image registration between each 4DCBCT image and a reference phase from that day, resulting in a set of displacement vector fields (DVF), and 2) performing principal component analysis (PCA) on the DVFs to derive a motion model. The motion model from the first day of treatment is compared to motion models from each successive day of treatment to quantify variability in motion models generated from different days. Four SBRT patient datasets have been acquired thus far in this IRB approved study. **RESULTS:** Fraction-specific motion models for each fraction and patient were derived and PCA eigenvectors and their associated eigenvalues are compared for each fraction. For the first patient dataset, the average root mean square error between the first two eigenvectors associated with the highest two eigenvalues, in four fractions was 0.1, while it was 0.25 between the last three PCA eigenvectors associated with the lowest three eigenvalues. It was found that the eigenvectors and eigenvalues of PCA motion models for each treatment fraction have variations and the first few eigenvectors are shown to be more stable across treatment fractions than others. **CONCLUSION:** Analysis of this dataset showed that the first two eigenvectors of the PCA patient-specific motion models derived from 4DCBCT were stable over the course of several treatment fractions. The third, fourth, and fifth eigenvectors had larger variations.

Dhou S, Cai W, Hurwitz M, Williams C, Rottmann J, Mishra P, Myronakis M, Cifter F, Berbeco R, **Ionascu D** and Lewis J (2015). "WE-G-207-06: 3D fluoroscopic image generation from patient-specific 4DCBCT-based motion models derived from physical phantom and clinical patient images." *Medical Physics* 42(6): 3697.

[Full-Text](#)

Department of Radiation Oncology

PURPOSE: Respiratory-correlated cone-beam CT (4DCBCT) images acquired immediately prior to treatment have the potential to represent patient motion patterns and anatomy during treatment, including both intra- and inter-fractional changes. We develop a method to generate patient-specific motion models based on 4DCBCT images acquired with existing clinical equipment and used to generate time varying volumetric images (3D fluoroscopic images) representing motion during treatment delivery. **METHODS:** Motion models are derived by deformably registering each 4DCBCT phase to a reference phase, and performing principal component analysis (PCA) on the resulting displacement vector fields. 3D fluoroscopic images are estimated by optimizing the resulting PCA coefficients iteratively through comparison of the cone-beam projections simulating kV treatment imaging and digitally reconstructed radiographs generated from the motion model. Patient and physical phantom datasets are used to evaluate the method in terms of tumor localization error compared to manually defined ground truth positions. **RESULTS:** 4DCBCT-based motion models were derived and used to generate 3D fluoroscopic images at treatment time. For the patient datasets, the average tumor localization error and the 95th percentile were 1.57 and 3.13 respectively in subsets of four patient datasets. For the physical phantom datasets, the average tumor localization error and the 95th percentile were 1.14 and 2.78 respectively in two datasets. 4DCBCT motion models are shown to perform well in the context of generating 3D fluoroscopic images due to their ability to reproduce anatomical changes at treatment time. **CONCLUSION:** This study showed the feasibility of deriving 4DCBCT-based motion models and using them to generate 3D fluoroscopic images at treatment time in real clinical settings. 4DCBCT-based motion models were found to account for the 3D non-rigid motion of the patient anatomy during treatment and have the potential to localize tumor and other patient anatomical structures at treatment time even when inter-fractional changes occur. This project was supported, in part, through a Master Research Agreement with Varian Medical Systems, Inc., Palo Alto, CA. The project was also supported, in part, by Award Number R21CA156068 from the National Cancer Institute.

Dhou S, Hurwitz M, Mishra P, Cai W, Rottmann J, Li R, Williams C, Wagar M, Berbeco R, **Ionascu D** and Lewis JH (2015). "3D fluoroscopic image estimation using patient-specific 4DCBCT-based motion models." Physics in Medicine and Biology 60(9): 3807-3824.

[Full-Text](#)

Department of Radiation Oncology

3D fluoroscopic images represent volumetric patient anatomy during treatment with high spatial and temporal resolution. 3D fluoroscopic images estimated using motion models built using 4DCT images, taken days or weeks prior to treatment, do not reliably represent patient anatomy during treatment. In this study we developed and performed initial evaluation of techniques to develop patient-specific motion models from 4D cone-beam CT (4DCBCT) images, taken immediately before treatment, and used these models to estimate 3D fluoroscopic images based on 2D kV projections captured during treatment. We evaluate the accuracy of 3D fluoroscopic images by comparison to ground truth digital and physical phantom images. The performance of 4DCBCT-based and 4DCT-based motion models are compared in simulated clinical situations representing tumor baseline shift or initial patient positioning errors. The results of this study demonstrate the ability for 4DCBCT imaging to generate motion models that can account for changes that cannot be accounted for with 4DCT-based motion models. When simulating tumor baseline shift and patient positioning errors of up to 5 mm, the average tumor localization error and the 95th percentile error in six datasets were 1.20 and 2.2 mm, respectively, for 4DCBCT-based motion models. 4DCT-based motion models applied to the same six datasets resulted in average tumor localization error and the 95th percentile error of 4.18 and 5.4 mm, respectively. Analysis of voxel-wise intensity differences was also conducted for all experiments. In summary, this study demonstrates the feasibility of 4DCBCT-based 3D fluoroscopic image generation in digital and physical phantoms and shows the potential advantage of 4DCBCT-based 3D fluoroscopic image estimation when there are changes in anatomy between the time of 4DCT imaging and the time of treatment delivery.

Diokno AC, Ogunyemi T, Siadat MR, Arslanturk S and Killinger KA (2015). "Continence index: A new screening questionnaire to predict the probability of future incontinence in older women in the community." International Urology and Nephrology 47(7): 1091-1097.

[Full-Text](#)

Department of Urology

Purpose: Urinary incontinence (UI) is a chronic, costly condition that impairs quality of life. To identify older women most at risk, the Medical Epidemiologic and Social Aspects of Aging (MESA) datasets were mined to create a set of questions that can reliably predict future UI. Methods: MESA data were collected during four household interviews at approximately 1 year intervals. Factors associated with becoming incontinent at the second interview (HH2) were identified using logistic regression (construction datasets). Based on p values and odds ratios, eight potential predictive factors with their 256 combinations and corresponding prediction probabilities formed the Continence Index. Its predictive and discriminatory capability was tested against the same cohort's outcome in the fourth survey (HH4 validation datasets). Sensitivity analysis, area under receiver operating characteristic (ROC) curve, predicted probabilities and confidence intervals were used to statistically validate the Continence Index. Results: Body mass index, sneezing, post-partum UI, urinary frequency, mild UI, belief of developing UI in the future, difficulty stopping urinary stream and remembering names emerged as the strongest predictors of UI. The confidence intervals for prediction probabilities strongly agreed between construction and validation datasets. Calculated sensitivity, specificity, false-positive and false-negative values revealed that the areas under the ROCs (0.802 and 0.799) for the construction and validation datasets, respectively, indicated good discriminatory capabilities of the index as a predictor. Conclusion: The Continence Index will help identify older women most at risk of UI in order to apply targeted prevention strategies in women that are most likely to benefit.

Divatia M, **Smith S**, Colecchia M, Aron M, Amin M, Shen S, Hansel D, Tamboli P, Paner G, de Peralta-Venturina M, Hernandez LH, Gown A and Amin M (2015). "Diagnostic utility of a comprehensive Immunohistochemical (IHC) Panel for Testicular Sex Cord Stromal Tumors (TSCST): A study of 76 cases." Modern Pathology 28: 216A.

[Full-Text](#)

Department of Emergency Medicine

Dukkipati SR, Woollett I, McElderry HT, Bohmer MC, **Doshi SK**, Gerstenfeld EP, Horton R, d'Avila A, **Haines DE**, Valderrabano M, Mangrum JM, Ruskin JN, Natale A and Reddy VY (2015). "Pulmonary vein isolation using the visually-guided laser balloon: Results of the US feasibility study." Journal of Cardiovascular Electrophysiology. ePub Ahead of Print.

[Full-Text](#)

Department of Diagnostic Radiology and Molecular Imaging

Department of Internal Medicine

INTRODUCTION: Visually-guided laser balloon (VGLB) ablation is unique in that the operator delivers ablative energy under direct visual guidance. In this multicenter study, we sought to determine the feasibility, efficacy, and safety of performing pulmonary vein isolation (PVI) using this VGLB. METHODS: Patients with symptomatic, drug-refractory paroxysmal atrial fibrillation (AF) underwent PVI using the VGLB with the majority of operators conducting their first-ever clinical VGLB cases. The primary effectiveness endpoint was defined as freedom from treatment failure that included: occurrence of symptomatic AF episodes $>/=1$ min beyond the 90-day blanking, the inability to isolate one superior and two total PVs, occurrence of left atrial flutter or atrial tachycardia, or left atrial ablation/surgery during follow-up. RESULTS: A total of 86 patients (mean age 56 ± 10 years, 67% male) were treated with the VGLB at 10 US centers. Mean fluoroscopy, ablation, and procedure times were 39.8 ± 24.3 min, 205.2 ± 61.7 min, and 253.5 ± 71.3 min, respectively. Acute PVI was achieved in 314/323 (97.2%) of targeted PVs. Of 84 patients completing follow-up, the primary effectiveness endpoint was achieved in 50 (60%) patients. Freedom from symptomatic or asymptomatic AF was 61%. The primary adverse event rate was 16.3% (8.1% pericarditis, phrenic nerve injury 5.8%, and cardiac tamponade 3.5%). There were no cerebrovascular events, atrioesophageal fistulas, or significant PV stenosis. CONCLUSIONS: This multicenter study of operators in the early stage of the learning curve demonstrates that PVI can be achieved with the VGLB with a reasonable safety profile and an efficacy similar to radiofrequency ablation. This article is protected by copyright. All rights reserved.

Eastwood J and Doubleday A (2014). "Student-developed learning resources for the anatomical sciences." FASEB Journal 28(1): 1.

[Full-Text](#)

Department of Biomedical Sciences (OU)

Eckleberry-Hunt J and **Lick D** (2015). "Physician depression and suicide: A shared responsibility." Teaching and Learning in Medicine 27(3): 341-345.

[Full-Text](#)

Department of Family Medicine

Issue: Although the exact number is often disputed, it has been reported that approximately 300 to 400 physicians in the United States take their own lives annually. Despite calls from key interest groups for prevention and treatment protocols of physician suicide, little systematic change has taken place. Evidence: Research on suicide risk factors among physicians has expanded. Increasing reports are surfacing that highlight suicidal ideation and depression in medical school, residency training, and later professional practice. Implications: The purpose of this article is to draw attention to the problem of physician suicide with an emphasis on the role of medical education. Multiple accreditation bodies should be involved to effect a change in physician suicide prevalence. Thirty years have demonstrated that without mandates, large-scale change will not occur. We adapted some of the 2012 National Strategy for Suicide Prevention goals to medical education as a guide.

ElSayed S and Loftus S (2014). "“Read –fill” approach to support self directed learning of threshold concepts during lecture-based classes." *The Physiologist* 57(6): 349.

[Full-Text](#)

Department of Biomedical Sciences (OU)

The Read-Fill approach is a technique to enhance self-directed learning of threshold concepts and to make didactic lectures more interactive. Threshold concepts are key ideas needed to understand a topic but which may be difficult to learn, requiring special efforts by teachers to ensure students engage a topic with the depth required. A week before the lecture, students are provided with copies of the PowerPoint slides to be used. At strategic points some of the slides will have only headings and/or subheadings. The students are instructed to fill in the slides appropriately. For example, a number of bullet points of relevant material might be expected. During the lecture the teacher will ask the students what answers they were able to provide. The responses from students can be compared and contrasted with each other and then with the teacher's version. The strategic slides are chosen in order to focus attention on aspects of threshold concepts, which require students to actively process information rather than simply recall facts. The technique can be used to identify and dispel common misunderstandings and be the focus of short interactive discussions. This exercise has a number of advantages. For example, by requiring students to engage with material in advance, active self-directed learning is promoted. In addition, the positioning of the slides throughout the lecture can also maintain students' arousal and interest throughout the teaching session.

ElSayed S and Loftus S (2015). "“Dialogical story-telling” approach to enhance analytical thinking and student engagement during lecture-based classes." *The FASEB Journal* 29(1 Supplement): 541.545.

[Full-Text](#)

Department of Biomedical Sciences (OU)

The “Dialogical Story-Telling” approach is an interactive method to teach physiology for health professional students during didactic lectures. This interactive method integrates an interactive conversational style within a story-telling method. The story telling incorporates dialogue with the students, which is in a question-answer format that not only creates a motivating learning context but also builds an educationally safe and supportive environment. A week before the lecture, students are provided with copies of the PowerPoint slides to be used. The students are required to review all the slides. During the lecture, the instructor guides the students through the material using story-telling and question-answer styles. The instructor also uses questions related to the material that encourage analytical thinking. There is an emphasis on building an educational relationship between students and teachers. Relationship-centered learning goes beyond student-centered learning, in recognizing and rehabilitating the role of the teacher. There are strong theoretical foundations for relationship-centered learning. There is the dialogism of Bakhtin, with the recognition of the importance of interactivity. There is also social constructionism where it is accepted that meaning, knowledge and understanding are jointly constructed with others. Keywords: Interactive learning, relationship-centered learning, dialogical- learning and didactic lecture

Enns L, Rasouli-Nia A, Hendzel M, **Marples B** and Weinfeld M (2015). "Association of ATM activation and DNA repair with induced radioresistance after low-dose irradiation." *Radiat Prot Dosimetry*. ePub Ahead of Print.

[Full-Text](#)

Department of Radiation Oncology

Mammalian cells often exhibit a hyper-radiosensitivity (HRS) to radiation doses <20 cGy, followed by increased radioresistance (IRR) at slightly higher doses (approximately 20-30 cGy). Here, the influence of DNA double-strand break repair (DSBR) on IRR was examined. The failure of Ataxia telangiectasia (AT) cells to undergo IRR reported by others was confirmed. Flow cytometric analysis indicated that normal cells fail to show a measurable increase in serine 1981 phosphorylated AT-mutated (ATM) protein after 10 cGy up to 4 h post irradiation, but a two- to fourfold increase after 25 cGy. Similarly, more proficient reduction of phosphorylated histone H2AX was observed 24 h after 25 cGy than after 10 cGy, suggesting that DSBR is more efficient during IRR than HRS. A direct examination of the consequences of inefficient DNA repair per se (as opposed to ATM-mediated signal transduction/cell cycle responses), by determining the clonogenic survival of cells lacking the DNA repair enzyme polynucleotide kinase/phosphatase, indicated that these cells

have a response similar to AT cells, i.e. HRS but no IRR, strongly linking IRR to DSBR.

Ezhuthachan AS and **Maisels MJ** (2015). "Acute abdominal pain in a 2-year-old child." *Clinical Pediatrics* 54(6): 601-603.

[Full-Text](#)

Department of Pediatrics

Farzal Z, Farzal Z, Khan N and **Fischer A** (2015). "The diagnostic dilemma of identifying perforated appendicitis." *Journal of Surgical Research*. ePub Ahead of Print.

[Full-Text](#)

Department of Surgery

Background: Despite extensive research, the classification of perforated (PA) versus nonperforated appendicitis (NPA) remains poorly defined. We hypothesize that the variability across specialties in the classification of appendicitis as PA or NPA may be associated with variation in clinical behavior as demonstrated by a variation in length of stay (LOS). Methods: Retrospective review of 1311 appendectomies over a 16-mo period from an independent children's hospital allowed a comparison of the diagnostic classification of appendicitis as PA or NPA based on radiology (R), operative (O), and pathology (P) reports. Three groups, P+O (n=1241), P+R (n=516), O+R (n=512) were compared to identify interspecialty discordance in classification. The LOS was analyzed as a proxy for clinical behavior to test if the diagnostic classification was consistent with expected clinical behavior (NPA with LOS \leq 48h and PA with LOS >48h). Results: The subsets P+O, P+R, and O+R revealed a discordance of 11%, 15.7%, and 16.6% within the classification of appendicitis, respectively. Cases designated as PA in all subsets clinically behaved as PA with a mean LOS >48h (97, 95, and 95 h, respectively), whereas the cases designated as NPA exhibited greater variation from the expected LOS \leq 48h, with means 35, 83, and 62 h, respectively. Conclusions: Variability in the classification of appendicitis between specialties suggests an error rate inherent in diagnosis. Standardizing the criteria for classification across specialties may improve the diagnostic accuracy of the type of appendicitis needed to identify best practices for optimal use of hospital resources and for meaningful clinical trials.

Flannigan SA, Bortsov AV, **Swor RA**, Jones JS, Lee DC, Peak DA, Domeier RM, Rathlev NK, Hendry PL, McLean SA and Platts-Mills TF (2015). "Derivation of a simple clinical prediction tool to identify older adults at increased risk of persistent pain after motor vehicle collision." *Academic Emergency Medicine* 22(5): S108.

[Full-Text](#)

Department of Emergency Medicine

Background: Motor vehicle collisions (MVCs) are the second most common mechanism of traumatic injury among older adults and frequently result in ED evaluation. Most older adults seen in the ED after MVC are discharged home, but persistent pain is common. Objectives: We sought to derive a simple clinical prediction tool which identifies older adults at increased risk for persistent pain 6 months after MVC using information easily obtained at the time of ED evaluation. Methods: We analyzed data from a prospective longitudinal study of patients aged 65 years or older presenting to 1 of 8 EDs after MVC without a life-threatening injury or apparent fracture. In-person interviews were conducted in the ED; phone calls or mail surveys were used to obtain follow-up information. Persistent pain was defined as MVC-related pain with a severity of 4 or more (0-10 scale) at 6 months. Twenty-one candidate predictors were considered based on literature review and expert opinion. Three variables were dropped due to collinearity. Bivariate analyses identified 8 variables likely to be predictive of persistent pain. Backwards selection was then used to identify a final model. We report area under the receiver operating characteristic (ROC) curve with 95% confidence interval, sensitivity, and specificity. Results: Of 115 participants, 37 (32%) had persistent pain. The final model contained four factors: initial pain severity at the time of the ED visit (0-10 scale), self-reported general health (5 categories), a single question about depression (yes/no), and expected time for physical recovery (days); it had an area under the ROC curve of 0.86 (95% CI 0.78-0.93). A representative cutoff had a sensitivity of 97% and a specificity of 40%. If used to trigger an intervention to prevent persistent pain within the sample, this cutoff would avoid treatment for 31 patients who did not develop persistent pain and result

in nontreatment for only one patient who developed persistent pain. Conclusion: We have derived a simple ED-based instrument for identifying older adults at increased risk for persistent pain after MVC. Refinement and validation are needed.

Flynt L, Grant P, **Seitz JP** and **Qing F** (2015). "Hepatobiliary scintigraphy of evolving spontaneous biliary leak." Clinical Nuclear Medicine 40(7): 592-595.

[Full-Text](#)

Department of Diagnostic Radiology and Molecular Imaging

The patient is a 44-year-old woman with Crohn's disease, who presented to the ED with abdominal pain. Initial imaging by CT and US showed mild biliary tree dilatation, mild gallbladder distension, and pericholecystic fluid. The cystic and common bile ducts were patent without bile leak on cholescintigraphy. The next day, MRCP revealed free fluid extending from the gallbladder fossa to the right lower quadrant. Subsequently, a repeat cholescintigraphy was performed which was positive for bile leak. This case highlights the use of multiple imaging modalities in assessing abdominal pain, pre-and post-biliary leak.

Fong A, Chau CT, Pan D and **Ogunyemi DA** (2015). "Amniotic fluid embolism: Antepartum, intrapartum and demographic factors." Journal of Maternal-Fetal and Neonatal Medicine 28(7): 793-798.

[Request Form](#)

Department of Obstetrics and Gynecology

Objective: To describe the incidence, antepartum, intrapartum and postpartum risk factors, and mortality rate of amniotic fluid embolism (AFE). Methods: We used 2001-2007 California health discharge data to identify cases of AFE by ICD-9 codes. Results: Of 3 556 567 deliveries during the time period, we identified 182 cases of AFE, resulting in a population incidence of 5.1 in 100 000. Twenty-four of the cases resulted in death, giving a case fatality rate of 13.2%. Non-Hispanic blacks had a higher than 2-fold odds of developing AFE. AFE increased significantly with maternal age, most significantly after age 39. Cardiac disease had a nearly 70-fold higher association with AFE, cerebrovascular disorders had a 25-fold higher association, while conditions such as eclampsia, renal disease, placenta previa and polyhydramnios had nearly 7- to 13-fold higher associations. Classical cesarean delivery, abruption placentae, dilation and curettage, and amnioinfusion were all procedures highly associated with AFE. Conclusion: Several antepartum and peripartum conditions and procedures are associated with significantly higher risks of amniotic fluid embolism. This information may contribute to a better understanding of the pathophysiology of AFE and potentially help identify those at the highest risk of developing this morbid condition.

Franey LM, Lester SJ, Wood FO and **Abbas AE** (2015). "Area and gradient mismatch: The discordance of a small valve area and low gradients," In Abbas AE (ed). Aortic Stenosis: Springer. pp: 117-128.

[Full-Text](#)

Department of Internal Medicine

Franklin BA, Brinks J, Sacks R, **Trivax J** and **Friedman H** (2015). "Reduced walking speed and distance as harbingers of the approaching grim reaper." American Journal of Cardiology 116(2): 313-317.

[Full-Text](#)

Department of Internal Medicine

Although treadmill exercise testing can provide an assessment of cardiorespiratory fitness, which serves as an independent prognostic indicator, numerous studies now suggest that usual gait speed, time, or distance covered during walk performance tests and weekly walking distance/time are powerful predictors of mortality and future cardiovascular events in selected patients. This review summarizes the relation between these variables and their association with cardiovascular and all-cause mortality, with specific reference to potential underlying mechanisms and implications for the clinician. Contemporary health care providers have escalating opportunities to promote lifestyle physical activity using pedometers, accelerometers, and smartphone-based health and wellness applications. In conclusion, fitness and/or ambulatory indexes should be considered a "vital sign" in middle-aged and older adults.

Franklin BA, Brook R and Pope CA (2015). "Air pollution and cardiovascular disease." Current Problems in Cardiology 40(5): 207-238.

[Full-Text](#)

Department of Internal Medicine

An escalating body of epidemiologic and clinical research provides compelling evidence that exposure to fine particulate matter air pollution contributes to the development of cardiovascular disease and the triggering of acute cardiac events. There are 3 potential mediating pathways that have been implicated, including "systemic spillover," autonomic imbalance, and circulating particulate matter constituents. Further support that the increased morbidity and mortality attributed to air pollution comes from studies demonstrating the adverse cardiovascular effects of even brief periods of exposure to secondhand smoke. Accordingly, persons with known or suspected cardiovascular disease, the elderly, diabetic patients, pregnant women, and those with pulmonary disease should be counseled to limit leisure-time outdoor activities when air pollution is high. Recognizing the insidious and pervasive nature of air pollution, and the associated odds ratios and population attributable fractions for this widely underappreciated chemical trigger of acute cardiovascular events, may serve to maximize the potential for cardiovascular risk reduction by addressing at least a portion of the 10%-25% incidence of coronary disease that is unexplained by traditional risk factors.

Friedman JO (2015). "Factors associated with contraceptive satisfaction in adolescent women using the IUD." Journal of Pediatric and Adolescent Gynecology 28(1): 38-42.

[Full-Text](#)

Department of Pediatrics

Study Objective: To estimate satisfaction and to identify factors contributing to an adolescent woman's satisfaction with the levonorgestrel-containing or copper intrauterine device (IUD). Design: Adolescent women presenting to an urban clinic within 1 month of IUD insertion completed survey questionnaires about prior use of contraception, gynecologic/obstetric history, and a pain scale. Participants were contacted at 3 and 6 months post-insertion to complete surveys regarding satisfaction with the IUD, their menstrual bleeding patterns, and pain and cramping due to the IUD. Chi-square test, Fisher exact test, and logistic regression were used for analysis. Setting: Mount Sinai Adolescent Health Center in New York City. Participants: Seventy-nine adolescent women aged 15-24 y. Interventions: None. Main Outcome Measure: Satisfaction was measured at 3 and 6 months post-IUD insertion as a 10-point Likert item. Results: 82% and 76% percent of participants were available for follow-up at 3 and 6 months, respectively. Satisfaction with the IUD was high overall with 75.4% (49/65) of participants choosing a satisfaction rating of eight or higher on the 10-point scale at 3 months and 76.7 % (46/60) at 6 months. Prior history of pregnancy and selecting the levonorgestrel containing IUD were predictive of higher satisfaction at 3months, but not at 6 months. Parity and prior use of contraceptive methods were not predictive of satisfaction. Conclusion: The finding of high satisfaction across participants supports the current recommendation for the IUD as a first-line contraceptive for adolescents. Nulliparous young women and those who are naïve to contraception should be considered as candidates for the IUD.

Gallagher MJ (2015). "Prosthetic aortic valves and diagnostic challenges," In Abbas AE (ed). Aortic Stenosis: Springer. pp: 147-169.

[Full-Text](#)

Department of Internal Medicine

Garg L, Chen C and **Haines DE** (2015). "Warfarin anticoagulation provides no benefit to patients with atrial fibrillation undergoing hemodialysis." Heart Rhythm 12(5): S34-S35.

[Request Form](#)

Department of Internal Medicine

Introduction: Atrial fibrillation (AF) is ten times more common in patients with end stage renal disease (ESRD) undergoing hemodialysis compared to the general population. Stroke prophylaxis with warfarin is recommended, but its value in patients with ESRD on hemodialysis (HD) is unknown. Methods: The anticoagulation regimens of patients hospitalized between 2009-2012 for initiation of chronic HD with a

prior history of AF, and patients receiving chronic HD who had a new diagnosis of AF were reviewed. Exclusions were renal transplantation, rheumatic valve disease, prosthetic heart valve, or warfarin prescription for non-AF indications Results: Among 302 patients included in the study, 119 (39%) were prescribed warfarin (warf +) and 183 (61%) were not (warf-). The two groups were similar regarding demographics, and prevalence of comorbidities including diabetes, heart failure, coronary artery disease, hypertension, use of antiplatelet agents and prior stroke. Warfarin use did not lower risk for ischemic stroke (RR 0.93 ; 95% CI 0.49 - 1.82, P = 0.88), or overall survival (RR 1.02 ; 95% CI 0.91-1.15, P = 0.62), but trended toward higher risk of bleeding complications (RR 1.53 ; 95 % CI 0.94-2.51, P = 0.086) after adjusting for potential confounders. Conclusions: Warfarin use is not associated with reduction in stroke risk or mortality, in patients with AF and ESRD on chronic HD but trends toward greater bleeding risk. The benefit of warfarin therapy in these patients may be outweighed by its risks. (Figure Presented).

Garg L, Gupta S, **Swami A** and **Zhang P** (2015). "Levamisole/Cocaine induced systemic vasculitis and immune complex glomerulonephritis." Case Reports in Nephrology 2015: 1-5.

[Full-Text](#)

Department of Internal Medicine

Department of Pathology

Garg L, Purohit T and **Lazarczyk D** (2014). "There's more than meets the eye: Histoplasma mimicking colon neoplasm." American Journal of Gastroenterology 109: S403.

[Request Form](#)

Department of Internal Medicine

Gillera JP, Killinger K, **Boura J** and **Peters KM** (2015). "Number of active electrodes at time of staged tined lead interstim implant does not impact clinical outcomes." Neurourology and Urodynamics. ePub Ahead of Print.

[Full-Text](#)

Department of Urology

Department of Biomedical Sciences (BHS)

Objectives: To determine: (1) if obtaining motor response on <4 tined lead electrodes at time of placement affects subjective and objective clinical outcome and (2) voltage requirements to elicit motor response at implant and first postoperative visit number based on number of responding electrodes. Methods: We reviewed our prospective neuromodulation database to identify patients with unilateral S3 lead placement and motor response (bellows±toe flexion) on stimulation of 1-4 electrodes, then grouped by number of active electrodes at lead placement. Stage 1 success, reoperation and reprogramming rates, mean voltage at implant and first postoperative visit, and Interstitial Cystitis Symptom/Problem Indices (ICSI-PI) were analyzed using Pearson's Chi-square, Fisher's exact, Kruskal-Wallis or Wilcoxon rank tests. Results: Two hundred forty four patients met inclusion criteria, categorized into 1-2 (n=25), 3 (n=48), and 4 active electrodes (n=171). There were no significant differences between groups in terms of age, indications for neuromodulation, or stage 1 success. At implant, patients with <4 active electrodes required higher mean voltages for motor responses (5.9, 4.9, and 3.9 volts for each group respectively; P<0.0001). Mean voltages for sensory threshold at first postoperative programming were 1.5±1.5, 0.9±1.0, and 0.8±1.0, respectively (P=0.08). Overall reoperation rates, and reprogramming sessions at 24 months did not differ (P=0.72 and P=0.50). ICSI-PI scores improved similarly in all groups. Conclusions: Motor response on four electrodes is not necessary for successful stage 1 trial. Despite higher voltage requirements in those with <4 active electrodes at implant, this difference was not observed at initial postoperative programming.

Goldstein JA (2015). "Stent edge dissection: Depth of injury and adverse outcome." Catheterization and Cardiovascular Interventions 86(2): 247-248.

[Full-Text](#)

Department of Internal Medicine

Graves CM, Gu X, Haymart B, **Almany SL**, Krol GD, Kaatz S, Froehlich JB, Barnes GD and Kline-Rogers E (2015). "Initial findings of a root cause analysis of adverse events in anticoagulation patients: Results from the Michigan Anticoagulation Quality Improvement Initiative (MAQI2)." Journal of Thrombosis and Thrombolysis 39(3): 418.

[Full-Text](#)

Department of Internal Medicine

Background: A number of factors can lead to adverse events (AE) in patients taking warfarin. Performing a root cause analysis (RCA) of serious adverse events is one systematic way of determining these causes. Methods: Multidisciplinary teams were formed at three participating MAQI2 high volume sites with organized anticoagulation services. Medical records from patients who suffered serious adverse events (major bleeds, embolic stroke, venous thromboembolism) were reviewed to determine the root cause. More than 200 patients had an AE and underwent screening by trained RNs. Of these, 48 required full review. All potential contributing factors (co-morbidities, patient physical limitations, concurrent meds, current protocols) were assessed to determine the main factor that caused the AE. Results: Full RCA was completed in 48 cases from 3 sites. The main contributing factor was identified in 42/48 (88 %) cases. Most AEs, 31/42 (78 %), were due to patient-specific factors such as co-morbidities, patient physical limitations, or language barriers. Patient to provider and provider to provider communication accounted for 10/42 (24 %) of events and was the second most common cause. Other causes included protocol non-adherence and technology/equipment issues. After each detailed review, the multidisciplinary team recommended changes that addressed the primary cause. Conclusions: The majority of severe adverse events for patients taking warfarin were related to non-modifiable patient related issues. The remaining adverse events were primarily due to patient to provider and provider to provider communication issues. Methods for improving communication need to be addressed and studied, and methods for more effective patient education should be investigated.

Grunberger G, Bailey T, Camacho PM, Einhorn D, Garber AJ, Handelsman Y, Harrell RM, Lando HM, Law B, Leffert JD, Orzeck EA and Glucose Monitoring Consensus C (2015). "Proceedings from the American Association of Clinical Endocrinologists and American College of Endocrinology Consensus Conference on glucose monitoring." Endocrine Practice 21(5): 522-533.

[Request Form](#)

Department of Internal Medicine

Guckenberger M, Mantel F, Gerszten PC, Flickinger JC, Sahgal A, Letourneau D, **Grills IS**, Jawad M, **Fahim DK**, Shin JH, Winey B, Sheehan J and Kersh R (2014). "Safety and efficacy of stereotactic body radiotherapy as primary treatment for vertebral metastases: A multi-institutional analysis." Radiation Oncology 9: 8.

[Full-Text](#)

Department of Radiation Oncology

Department of Neurosurgery

Purpose: To evaluate patient selection criteria, methodology, safety and clinical outcomes of stereotactic body radiotherapy (SBRT) for treatment of vertebral metastases. Materials and methods: Eight centers from the United States (n = 5), Canada (n = 2) and Germany (n = 1) participated in the retrospective study and analyzed 301 patients with 387 vertebral metastases. No patient had been exposed to prior radiation at the treatment site. All patients were treated with linac-based SBRT using cone-beam CT image-guidance and online correction of set-up errors in six degrees of freedom. Results: 387 spinal metastases were treated and the median follow-up was 11.8 months. The median number of consecutive vertebrae treated in a single volume was one (range, 1-6), and the median total dose was 24 Gy (range 8-60 Gy) in 3 fractions (range 1-20). The median EQD2(10) was 38 Gy (range 12-81 Gy). Median overall survival (OS) was 19.5 months and local tumor control (LC) at two years was 83.9%. On multivariate analysis for OS, male sex (p < 0.001; HR = 0.44), performance status < 90 (p < 0.001; HR = 0.46), presence of visceral metastases (p = 0.007; HR = 0.50), uncontrolled systemic disease (p = 0.007; HR = 0.45), > 1 vertebra treated with SBRT (p = 0.04; HR = 0.62) were correlated with worse outcomes. For LC, an interval between primary diagnosis of cancer and SBRT of = 30 months (p = 0.01; HR = 0.27) and histology of primary disease (NSCLC, renal cell cancer, melanoma, other) (p = 0.01; HR = 0.21) were correlated with worse LC. Vertebral compression fractures progressed and

developed de novo in 4.1% and 3.6%, respectively. Other adverse events were rare and no radiation induced myelopathy reported. Conclusions: This multi-institutional cohort study reports high rates of efficacy with spine SBRT. At this time the optimal fractionation within high dose practice is unknown.

Gupta P, Ehlert MJ and **Bartley JM** (2015). "Diagnosis and management of complex pelvic floor disorders in women." Journal of Clinical Outcomes Management 22(6): 275-285.

[Request Form](#)

Department of Urology

Objective: To review the evaluation and management of complex pelvic floor disorders in elderly women. Methods: Literature review and presentation of a clinical case. Results: Pelvic floor disorders are a common problem in elderly women. Pelvic organ prolapse and voiding complaints often coexist and several treatment options are available. A step-wise approach should be used in which management of the most bothersome symptoms occurs first. Conservative, medication, and surgical options should be discussed with each patient depending on treatment goals and health status. Some effects do overlap; however, treatment of one condition may not preclude treatment of other symptoms. Conclusion: In women with complex pelvic floor disorders, addressing the most bothersome symptom first will increase patient satisfaction. Patients should be counseled about the potential need for multiple treatments for optimal results.

Haines DE, Strunk AR, Novichenok A, Kirchhof N and Stewart M (2015). "The biophysics of passive convective cooling during catheter ablation with gold versus platinum electrodes and multielectrode phased radiofrequency energy delivery." Journal of Cardiovascular Electrophysiology. ePub Ahead of Print.

[Full-Text](#)

Department of Internal Medicine

INTRODUCTION: During radiofrequency (RF) catheter ablation, convective cooling of the ablated tissue by circulating blood allows higher power delivery and deeper penetration of volume heating without excess surface heating. The study aim was to characterize ablation lesions using electrode materials with differing thermal conductivities and magnitudes of passive convective cooling utilizing duty-cycled RF energy. METHODS AND RESULTS: RF ablations using a linear array of four 3-mm platinum electrodes (n = 228) were compared to an array with gold electrodes (n = 244). RF was delivered using temperature feedback power control, in a blended bipolar:unipolar mode (2:1 and 4:1), to exposed porcine thigh muscle superfused with heparinized blood. For gold electrodes, lesion depths were 4.1 +/- 0.8 mm in the 2:1 ablation mode and 3.7 +/- 0.9 mm in the 4:1 ablation mode, versus 3.7 +/- 1.0 mm and 3.3 +/- 1.0 mm with platinum (p < 0.001 versus gold, p = 0.004 platinum 2:1 versus 4:1). More efficient passive cooling at all flow rates with gold versus platinum resulted in a lower mean electrode temperature and a higher proportion of ablations reaching maximum power before achieving target temperature. Therefore, the mean ablation power was higher with gold (6.5+2.1 versus 5.5+2.3 W, p < 0.001), and lesion depth was greater (3.9+0.8 mm versus 3.5+1.0 mm, p < 0.001) compared to platinum. CONCLUSIONS: Passive convective cooling during RF ablation is more efficient with gold compared to platinum electrodes, particularly when ablations are temperature limited. Using temperature feedback power control, deeper lesions can be reliably achieved with gold electrodes. This article is protected by copyright. All rights reserved.

Hale Z, Gu X, Kline-Rogers E, **Almany SL**, Krol GD, Kozlowski JH, Kaatz S, Haymart B, Barnes GD and Froehlich JB (2015). "Trends in anticoagulant utilization: Data from the Michigan anticoagulation quality improvement initiative." Journal of Thrombosis and Thrombolysis 39(3): 420.

[Full-Text](#)

Department of Internal Medicine

Background: Since the FDA approval of 3 target specific oral anticoagulants (TSOACs), some established warfarin patients are transitioning to these anticoagulants. Maintenance of treatment with these agents is not well documented, nor is the rate of warfarin reinitiation. Methods: Starting in 2010, trained abstractors from five Michigan Anticoagulation Quality Improvement Initiative (MAQI2) clinics have collected data on patients that switch from warfarin to a TSOAC. We identified atrial fibrillation patients who transitioned to a TSOAC and had at least one follow-up visit. TSOAC agent selection, duration, discontinuation rate and

reasons, transitions between TSOACs, and warfarin re-initiation were evaluated. Kaplan-Meier regression analysis was performed to estimate durations. Results: Since 2010, 309 patients met selection criteria. Of these, 184(58.8 %) were started on Dabigatran, 87(27.8 %) on Rivaroxaban, and 38(12.1 %) on Apixaban. The probability that a patient remained on a TSOAC at 12 and 24 months was 72 and 60 %, respectively. The most common reasons for TSOAC discontinuation were bleeding 22(20.4 %), resolution of indication 18(16.7 %), GI symptoms 7(6.5 %), and falls 6(5.6 %). At 12 months, 30(9.7 %) switched back to warfarin and 7(2.3 %) switched to another TSOAC. The most common TSOAC-TSOAC transition reasons were GI symptoms 12(33 %) (Dabigatran only), and cost 5(13.8 %). Conclusion: These data suggest that TSOACs are well tolerated when patients switch from warfarin, with the majority of patients remaining on TSOACs at 12 months, and very few transitioning back to warfarin. Bleeding was the most common reason for TSOAC discontinuation, and GI symptoms appeared to be a compliance issue among Dabigatran patients.

Hansma P, Powers S, Diaz F and **Li W** (2015). "Agonal thrombi at autopsy." [American Journal of Forensic Medicine and Pathology](#) 36(3): 141-144.

[Full-Text](#)

Department of Pathology

Clots and thrombi identified at autopsy are generally classified dichotomously as antemortem or postmortem. Current articles and textbooks support this approach. Earlier literature often contained descriptions of a third category, the agonal thrombus that forms while the patient is dying. We collected 238 autopsy cases including 80 rapid/sudden deaths by violence and 21 (including 1 pediatric) deaths from acute pulmonary emboli. We analyzed the gross and microscopic features of clots and thrombi. Agonal thrombi were identified in 122 cases (89% of cases of "slow" death). Agonal thrombi were not identified in cases of sudden death. We found that a comprehensive description of the macroscopic features was a key to interpretation. The gross and microscopic features of agonal thrombi "chicken fat" support their hybrid nature. The dichotomous classification of clots and thrombi seems to be founded on assumptions of clinical significance but is perhaps oversimplified. Agonal thrombi are a distinct class of thrombus that, although not clinically significant as an immediate cause of death, arises by its own mechanisms and has its own morphology. It is advisable to avoid classifying agonal thrombi as mere postmortem clots because in forensic cases, they may help support an argument against sudden death.

Hanzel GS (2015). "Transcatheter aortic valve replacement," In Abbas AE (ed). [Aortic Stenosis](#): Springer. pp: 253-269.

[Request Form](#)

Department of Internal Medicine

Hasegawa Y, **Koffron AJ**, Buell JF and Wakabayashi G (2015). "Approaches to laparoscopic liver resection: A meta-analysis of the role of hand-assisted laparoscopic surgery and the hybrid technique." [Journal of Hepato-Biliary-Pancreatic Sciences](#) 22(5): 335-341.

[Full-Text](#)

Department of Surgery

Abstract Laparoscopic liver resection has been established as a safe and feasible treatment option. Surgical approaches include pure laparoscopy, hand-assisted laparoscopy (HALS), and the hybrid technique. The role of these three approaches, and their superiority over open laparotomy, is not yet known. A literature review was performed using specific search phrases, relating to hand-assisted or hybrid approaches to laparoscopic liver resection. Surgical results from 18 case series (HALS, nine series; hybrid technique, nine series), each with ≥ 10 patients, were analyzed. Results indicated that HALS was associated with a mean operative time of 82-264.5min, an estimated blood loss of 82-300mL, and a complication rate of 3.8-27.1%. Analysis of series involving the hybrid technique indicated a mean operative time of 111-366.5 min, an estimated blood loss of 93-936 mL, and a complication rate of 3.4-23.5%. In conclusion, there is insufficient evidence to conclude that any single approach is superior to the others, although HALS and the hybrid technique are useful when dealing with difficulties associated with pure laparoscopy. Conversely, the need for these two methods, which can function as a bridge to pure laparoscopic liver resection, may be overcome with appropriate training.

Haymart B, Gu X, Kline-Rogers E, **Almany SL**, Krol GD, Kozlowski JH, Kaatz S, Hale Z, Barnes GD and Froehlich JB (2015). "The shift of warfarin patients to new anticoagulants: Data from the Michigan Anticoagulation Quality Improvement Initiative." Journal of Thrombosis and Thrombolysis 39(3): 420.

[Full-Text](#)

Department of Internal Medicine

Background: With the FDA approval of 3 target-specific oral anticoagulants (TSOACs), warfarin patients are now switching to these new agents, but little is known about this transition. The Michigan Anticoagulation Quality Improvement Initiative (MAQI2) is a consortium of 6 anticoagulation management services. The objective of this study is to use MAQI2's clinical registry to learn more about this transition. Methods: Data from 5 MAQI2 sites were analyzed to determine how many patients were switched, to which TSOAC they were switched, and the reasons for switching. Results were stratified by year and restricted to patients with atrial fibrillation (AF) as the only indication for anticoagulation. Results: Of the 3,575 MAQI2 patients on warfarin for AF, 364(10 %) switched to a TSOAC. During 2010 and 2011, 161 switched to dabigatran. In 2012, 39 switched [dabigatran 21(54 %), rivaroxaban 18(46 %)]. In 2013, 92 patients switched [dabigatran 13(14 %), rivaroxaban 59(64 %), apixaban 20(22 %)]. In 2014, 72 patients have switched [dabigatran 6(8.3 %), rivaroxaban 35(49 %), apixaban 31(43 %)]. At least one reason for switching was identified in 195 patients. Patient convenience was an identified reason for 111(57 %) patients. Clinical reasons was an identified reason in 100(51 %) patients [e.g. 46(24 %) switched due to unstable INRs]. Seventeen (9 %) switched for compliance reasons. Conclusion: Only 10 % of AF patients in the MAQI2 registry have switched to a TSOAC. The distribution of selected TSOAC over time has shifted away from dabigatran towards rivaroxaban and apixaban, fairly equally. Patient convenience and clinical reasons, especially out of range INRs, were the main identified reasons for switching.

Heidlebaugh M, Kurz MC, Turkelson CL and **Sawyer KN** (2014). "Full neurologic recovery and return of spontaneous circulation following prolonged cardiac arrest facilitated by percutaneous left ventricular assist device." Therapeutic Hypothermia and Temperature Management 4(4): 168-172.

[Request Form](#)

Department of Emergency Medicine

Sudden cardiac arrest is associated with high early mortality, which is largely related to postcardiac arrest syndrome characterized by an acute but often transient decrease in left ventricular (LV) function. The stunned LV provides poor cardiac output, which compounds the initial global insult from hypoperfusion. If employed early, an LV assist device (LVAD) may improve survival and neurologic outcome; however, traditional methods of augmenting LV function have significant drawbacks, limiting their usefulness in the periarrest period. Full cardiac support with cardiopulmonary bypass is not always readily available but is increasingly being studied as a tool to intensify resuscitation. There have been no controlled trials studying the early use of percutaneous LVADs (pLVADs) in pericardiac arrest patients or intra-arrest as a bridge to return of spontaneous circulation. This article presents a case study and discussion of a patient who arrested while undergoing an elective coronary angioplasty and suffered prolonged cardiopulmonary resuscitation. During resuscitation, treatment included placement of a pLVAD and initiation of therapeutic hypothermia. The patient made a rapid and full recovery.

Howe MJ, Seth M, Riba A, **Hanzel G**, Zainea M and Gurm HS (2015). "Underutilization of radial access in patients undergoing percutaneous coronary intervention for st-segment-elevation myocardial infarction: Insights from the Blue Cross Blue Shield of Michigan Cardiovascular Consortium." Circulation: Cardiovascular Interventions 8(5): 1-7.

[Full-Text](#)

Department of Internal Medicine

Background - The purpose of this study was to evaluate the frequency and temporal trends in use of transradial access (TRA) for percutaneous coronary intervention (PCI) in ST-segment-elevation myocardial infarction (STEMI). The use of TRA has been associated with less bleeding and improved clinical outcomes in patients undergoing PCI for STEMI. Methods and Results - The frequency of TRA compared with transfemoral access for patients undergoing PCI for STEMI or other indications (non-ST-segment-elevation

myocardial infarction, unstable angina, and non-acute coronary syndrome) in The Blue Cross Blue Shield of Michigan Cardiovascular Consortium database between 2010 and 2013 was evaluated. Propensity matching was used to assess the relationship of TRA with in-hospital clinical end points of major bleeding, transfusion, and death. The TRA cohort of patients was stratified into deciles based on their predicted bleeding risk and compared with PCI indication. Of 122 728 PCI procedures, 17 912 (14.6%) were via TRA. Among patients with STEMI cases, 8.3% of the PCI cases were performed via TRA. The use of TRA increased over the study period although the growth was slower for STEMI than for other indications, $P < 0.001$. The use of TRA for PCI in STEMI was associated with a lower rate of bleeding (11.7% versus 20.0%; $P < 0.001$) and vascular complications (0.7% versus 2.6%; $P = 0.001$), but no mortality difference (1.25% versus 2.33%; $P = 0.175$). There was a strong negative association between the predicted risk of bleeding and the use of TRA ($P < 0.001$). Conclusions - The use of radial access for PCI in STEMI is increasing but at a slower pace than for patients with other indications. TRA was associated with a reduction in bleeding and transfusion, but there is a strong negative correlation between the predicted risk of bleeding and actual use of TRA in STEMI.

Huang B, **Wong CYO**, Lai V, Kwong DLW, Khong PL and Ishii G (2015). "Prognostic value of 18 F-FDG PET-CT in nasopharyngeal carcinoma: Is dynamic scanning helpful?" *BioMed Research International* 37(6): 1-7.

[Request Form](#)

Department of Diagnostic Radiology and Molecular Imaging

Objectives. To evaluate the differences in prognostic values of static and dynamic PET-CT in nasopharyngeal carcinoma (NPC). **Material and Methods.** Forty-five patients who had static scan were recruited. Sixteen had dynamic scan. The primary lesions were delineated from standardized uptake value (SUV) maps from static scan and K_i maps from dynamic scan. The average follow-up lasted for 34 months. The patients who died or those with recurrence/residual disease were considered "poor outcome"; otherwise they were considered "good outcome." Fisher's exact test and ROC analysis were used to evaluate the prognostic value of various factors. **Results.** Tumor volume thresholded by 40% of maximal SUV (VOL_{SUV40}) significantly predicted treatment outcome ($p = 0.024$) in the whole cohort. In 16 patients with dynamic scan, all parameters by dynamic scan were insignificant in predicting the outcome. The combination of maximal SUV, maximal K_i , VOL_{SUV40} , and VOL_{K_i37} (the tumor volume thresholded by 37% maximal K_i) achieved the highest predicting accuracy for treatment outcome with sensitivity, specificity, and accuracy of 100% in these 16 patients; however this improvement compared to VOL_{SUV40} was insignificant. **Conclusion.** Tumor volume from static scan is useful in NPC prognosis. However, the role of dynamic scanning was not justified in this small cohort.

Hwang KS, Lazaris AS, Eastman JA, Teng E, Thompson PM, Gylys KH, Cole GM and Apostolova LG (2015). "Plasma BDNF levels associate with Pittsburgh compound B binding in the brain." *Alzheimers Dement (Amst)* 1(2): 187-193.

[Full-Text](#)

OUWB Medical Student Author

BACKGROUND: Brain-derived neurotrophic factor (BDNF) plays an important role in Alzheimer's disease (AD) and other neurodegenerative disorders. BDNF function is adversely affected by amyloid beta (A β) in AD. BDNF levels in brain and peripheral tissues are lower in patients with AD and MCI, than in controls. Here we examined the association between plasma levels of BDNF and amyloid deposition in the brain measured with Pittsburgh Compound B (PiB). **METHOD:** Our dataset consisted of 18 AD, 56 mild cognitive impairment (MCI) and 3 normal control (NC) Alzheimer's Disease Neuroimaging Initiative-1 (ADNI1) subjects with available [^{11}C] PiB and peripheral blood protein data. MRI-coregistered PET data was smoothed with a 15 mm kernel and mapped onto 3D hemispheric models using the warping deformations computed in cortical pattern matching of the associated MRI scans. We applied linear regression to examine in 3D the associations between BDNF and PiB SUVR, while adjusting for age and sex. We used permutation statistics thresholded at $p < 0.01$ for multiple comparisons correction. **RESULTS:** Plasma BDNF levels showed significant negative associations with left greater than right amyloid burden in the lateral temporal, inferior parietal, inferior frontal, anterior and posterior cingulate, and orbitofrontal regions (left $p_{corrected} = 0.03$). **CONCLUSIONS:** As hypothesized, lower plasma levels of BDNF were significantly associated with widespread brain amyloidosis.

Jae SY, Kurl S, Laukkanen JA and **Franklin BA** (2015). "Physical activity and cardiorespiratory fitness as underappreciated modulators of obesity-related risk of sudden cardiac death." Heart 101(10): 822.

[Request Form](#)

Department of Internal Medicine

Jae SY, Kurl S, Laukkanen JA, Lee CD, Choi YH, Fernhall B and **Franklin BA** (2015). "Relation of C-reactive protein, fibrinogen, and cardiorespiratory fitness to risk of systemic hypertension in men." American Journal of Cardiology 115(12): 1714-1719.

[Full-Text](#)

Department of Internal Medicine

We investigated the relation between inflammation and incident hypertension, independent of obesity, and tested the associations of cardiorespiratory fitness (fitness) and indexes of inflammation for the development of hypertension in 2,475 normotensive men. Inflammatory markers were C-reactive protein (CRP) and fibrinogen. Fitness was directly measured by peak oxygen uptake during sign/symptom-limited treadmill exercise testing to volitional fatigue; 266 men (10.7%) developed hypertension during an average of 4 years follow-up. After adjusting for potential confounding variables, the relative risk (RR) and 95% confidence interval (CI) for incident hypertension in those in the upper tertile versus lower tertile were 1.55 (95% CI 1.15 to 2.09) for CRP and 1.51 (95% CI 1.10 to 2.06) for fibrinogen. Although the association between fibrinogen and incident hypertension persisted after adjusting for body mass index ($p = 0.049$), the relation between CRP and incident hypertension was no longer statistically significant ($p = 0.08$). Fit men had a 27% decreased (RR 0.73, 95% CI 0.56 to 0.94) risk of incident hypertension compared with unfit men in a multivariable adjusted model. In the joint analysis, unfit men with upper CRP had 1.81 times (95% CI 1.21 to 2.70) and unfit men with upper fibrinogen had 2.03 times (95% CI 1.33 to 3.12) greater risks of incident hypertension compared with fit men with low CRP and fibrinogen, respectively. However, these risks did not significantly increase in fit men with upper CRP (RR 1.12, 95% CI 0.76 to 1.63) and fibrinogen (RR 1.26, 95% CI 0.86 to 1.85) groups. In conclusion, these results suggest that heightened levels of fibrinogen, but not CRP, are associated with incident hypertension, independent of body weight, and that high fitness attenuates the risk of incident hypertension across upper levels of inflammatory markers in men.

Jagsi R, Griffith KA, Heimbürger D, Walker EM, **Grills IS**, Boike T, Feng M, Moran JM, Hayman J, Pierce LJ and Michigan Radiation O (2014). "Choosing wisely? Patterns and correlates of the use of hypofractionated whole-breast radiation therapy in the state of Michigan." International Journal of Radiation Oncology Biology Physics 90(5): 1010-1016.

[Full-Text](#)

Department of Radiation Oncology

Purpose: Given evidence from randomized trials that have established the non-inferiority of more convenient and less costly courses of hypofractionated radiotherapy to the whole breast in selected breast cancer patients who receive lumpectomy, we sought to investigate the use of hypofractionated radiation therapy and factors associated with its use in a consortium of radiation oncology practices in Michigan. We sought to determine the extent to which variation in use occurs at the physician or practice level versus the extent to which use reflects individualization based on potentially relevant patient characteristics (such as habitus, age, chemotherapy receipt, or laterality). Methods and Materials: We evaluated associations between receipt of hypofractionated radiation therapy and various patient, provider, and practice characteristics in a multilevel model. Results: Of 1477 patients who received lumpectomy and whole-breast radiation therapy and were registered by the Michigan Radiation Oncology Quality Consortium (MROQC) from October 2011 to December 2013, 913 had T1-2, N0 breast cancer. Of these 913, 283 (31%) received hypofractionated radiation therapy. Among the 13 practices, hypofractionated radiation therapy use ranged from 2% to 80%. On multilevel analysis, 51% of the variation in the rate of hypofractionation was attributable to the practice level, 21% to the provider level, and 28% to the patient level. On multivariable analysis, hypofractionation was more likely in patients who were older (odds ratio [OR] 2.16 for age ≥ 50 years, $P = .007$), less likely in those with larger body habitus (OR 0.52 if separation between tangent entry and exit ≥ 25 cm, $P = .002$), and more likely without chemotherapy receipt (OR 3.82, $P < .001$). Hypofractionation use was not higher in the last

6 months analyzed: 79 of 252 (31%) from June 2013 to December 2013 and 204 of 661 (31%) from October 2011 to May 2013 (P=.9). Conclusions: Hypofractionated regimens of whole-breast radiation therapy have been variably administered in the adjuvant setting in Michigan after the publication of long-term trial results and consensus guidelines. Most of this variability is explained at the practice and provider level rather than by patient-level features, although care is being individualized to some degree. (C) 2014 Elsevier Inc.

Jawad MS, Vance SM, **Grills IS**, Ye H, Prausa SK, Wloch J and **Yan D** (2014). "Variability of interfraction target motion during conventional and hypofractionated lung radiation therapy." International Journal of Radiation Oncology Biology Physics 90: S23-S24.

[Full-Text](#)

Department of Radiation Oncology

Jinna S and **Zarouk SS** (2015). "Calciophylaxis in chronic kidney disease with history of gastric bypass." American Journal of Kidney Diseases 65(4): A46.

[Full-Text](#)

Department of Internal Medicine

A 66-year-old female with chronic kidney disease (CKD) stage 4 presented with painful erythema over her right lower extremity for a week. Her history was significant for hypertension, type 2 diabetes mellitus, dyslipidemia, chronic atrial fibrillation, congestive heart failure, hypothyroidism, mild secondary hyperparathyroidism, anemia and gastric bypass surgery in 2003. She was on metoprolol, spironolactone, simvastatin, fenofibrate, pepcid, synthroid, ferrous sulphate, warfarin, calcitriol 0.25 mg every other day and vitamin D3 1000 U daily. Her eGFR was 19 cc/min, calcium 8.4, phosphorous 6.5, PTH 148 (Normal <69), protein C activity 50 (70-140 %) and protein S activity 75 (57-125%). Warfarin, calcitriol, and vitamin D were discontinued for suspected warfarin-induced skin necrosis vs calciophylaxis. Eventually, areas of central skin necrosis with blackish discoloration developed. Initial skin biopsy showed superficial cutaneous necrosis with scattered superficial intravascular thrombi without calcification. Her lesions progressed and were very painful. A deep skin tissue biopsy was done on day 8, and findings were consistent with calciophylaxis. Calciophylaxis is rare and seen mostly in dialysis patients. Previous studies reported a prevalence of 1-4% in dialysis patients. Risk factors include female gender, obesity, diabetes mellitus, primary hyperparathyroidism, alcoholic liver disease, connective tissue disorders, glucocorticoids, protein C or S deficiency and cancer. In one study, it has been reported that gastric bypass surgery plays a major role in developing calciophylaxis through several mechanisms including decreased calcium requiring vitamin D and Ca supplements. Our patient calcium x phosphorus product was less than 55 in the 3 years prior to her diagnosis. Her PTH was slightly elevated. Deep skin biopsy is needed to confirm the diagnosis. Our case confirm the importance of deep skin biopsy when the suspicion for calciophylaxis is high. The clinician should not exclude this diagnosis in CKD. Sodium thiosulphate dose adjustment in CKD is needed when treating calciophylaxis. Gastric bypass patients with CKD should be monitored for calciophylaxis.

Joyce B, Afonso N, Stefaniak J, Lucia V and Swanberg S (2015). "Breaking down silos: Curriculum design for interprofessional education in the preclinical health sciences," In Halupa C (ed). Transformative Curriculum Design in Health Sciences Education Hershey, PA: IGI Global. pp: 159-193.

[Request Form](#)

Department of Biomedical Sciences (OU)

Medical Library

Joyce BL, Jung D, Lucia VC, Kavanagh M and Afonso N (2015). "Developing medical student competence in intimate partner violence: A national priority." Medical Science Educator 25(3): 229-232.

[Full-Text](#)

Department of Biomedical Sciences (OU)

Department of Emergency Medicine

Administration

Kamrava M, Kuske RR, Anderson B, **Chen P**, Hayes J, Quiet C, Wang PC, Veruttipong D, Snyder M and Jeffrey Demanes D (2015). "Outcomes of breast cancer patients treated with accelerated partial breast irradiation via multicatheter interstitial brachytherapy: The Pooled Registry Of Multicatheter Interstitial Sites (PROMIS) experience." [Annals of Surgical Oncology](#). ePub Ahead of Print.

[Full-Text](#)

Department of Radiation Oncology

Purpose: To report outcomes for breast-conserving therapy using adjuvant accelerated partial breast irradiation with interstitial multicatheter brachytherapy by a cooperative group of institutions. Methods: From 1992 to 2013, a total of 1356 patients were treated with breast-conserving surgery and adjuvant accelerated partial breast irradiation using interstitial multicatheter brachytherapy. A total of 1131 patients had >1 year of data available to assess oncologic and cosmesis outcomes. Median age was 59 years old (range 22–90 years). Histologies treated included 1005 (73 %) invasive ductal carcinoma and 240 (18 %) ductal carcinoma-in situ. T stages were 18 % Tis, 75 % T1, and 8 % ≥T2. Nodal status was 73 % N0 and 6 % N1a. Estrogen receptor, progesterone receptor, and human epidermal growth factor receptor 2 was positive in 83, 70, and 6 %, respectively. Cox multivariate analysis for local control was performed using histology, age, estrogen receptor status, tumor size, grade, margin, and nodal status. Results: The mean (SD) follow-up was 6.9 years (4.3). The 10-year actuarial risk (95 % confidence interval) of an ipsilateral breast tumor recurrence was 7.6 % (5.6–10.1). Other 10-year actuarial risks (95 % confidence interval) were regional failure 2.3 % (1.4–3.7), distant metastasis 3.8 % (2.5–5.7), cause-specific survival 96.3 % (94.2–97.6), overall survival 86.5 (83.0–89.3), and new contralateral cancers 4.6 % (3.0–6.9). On multivariate analysis, high grade (hazard ratio 2.81) and positive margin status (hazard ratio 18.42) were the only two significant variables associated with an increased risk of local recurrence. Physician-reported cosmesis was excellent/good in 84 % (98 of 116) of patients with >5 years of follow-up. Conclusions: This is the largest report of outcomes with interstitial breast brachytherapy. This treatment resulted in excellent long-term local control and cosmesis outcomes. © 2015 Society of Surgical Oncology

Kamrava M, Kuske RR, **Chen P**, Hayes J, Anderson B, Quiet C, Wang PC, Veruttipong D, Snyder M and Demanes DJ (2015). "Outcomes of node positive patients treated with accelerated partial breast irradiation via interstitial multicatheter brachytherapy: The Pooled Registry Of Multicatheter Interstitial Sites (PROMIS) experience." [Brachytherapy](#) 14: S19.

[Full-Text](#)

Department of Radiation Oncology

Purpose: To determine the clinical outcomes from 5 institutions of interstitial multicatheter multiplanar brachytherapy in the treatment of node positive patients. Materials and Methods: Pooled data from five institutions with extensive experience delivering interstitial brachytherapy for accelerated partial breast irradiation (APBI) were collected for patients treated from 1992 to 2013. Of 1,274 patients who underwent APBI with interstitial brachytherapy, 82 patients were node positive and 74 patients had more than one year of follow-up and are included in this study. All patients were treated with interstitial brachytherapy (I-125 LDR [50 Gy at 52 cGy/H x96 hrs] or Iridium-192 HDR [32 or 34 Gy in 8 or 10 BID fractions]) with dose prescribed at 1.5 to 2 cm beyond the lumpectomy cavity. Nodal status was N1a/N1mic in 82/18%. Mean age was 58 +/- 9.8 years. Mean tumor size was 1.5 +/- 0.6 cm (size unknown for 4 patients). Surgical margins were >5 2 mm in 60 (81%) of patients. ER/PR/Her2 was positive in 88/68/ 7%. 68 (92%) of cases were invasive ductal carcinoma. 19 (26%) had high grade disease. 10 (14%) received adjuvant chemotherapy alone, 13 (18%) received anti-estrogen therapy alone, and 36 (49%) received both. Results: There was a median follow-up of 6.3 years (range 1.6-20 years). Data for 5/10 year actuarial local control, regional control, distant metastasis, cause specific survival, overall survival, and contralateral breast cancers are presented in Table 1. For the 5 patients with local failures 5 had N1a disease, average age was 51 years old (38-70), 3 were marginal misses, 1 elsewhere, and 1 unknown, 4 were grade 3, average tumor size was 1.9 cm (1.0-2.6), 1 was ER negative, and margin distance was <2mm in 1 case. Local and regional recurrences were not significantly impacted by the use of adjuvant chemotherapy and/or anti-estrogen therapy. Reduced distant recurrences trended towards significance (p=0.07) with the use of adjuvant chemotherapy and/or anti-estrogen therapy. Conclusions: In this collaborative project of five institutions with expertise in

delivering APBI with interstitial multicatheter brachytherapy APBI, N1a/ N1mic node positive patients had few ipsilateral breast tumor recurrences and overall excellent oncologic outcomes. These results suggest the designation of N1a/N1mic as "unsuitable" per the current ASTRO APBI consensus guidelines should be reevaluated. (Table Presented).

Kantor D, **Chancellor MB**, Snell CW, Henney HR and Rabinowicz AL (2015). "Assessment of confirmed urinary tract infection in patients treated with dalfampridine for multiple sclerosis." Postgraduate Medicine 127(2): 218-222.

[Request Form](#)

Department of Urology

Urinary tract infections (UTIs) were reported frequently with dalfampridine extended-release (dalfampridine-ER) 10 mg relative to placebo in previous multiple sclerosis (MS) studies. The objective of this study was to determine whether dalfampridine-ER is associated with increased incidence of confirmed UTIs in MS patients. This post hoc analysis used UTI data from a study comparing the 4-week safety and efficacy of 5 mg (n = 144) and 10 mg (n = 142) twice-daily dalfampridine-ER versus placebo (n = 143). To confirm UTIs, three clinical assessments were used: standard urinalysis (leukocytes > 5/high-power field); urine culture (>= 100,000 and >= 10,000 colony-forming units [CFUs]/mL) for those who reported UTIs as adverse events (AEs) or had positive urinalysis; and UTI symptomatology. Fisher's exact test assessed statistical significance. The proportion of patients who reported UTIs as AEs in the placebo and dalfampridine-ER 5 mg and 10 mg groups were 5.6%, 6.3%, and 9.9%, respectively. In comparison, those with laboratory-confirmed UTIs were lower: >= 100,000 CFUs/mL: 4.2%, 2.8%, and 2.8%; and >= 10,000 CFUs/mL: 4.2%, 3.5%, and 4.9%, respectively (no significant statistical difference across treatments). The proportion of patients with confirmed UTI was similar between dalfampridine-ER and placebo, thus suggesting that the treatment does not increase the risk of UTIs.

Karve AM, Seth M, Sharma M, Lalonde T, **Dixon S**, Wohns D and Gurm HS (2015). "Contemporary use of ticagrelor in interventional practice (from Blue Cross Blue Shield of Michigan Cardiovascular Consortium)." American Journal of Cardiology 115(11): 1502-1506.

[Full-Text](#)

Department of Internal Medicine

Ticagrelor has greater antiplatelet activity than clopidogrel and is approved for use in patients with acute coronary syndrome (ACS). There are limited data on use of ticagrelor in real-world practice. We assessed ticagrelor use in 64,600 patients who underwent percutaneous coronary intervention from January 2012 to March 2014 at 47 Michigan hospitals in the Blue Cross Blue Shield of Michigan Cardiovascular Consortium. Preprocedural risk of major adverse events was estimated with Blue Cross Blue Shield of Michigan Cardiovascular Consortium risk prediction models. The proportion of patients receiving clopidogrel, prasugrel, and ticagrelor was 72% (n = 46,864), 20% (n = 12,596), and 8% (n = 5,140), respectively, using ticagrelor increasing over time. Ticagrelor was used at 45 hospitals, ranging from 0.5% to 64.9% of discharges. Patients receiving ticagrelor were older (63.6 vs 59.4), more often women (32.9% vs 26.7%), and were more likely to present with ST-segment elevation myocardial infarction (24.4% vs 18.8%), cardiogenic shock within 24 hours (1.3% vs 0.9%), and anginal class IV (47.8% vs 43.0%) (p <0.05). Compared with prasugrel, ticagrelor was prescribed in patients with a higher predicted risk of percutaneous coronary intervention complications: contrast nephropathy (2.5% vs 1.6%), transfusion (2.2% vs 1.4%), and death (1.2% vs 0.7%) (p <0.001); >10% of patients were given prasugrel or ticagrelor for a non-ACS indication. Ticagrelor is prescribed to a higher risk population, and 1 in 10 patients prescribed ticagrelor or prasugrel did not have ACS.

Kavanagh M, Afonso NM and Holka K (2015). "Perceived value of influenza vaccination in light of personal history with recommendation for and uptake of the vaccine (iCollaborative)." MedEdPortal Resource ID 4074

[Full-Text](#)

Clinical Skills Training and Simulation Center

Department of Biomedical Sciences (OU)

The ingrained value of influenza vaccination to health care workers is an important consideration given their influence on vaccine uptake in both their patients and the general population. Prior studies have demonstrated both the value of health care provider recommendation and personal buy in by the health care provider. While training in the value of vaccine uptake can positively influence new learner attitudes towards influenza vaccination, questions remain about their ingrained attitudes influencing their acceptance of the value of the vaccine. This poster looks at how the Oakland University William Beaumont School of Medicine addressed this issue.

Kazanji N, Al Assad W, Gjeorgjievski M and **Thalla RK** (2015). "Extreme hypernatremia (254 mmol/L) and electrocardiogram findings." International Urology and Nephrology 47(5): 871-872.

[Full-Text](#)

Department of Internal Medicine

Kazanji N, Falatko J, Neupane S and **Reddy G** (2015). "Calciophylaxis presenting as digital ischemia." Internal and Emergency Medicine 10(4): 529-530.

[Full-Text](#)

Department of Internal Medicine

Killinger KA, **Boura JA** and **Diokno AC** (2014). "Exploring factors associated with sexual activity in community-dwelling older adults." Research in Gerontological Nursing 7(6): 256-U278.

[Request Form](#)

Department of Biomedical Sciences (BHS)

Department of Urology

Sexuality is an important, yet often overlooked, aspect of successful aging. The current article explores potential relationships between sexual activity in older adults and marital status, health, mobility, urinary incontinence, and caffeine and alcohol use, as well as sexual desire and erectile function in women and men, respectively. A survey was mailed to community-dwelling older adults 60 and older. Of 242 respondents (79% ages 60 to 74, 53% male), 159 (65.7%) were sexually active. A higher proportion of sexually active adults were married ($p = 0.0005$), had better health ($p = 0.0003$), and drank alcohol ($p = 0.007$). A lower proportion of sexually active adults had urinary incontinence ($p = 0.006$). Similar proportions of men and women were sexually active (62.8% and 68.2%, respectively; $p = 0.38$). Sexually active women had better sexual desire scores ($p < 0.0001$) and more drank alcohol ($p = 0.0013$). Sexually active men had better mobility ($p = 0.012$) and erectile function ($p < 0.0001$). Fewer sexually active men had incontinence ($p < 0.0001$). Only alcohol use and no urinary incontinence were predictors unique to women and men, respectively. Health care providers must be aware of factors that may impact sexual health in older adults.

Kolbe N and **Hain J** (2015). "Treatment of acute hemorrhoidal crisis using hyaluronidase with local anesthetic prior to surgical excision." Techniques in Coloproctology 19(8): 487-488.

[Full-Text](#)

Department of Surgery

Koreckij TD and **Fischgrund JS** (2015). "Degenerative spondylolisthesis." J Spinal Disord Tech 28(7): 236-241.

[Full-Text](#)

Department of Orthopedic Surgery

Degenerative spondylolisthesis (DS) is one of the more commonly encountered spine conditions. The diagnosis of DS has changed little in the last 30 years. However, there has been an evolution in the treatment of this disease entity. There have been several landmark papers that helped govern our treatment. These helped serve as the basis for the treatment arms of the Spine Patient Outcomes Research Trial (SPORT), which offers the highest quality evidence to date. Although few would argue that the fusion of the diseased segment appears to offer the best and most durable results, treatment of this disease is best tailored to the individual. Fusion may offer the best results in the young active patient, but the same results may never become evident in the medically infirm patient. Laminectomy or unilateral laminoforaminotomy still plays a

role in disease treatment. This review will focus on the diagnosis and the treatment of DS as well as discuss the author's preferred treatment of this disease.

Kraus WE, Bittner V, Appel L, Blair SN, Church T, Despres JP, **Franklin BA**, Miller TD, Pate RR, Taylor-Piliae RE, Vafiadis DK and Whitsel L (2015). "The National Physical Activity Plan: A call to action from the American Heart Association a science advisory from the American Heart Association." *Circulation* 131(21): 1932-1940.

[Full-Text](#)

Department of Internal Medicine

Krauss DJ, Hu C, Bahary JP, Souhami L, Gore EM, Chafe SMJ, Leibenhaut MH, Narayan S, Torres-Roca J, Michalski J, Zeitzer KL, Donovanik V, Sandler H, McGowan DG, Jones CU and Shipley WU (2015). "Importance of local control in early-stage prostate cancer: Outcomes of patients with positive post-radiation therapy biopsy results treated in RTOG 9408." *International Journal of Radiation Oncology Biology Physics* 92(4): 863-873.

[Full-Text](#)

Department of Radiation Oncology

Purpose The purpose of this study was to assess the association between positive post-radiation therapy (RT) biopsy results and subsequent clinical outcomes in males with localized prostate cancer. **Methods and Materials** Radiation Therapy Oncology Group study 94-08 analyzed 1979 males with prostate cancer, stage T1b-T2b and prostate-specific antigen concentrations of ≤ 20 ng/dL, to investigate whether 4 months of total androgen suppression (TAS) added to RT improved survival compared to RT alone. Patients randomized to receive TAS received flutamide with luteinizing hormone releasing hormone (LHRH) agonist. According to protocol, patients without evidence of clinical recurrence or initiation of additional endocrine therapy underwent repeat prostate biopsy 2 years after RT completion. Statistical analysis was performed to evaluate the impact of positive post-RT biopsy results on clinical outcomes. **Results** A total of 831 patients underwent post-RT biopsy, 398 were treated with RT alone and 433 with RT plus TAS. Patients with positive post-RT biopsy results had higher rates of biochemical failure (hazard ratio [HR] = 1.7; 95% confidence interval [CI] = 1.3-2.1) and distant metastasis (HR = 2.4; 95% CI = 1.3-4.4) and inferior disease-specific survival (HR = 3.8; 95% CI = 1.9-7.5). Positive biopsy results remained predictive of such outcomes after correction for potential confounders such as Gleason score, tumor stage, and TAS administration. Prior TAS therapy did not prevent elevated risk of adverse outcome in the setting of post-RT positive biopsy results. Patients with Gleason score ≥ 7 with a positive biopsy result additionally had inferior overall survival compared to those with a negative biopsy result (HR = 1.56; 95% CI = 1.04-2.35). **Conclusions** Positive post-RT biopsy is associated with increased rates of distant metastases and inferior disease-specific survival in patients treated with definitive RT and was associated with inferior overall survival in patients with high-grade tumors.

Krengel WF, Kim PH and **Wiater B** (2015). "Spontaneous ankylosis of occiput to C2 following closed traction and halo treatment of atlantoaxial rotary fixation." *Global Spine Journal* 5(3): 233-238.

[Full-Text](#)

Department of Orthopedic Surgery

Study Design Case report. **Objective** We report a case of spontaneous atlantoaxial rotatory fixation (AARF) presenting 9 months after onset in an 11-year-old boy. **Methods** This is a retrospective case report of spontaneous ankylosis of occiput to C2 following traction, manipulative reduction, and halo immobilization for refractory atlantoaxial rotatory fixation. **Results** The patient underwent traction followed by close manual reduction and placement of halo immobilization after 6 months of severe spontaneous-onset AARF that had been refractory to chiropractic manipulation and physical therapy. Imaging demonstrated dislocation of the left C1-C2 facet joint and remodeling changes of the C2 superior facet prior to reduction, followed by near complete reduction of the dislocation after manipulation and halo placement. **Symptoms and clinical appearance** were satisfactorily improved and the halo vest was removed after 3 months. At late follow-up, computed tomography demonstrated complete bony ankylosis of the occiput to C2. The patient was found to be HLA B27-positive, but he had no family history of ankylosing spondyloarthritis or other joint symptoms. The underlying reasons for spontaneous fusion of the occiput to C2 could include the traction, HLA-B27-related spondyloarthritis, or arthropathic changes caused by traction, reduction, the inciting

insult, or immobilization. Conclusion When discussing treatment of childhood refractory AARF by traction, closed manipulation, and halo immobilization, the possibility of developing spontaneous ankylosis needs to be considered.

Kuang S and Gao B (2015). "Cultured chick forebrain neurons are functionally similar to rodent counterpart." The FASEB Journal 29(1 Supplement): 841.841.

[Full-Text](#)

Department of Biomedical Sciences (OU)

Kuang SY, Huang T, Wang Z, Lin Y, Kindy M, Xi T and Gao BZ (2015). "Establishment of a long-term chick forebrain neuronal culture on a microelectrode array platform." RSC Advances 5(69): 56244-56254.

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Department of Biomedical Sciences (OU)

Biosensor systems formed by culturing primary animal neurons on microelectrode array (MEA) platforms are drawing increasing research interest for their potential as a rapid, sensitive and functional neurotoxicity assessment, as well as for many other electrophysiological related research purposes. In this paper we established a long-term chick forebrain neuron culture (C-FBN-C) on MEAs with a more than 5 month long lifespan and up to 5 month long stability in morphology and physiological functions; characterized C-FBN-C morphologically, functionally and developmentally; partially compared its functional features with its rodent counterpart; and discussed its pros and cons as a novel biosensor system in comparison to its rodent counterpart and human induced pluripotent stem cells (hiPSCs). Our results show that C-FBN-C on the MEA platform (1) can be used as a biosensor of its own type in a wide spectrum of basic biomedical research; (2) is of value in comparative physiology in cross-species studies; and (3) may have potential to be used as an alternative, cost-effective approach to its rodent counterpart within shared common functional domains (such as specific types of ligand-gated ion channel receptors and subtypes expressed in the cortical tissues of both species) in large-scale environmental neurotoxicant screening that would otherwise require millions of animals. This journal is © The Royal Society of Chemistry.

Kunapuli S, Newton MD, **Kurdziel MD**, **Baker KC** and **Verner JJ** (2015). "Complete dissociation of a dual mobility acetabular liner secondary to repeat dislocation." Current Orthopaedic Practice 26(4): 429-432.

[Full-Text](#)

Department of Surgery

Department of Orthopedic Surgery

Kurdziel MD, Moravek JE, **Wiater BP**, Davidson A, Seta J, **Maerz T**, **Baker KC** and **Wiater JM** (2015). "The impact of rotator cuff deficiency on structure, mechanical properties, and gene expression profiles of the Long Head of the Biceps Tendon (LHBT): Implications for management of the LHBT during primary shoulder arthroplasty." Journal of Orthopaedic Research 33(8): 1158-1164.

[Full-Text](#)

Department of Surgery

Department of Orthopedic Surgery

The long head of the biceps tendon (LHBT) occupies a unique proximal intra-articular and distal extra-articular position within the human shoulder. In the presence of a rotator cuff (RC) tear, the LHBT is recruited into an accelerated role undergoing potential mechanical and biochemical degeneration. Intra-articular sections of the LHBT were harvested during primary shoulder arthroplasty from patients with an intact or deficient RC. LHBTs were stained (H&E, Alcian Blue) and subjected to histologic analysis using the semiquantitative Bonar scale and measurement of collagen orientation. LHBTs (n=12 per group) were also subjected to gene-expression analyses via an RT²-PCR Profiler Array quantifying 84 genes associated with cell-cell and cell-matrix interactions. LHBTs (n=18 per group) were biomechanically tested with both stress-relaxation and load-to-failure protocols and subsequently modeled with the Quasilinear Viscoelastic (QLV) and Structural-Based Elastic (SBE) models. While no histologic differences were observed, significant differences in mechanical testing, and viscoelastic modeling parameters were found. PCR arrays

identified five genes that were differentially expressed between RC-intact and RC-deficient LHBT groups. LHBTs display signs of pathology regardless of RC status in the arthroplasty population, which may be secondary to both glenohumeral joint arthritis and the additional mechanical role of the LHBT in this population.

LaBan MM, Wang AM, Chrisman A and Lenger A (2015). "'Numb Chin" Syndrome: Mental nerve mononeuropathy resulting from a synovial temporomandibular cyst." [American Journal of Physical Medicine and Rehabilitation](#) 94(7): e65.

[Full-Text](#)

Department of Physical Medicine and Rehabilitation

Department of Diagnostic Radiology and Molecular Imaging

LaBan MM and Weinerman Z (2015). "Urogenital pruritus in association with lumbar spinal stenosis." [American Journal of Physical Medicine and Rehabilitation](#) 94(2): e19.

[Full-Text](#)

Department of Physical Medicine and Rehabilitation

Lakshmanadoss U and **Salazar M** (2015). "Use of low- dose prophylactic protamine to neutralize effect of heparin after radiofrequency ablation of atrial fibrillation." [Journal of Cardiovascular Electrophysiology](#) 26(5): 595-596.

[Full-Text](#)

Department of Internal Medicine

Lakshmanadoss U and **Salazar M** (2015). "Use of minimally interrupted newer oral anticoagulants for periprocedural anticoagulation in patients undergoing radiofrequency ablation of atrial fibrillation." [Journal of Cardiovascular Electrophysiology](#) 26(5): 595.

[Full-Text](#)

Department of Internal Medicine

Learned D, Nudleman E, Robinson J, Chang E, **Stec L, Faia LJ, Wolfe J** and **Williams GA** (2015). "Multimodal imaging of West Nile virus chorioretinitis." [Retina](#) 34(11): 2269-2274.

[Full-Text](#)

Department of Ophthalmology

Purpose: To report the results of multimodal imaging of West Nile virus chorioretinitis. Methods: Three patients with West Nile virus chorioretinitis were evaluated by color fundus photography, fluorescein angiography, enhanced depth optical coherence tomography, indocyanine green angiography, and fundus autofluorescence. Results: Imaging results demonstrate outer retinal and retinal pigment epithelial involvement with inner retinal sparing. Conclusion: Multiple fundus imaging modalities used during the diagnosis of West Nile chorioretinitis are consistent with outer retinal and pigment epithelial changes, suggesting outer retina and retinal pigment epithelium as the primary sites of ocular involvement.

Linares M, **Poley R** and **Rush D** (2015). "Numb arm baseball player." [Clinical Journal of Sport Medicine](#) 25(2): e52.

[Full-Text](#)

Department of Family Medicine

OUIWB Medical Student Author

History: A 16 y/o healthy male with no significant past medical history presented with complaints of right arm and shoulder pain, warmth and numbness for the past 4 weeks. He stated his pain started suddenly after swinging a baseball bat while up to bat in his summer league baseball game. Patient denies any trauma or direct contact injury. He reported the pain being in the right shoulder with radiation into his forearm, 2/10 in severity, dull, achy and sharp at times. He described the numbness being along the medial aspect of the upper arm and forearm, right lateral chest, and inferior to the right axilla. The numbness was persistent since the onset. Denied loss of strength or decreased ROM of the UE. No edema, erythema, or ecchymosis. No previous injury to the arm or shoulder. He had been taking Motrin 400 mg with minimal relief. He continued

to play baseball throughout the injury. A complete cervical spine x-ray was done including oblique, flexion and extension. No acute fracture, instability or malalignment was found. Physical Examination: On physical exam distal pulses were strong and symmetrical. There was no extremity deformity, or skin changes. Right arm pain was reproduced with right neck rotation, and flexion. Tenderness to palpation was present at the right neck paraspinals at C6. Positive Spurling's, 4/5 strength of the right triceps, and wrist extensors. Diminished tricep reflex on the right. Decreased sensation to dull touch and pin prick noted on the medial aspect of the upper arm. Decreased ability to detect 2 point discrimination on the right. The patient was given an 80 mg IM shot of Depo-medrol, Prednisone 10 mg daily and a referral for physical therapy. Differential Diagnosis: Rotator Cuff Tendonitis, SLAP Tear, Brachial Plexopathy, Cervical nerve compression, cervical spondylosis, Chiari Malformation. Tests and Results: On 3 weeks follow up patient had not improved, an MRI was ordered that revealed a syringohydromyelia within the spinal cord beginning at the level of C1 and extending to its widest point at C4-C6. There was also low lying cerebellar tonsils consistent with a Chiari 1 malformation. Patient was referred to neurosurgery and had a suboccipital craniectomy for decompression, microdissection and a C1 laminectomy. Patient's symptoms resolved post-surgical intervention. Final/Working Diagnosis: Syringohydromyelia and Chiari I Malformation. Treatment: Patient was referred to neurosurgery and had a suboccipital craniectomy for decompression, microdissection and a C1 laminectomy. Outcome: Patient's symptoms resolved post-surgical intervention. Return to Activity and Follow-Up: The patient was discharged 1 day following surgery after he was deemed neurologically intact and medically stable. He received instructions to gradually increase his activity level, avoiding lifting and strenuous activity. He is currently doing well and has not experienced any complications following the procedure.

Linnstaedt SD, Hu J, Bortsov AV, Soward AC, **Swor R**, Jones J, Lee D, Peak D, Domeier R, Rathlev N, Hendry P and McLean SA (2015). "μ-Opioid receptor gene A118 G variants and persistent pain symptoms among men and women experiencing motor vehicle collision." *Journal of Pain* 16(7): 637-644.

[Full-Text](#)

Department of Emergency Medicine

Abstract The μ-opioid receptor 1 (OPRM1) binds endogenous opioids. Increasing evidence suggests that endogenous OPRM1 agonists released at the time of trauma may contribute to the development of posttraumatic musculoskeletal pain (MSP). In this prospective observational study, we evaluated the hypothesis that individuals with an AG or GG genotype at the OPRM1 A118 G allele, which results in a reduced response to opioids, would have less severe MSP 6 weeks after motor vehicle collision (MVC). Based on previous evidence, we hypothesized that this effect would be sex-dependent and most pronounced among women with substantial peritraumatic distress. European American men and women ≥18 years of age presenting to the emergency department after MVC and discharged to home after evaluation (N = 948) were enrolled. Assessments included genotyping and 6-week evaluation of overall MSP severity (0-10 numeric rating scale). In linear regression modeling, a significant A118 G Allele × Sex interaction was observed: an AG/GG genotype predicted reduced MSP severity among women with substantial peritraumatic distress ($\beta = -.925$, $P = .014$) but not among all women. In contrast, men with an AG/GG genotype experienced increased MSP severity at 6 weeks ($\beta = .827$, $P = .019$). Further studies are needed to understand the biologic mechanisms mediating observed sex differences in A118 G effects. Perspective These results suggest a sex-dependent mechanism by which an emotional response to trauma (distress) contributes to a biologic mechanism (endogenous opioid release) that increases MSP in the weeks after stress exposure. These results also support the hypothesis that endogenous opioids influence pain outcomes differently in men and women.

Lundbye J, Adams MP, **Sawyer K** and Klein D (2014). "Targeted temperature management in nursing care." *Therapeutic Hypothermia and Temperature Management* 4(3): 111-114.

[Request Form](#)

Department of Emergency Medicine

Ma F, Rehman A, **Sims M** and Zeng X (2015). "Antimicrobial susceptibility assays based on the quantification of bacterial lipopolysaccharides via a label free lectin biosensor." *Analytical Chemistry* 87(8): 4385-4393.

[Full-Text](#)

Department of Internal Medicine

A label free lectin biosensor developed in our laboratory that can quantitatively measure the binding between the lectin immobilized at the carbohydrate sensor surface and the lipopolysaccharide (LPS) on Gram-negative bacteria was demonstrated for an antibiotic susceptibility assay. The biosensor utilizes a polythiophene interface containing fused quinone moieties glycosylated to form a carbohydrate platform for the immobilization of Concanavalin A (Con A) and is capable of LPS binding measurements via orthogonal quartz crystal microbalance and electrochemical readouts (EQCM). Such orthogonal transduction provides cross-validation, better sensor sensitivity, and a large dynamic range of the measurements. We have applied this label free lectin biosensor for a new antibiotic susceptibility assay by characterizing the antimicrobial activities of various antibiotics (i.e., ciprofloxacin, ceftriaxone, and tetracycline) against *Escherichia coli* W1485 as a model system. The label free biosensor allows both end point and real time measurements of antibiotic effects on the bacterial cell surface LPS, which is shown to correlate to their antibiotic effects. At the end point, after 18 h incubation of bacterial cells with these three antibiotics respectively, the bacterial LPS binding signal was reduced to 23%, 27%, and 38%, respectively, for the three antibiotics, indicating that ciprofloxacin is the most effective against this *E. coli* strain. Real time measurements at the 1 h time point showed a similar trend with a reduction of binding to 91%, 93%, and 95%, respectively. From the binding kinetics of these measurements, the relaxation time (τ) was obtained, where higher τ value means slow binding interactions between the lectin and the bacterial LPS. The obtained order of τ , (i.e., $\tau_{\text{ciprofloxacin}} > \tau_{\text{ceftriaxone}} > \tau_{\text{tetracycline}}$) again indicated that ciprofloxacin has more bactericidal activity than the other two antibiotics with the same concentrations. Thus, we are able to establish that the reduction in the binding of LPS with the lectin Con A sensor upon exposure to various antibiotics has a direct relation with the antibiotic dosages making this label free biosensor assay promising for therapeutic management of these drugs as well as for applications in antibiotic research and development. © 2015 American Chemical Society.

Mahoney AA and **Swor RA** (2015). "Usefulness of Google alerts in surveillance of school cardiac arrests." *Academic Emergency Medicine* 22(5): S127.

[Full-Text](#)

OUWB Medical Student Author

Department of Emergency Medicine

Background: Online news media have been a useful source of initial data in tracking infectious disease outbreaks. Cardiac arrests occurring in schools are highly-reported events, and currently no agency specifically tracks cardiac arrests occurring on school property. Objectives: To determine whether Google Alerts could be used to track the incidence of highly-reported events, such as cardiac arrests occurring in schools; and to describe demographics and clinical information one might gather from such reports. Methods: A new Google Alert was created for articles with keywords "school" and "cardiac arrest" beginning in January 2013. Consecutive alerts were archived, and retrospectively reviewed for all alerts received during the calendar year 2013 and presented in English. We included events occurring on school property in the US in 2013. We performed a structured review capturing patient demographics, location of event, treatment rendered and patient outcome. Results: We reviewed 194 news articles and video clips. Of these, 43 discussed cardiac events involving schools. We identified 35 unique events and 27 occurred in the US. For 22 events, the news source clearly stated the cardiac arrest occurred on school property. Of these events, 77% (17/22) involved individuals 18 or younger, with the majority (14/17, 82.5%) being male. Considering patients of all ages, 68% of events (15/22) occurred on a high school campus. Of the 17 cardiac arrests involving patients under 18, 53% (9/17) occurred during physical activity. Six arrests (35%) occurred in a classroom or office. One was unwitnessed. Details were not available for one arrest. Bystander CPR was performed in 12 cases (54.5%) and an AED was present in 12 cases. In all cases where an AED was present, the patient was resuscitated. Thirteen patients (65%) were resuscitated. Hospital outcomes data and specific diagnoses were not consistently reported. Conclusion: Media reports from Google Alerts identified a higher number of

school arrests than exist in published literature on school cardiac arrest. These reports preferentially describe pediatric events, and report higher rates of AED use and successful resuscitation. Google Alerts may be a useful adjunct for surveillance of school emergencies, but media reports lack necessary detail to monitor response to cardiac emergencies in schools.

Maisels MJ (2015). "Sister Jean Ward, phototherapy, and jaundice: a unique human and photochemical interaction." *Journal of Perinatology*. ePub Ahead of Print.

[Request Form](#)

Department of Pediatrics

Maisels MJ, Coffey MP and Kring E (2015). "Transcutaneous bilirubin levels in newborns <35 weeks' gestation." *Journal of Perinatology*. ePub Ahead of Print.

[Request Form](#)

Department of Pediatrics

Objective:In infants <35 weeks' gestation, we sought to define the transcutaneous bilirubin (TcB) levels at which a total serum bilirubin (TSB) level suggesting the need for phototherapy is unlikely to occur and a TSB measurement can, therefore, be avoided.**Study Design:**Nursing staff performed 896 TcB measurements within 1 h of a TSB on 225 neonates 26 0/7–34 6/7 weeks' postmenstrual age (PMA). Generalized linear models were fit with generalized estimating equations (GEEs) to model the probability of having a TSB level at or above the phototherapy initiation cutpoint as a function of the TcB; these methods allow for multiple tests per infant.**Results:**The mean difference between TcB and TSB measurements was <math><1 \text{ mg dl}^{-1}</math> for each PMA category. When the TcB was at least 3 mg dl⁻¹ below the TSB cutpoint for phototherapy, there was a $\geq 98\%$ probability that the TSB was not at, or above, the recommended phototherapy level. The single exception to this was a phototherapy level of 6 mg dl⁻¹ for infants of 28 0/7–29 6/7 weeks' PMA, where a TcB of 4 mg dl⁻¹ below the phototherapy level (ie a TcB $\leq 2 \text{ mg dl}^{-1}$) was necessary to achieve $\geq 98\%$ probability.**Conclusion:**Our data support the use of routine TcB screening for infants 28–34 6/7 weeks' gestation. TcB screening in the neonatal intensive care unit can identify infants who require a TSB to confirm or exclude the need for phototherapy.*Journal of Perinatology* advance online publication, 25 June 2015; doi:10.1038/jp.2015.34.

Mammo D, Yonekawa Y, Thomas BJ, Shah AR, Abbey AM, **Trese MT**, **Drenser KA** and **Capone A** (2015). "Association of autosomal dominant familial exudative vitreoretinopathy and spinal muscular atrophy." *European Journal of Ophthalmology*. ePub Ahead of Print.

[Request Form](#)

Department of Ophthalmology

We present an 8-month-old boy with severe retinal detachment from familial exudative vitreoretinopathy (FZD4 exon 1 deletion). He was subsequently diagnosed with spinal muscular atrophy with SMN1 deletion. beta-catenin signaling is dysregulated in both disorders, so we hypothesize that the co-occurrence may have exacerbated the vitreoretinal phenotype.

McKenney S, Bevins N, **Olariu E** and Flynn M (2015). "WE-D-204-03: A six-year longitudinal evaluation of the DICOM GSDF conformance stability of LCD monitors." *Medical Physics* 42(6): 3670.

[Full-Text](#)

Department of Diagnostic Radiology and Molecular Imaging

PURPOSE: The calibration of monitors in radiology is critical to ensure a standardized reading environment. If left unchecked, monitors initially calibrated to follow the DICOM Grayscale Standard Display Function (GSDF) can fall out of calibration. This work presents a quantitative evaluation of the stability of a cohort of monitors with similar deployment times and clinical utilization. **METHODS:** Fifty-four liquid crystal display (LCD) monitors (NEC L200ME) were deployed for clinical use in 2009. At that time, a subset of eight of these monitors were used to generate a look-up table (LUT) using the open-source software pacsDisplay. The software was used to load the LUT to the graphics card of the computer in order to make the monitors

compliant with the GSDF. The luminance response of the monitors was evaluated twice over six years, once in 2011 and again in 2015. RESULTS: As expected, the maximum luminance of the monitors decreased over time, with an average reduction from 2009 of 35% in 2011, and 53% in 2015. The luminance ratio (maximum luminance divided by the minimum) also decreased, with the all of the decrease occurring in the first two years (average 20%). There was an overall increase in relative error compared with the DICOM GSDF from measurement to measurement, indicating that deviation from the GSDF increases with monitor luminance reduction. Along with changes in luminance, several other issues were identified during the testing, including non-uniformities, bad pixels, and missing calibration software. CONCLUSION: From the initial installation of these monitors, most of the degradation occurred during the first two years, highlighting the importance of routine clinical testing of displays. Following such quality assurance, displays could be either re-calibrated or replaced depending on different thresholds. In addition, other issues not related to luminance could be identified and corrected.

Mi M and Stefaniak JE (2015). "Knowledge management of medical information resources and tools," In Stefaniak JE (ed). Cases on Human Performance Improvement Technologies; IGI Global. pp: 244-269.

[Request Form](#)

Medical Library

Michelotti MM, **Gupta C** and Hood CT (2015). "Persistent amine keratopathy secondary to indirect exposure to spray polyurethane foam insulation." JAMA Ophthalmology 133(6): e1584.

[Request Form](#)

Department of Ophthalmology

Min JK, Dunning A, Gransar H, Achenbach S, Lin FY, Al-Mallah M, Budoff MJ, Callister TQ, Chang HJ, Cademartiri F, Maffei E, **Chinnaiyan K**, Chow BJW, D'Agostino R, Delago A, Friedman J, Hadamitzky M, Hausleiter J, Hayes SW, Kaufmann P, Raff GL, Shaw LJ, Thomson L, Villines T, Cury RC, Feuchtner G, Kim YJ, Leipsic J, Marques H, Berman DS and Pencina M (2015). "Medical history for prognostic risk assessment and diagnosis of stable patients with suspected coronary artery disease." American Journal of Medicine 128(8): 871-878.

[Full-Text](#)

Department of Internal Medicine

Objective To develop a clinical cardiac risk algorithm for stable patients with suspected coronary artery disease based upon angina typicality and coronary artery disease risk factors. Methods Between 2004 and 2011, 14,004 adults with suspected coronary artery disease referred for cardiac imaging were followed: 1) 9093 patients for coronary computed tomography angiography (CCTA) followed for 2.0 years (CCTA-1); 2) 2132 patients for CCTA followed for 1.6 years (CCTA-2); and 3) 2779 patients for exercise myocardial perfusion scintigraphy (MPS) followed for 5.0 years. A best-fit model from CCTA-1 for prediction of death or myocardial infarction was developed, with integer values proportional to regression coefficients. Discrimination was assessed using C-statistic. The validated model was tested for estimation of the likelihood of obstructive coronary artery disease, defined as $\geq 50\%$ stenosis, as compared with the method of Diamond and Forrester. Primary outcomes included all-cause mortality and nonfatal myocardial infarction. Secondary outcomes included prevalent angiographically obstructive coronary artery disease. Results In CCTA-1, best-fit model discriminated individuals at risk of death or myocardial infarction (C-statistic 0.76). The integer model ranged from 3 to 13, corresponding to 3-year death risk or myocardial infarction of 0.25% to 53.8%. When applied to CCTA-2 and MPS cohorts, the model demonstrated C-statistics of 0.71 and 0.77, respectively. Both best-fit ($C = 0.76$; 95% confidence interval [CI], 0.746-0.771) and integer models ($C = 0.71$; 95% CI, 0.693-0.719) performed better than Diamond and Forrester ($C = 0.64$; 95% CI, 0.628-0.659) for estimating obstructive coronary artery disease. Conclusions For stable symptomatic patients with suspected coronary artery disease, we developed a history-based method for prediction of death and obstructive coronary artery disease.

Minhas A, Jiang Q, Gu X, Haymart K, Kline-Rogers E, **Almany S**, Kozlowski J, Krol GD, Kaatz S, Froehlich JB and Barnes GD (2015). "Stability of renal function in patients with atrial fibrillation switched from warfarin to target-specific oral anticoagulants." Journal of Thrombosis and Haemostasis 13: 904.

[Full-Text](#)

Department of Internal Medicine

Mogrovejo E, Manickam P, **Polidori G** and **Cappell MS** (2014). "Dislodgement of variceal bands after esophageal balloon tamponade for variceal bleeding." Annals of Hepatology 13(6): 832-837.

[Request Form](#)

Department of Internal Medicine

A 43-year-old male with alcoholic cirrhosis underwent EGD for hematemesis which revealed bleeding, grade II, lower esophageal varices that were endoscopically ligated with 6 bands. All the bands remained attached to varices at the completion of EGD. Despite apparent initial hemostasis, balloon tamponade was performed one hour later for suspected continued bleeding. Due to suspected continuing bleeding, EGD was repeated 4 h after initial EGD, and 3 h after balloon tamponade. This EGD revealed the esophageal varices; none of the bands remaining on esophageal mucosa; multiple mucosal stigmata likely from trauma at initial site of variceal bands before dislodgement; and 3 dislodged bands in gastric body, duodenal bulb, or descending duodenum. The patient expired 17 h thereafter from hypovolemic shock. This single report may suggest an apparently novel, balloon tamponade complication: dislodgement of previously placed, endoscopic bands. The proposed pathophysiology is release of bands by stretching entrapped, esophageal mucosa during esophageal balloon tamponade. This complication, if confirmed, might render balloon tamponade a less desirable option very soon after band ligation.

Mortazie M, **Malhotra R** and Stewart D (2015). "Multiple glomangiomas." Journal of the American Academy of Dermatology 72(5): AB54.

[Full-Text](#)

Department of Pathology

Glomus tumors (GTs) are hamartomas that originate from normal glomus cells. Glomus cells are modified smooth muscle cells involved in arteriovenous anastomoses and play a role in temperature regulation. There are two forms of glomus tumors, with the more common solitary variant accounting for 90% of cases and a more rare multiple variant, termed glomangioma, accounting for 10% of cases. We report a case of a 19-year-old Caucasian man with a medical history of cholinergic urticaria and asthma who presented to our clinic with multiple blue lesions over his flank, shoulder, and thigh. The lesion on the flank had been present since birth, while the other lesions had developed over the past few years. He had no history of gastrointestinal bleeding and no known family history of similar lesions. Physical examination revealed multiple 3- to 8-cm blue, subcutaneous nodules on the left posterior flank, right posterior shoulder, and the left medial thigh. These nodules were noncompressible and tender upon deep palpation. A punch biopsy of the right posterior shoulder revealed distended vascular channels with benign endothelium surrounded by uniformly round glomus cells, present throughout the reticular dermis. The endothelial cells were positive for CD31 and surrounding glomus cells positive for smooth muscle actin and myosin. An MRI of the left flank revealed that the mass extended to the superficial subcutis. The patient was referred to plastic surgery for removal of the lesion on the left posterior flank. This case illustrates a rare hamartoma that may present at multiple sites. Glomangiomas may also occur at extracutaneous sites, most commonly involving the gastrointestinal tract. In patients with widespread lesions, platelet sequestration is of concern. A complete blood count and fecal occult blood may be indicated. Glomangiomas may be treated with surgical excision or laser therapy, using pulsed dye or neodymium-doped yttrium aluminum garnet lasers.

Mueller ER, Litman H, Rickey LR, **Sirls L**, Norton P, Wilson T, Moalli P, Albo M and Zimmern P (2015). "Comparison of flowrates and voided volumes during non-instrumented uroflowmetry and pressure-flow studies in women with stress incontinence." Neurourology and Urodynamics 34(6): 549-553.

[Full-Text](#)

Department of Urology

Aims The Blaivas-Groutz nomogram defines voiding obstruction in women using Q_{max} from the NIF and the maximum detrusor pressure (P_{detmax}) from the PFS. The aim of this study was to understand the relationship between NIF and PFS maximum flow rates in women with stress incontinence. **Methods** We analyzed the UDS of 597 women with stress-dominant urinary incontinence. Each subject underwent a NIF and then a PFS. Mixed model was used to test the hypothesis that the relationship between flow rates and voided volume (VV) were similar for NIF and PFS. **Results** There were 452 subjects with both NIF and PFS studies that met the inclusion criteria and had max flow rate (Q_{max}) for both NIF and PFS. The mean age was 53. Overall, higher VV were observed during PFS compared to NIF and subjects had higher Q_{max} with NIF compared to PFS. The relationship between Q_{max} and VV was significantly different between NIF and PFS ($P < 0.004$). At 200ml, NIF Q_{max} was 14% higher than PFS Q_{max} and this difference increased to 30% at 700ml. **Conclusion** The difference between PFS Q_{max} and NIF Q_{max} increases as VV increase. As a result, values from PFS and NIF cannot be used interchangeably as has been suggested in the Blaivas-Groutz nomogram for obstruction in women.

Muthusamy A, Krishnamoorthi R, Manickam P and **Cappell M** (2014). "Effects of individual components of metabolic syndrome on GERD prevalence in a national study of 125,029 patients: Diabetes, but not hypertension or hyperlipidemia, significantly increases the risk of GERD independent of obesity." [American Journal of Gastroenterology](#) 109: S12.

[Request Form](#)

Department of Internal Medicine

Nebolisa BC, Isenberg EE, Domeier RM, **Swor R**, Hendry PL, Peak DA, Rathlev NK, Jones JS, Lee DC, McLean SA and Platts-Mills TF (2015). "Post-traumatic stress disorder among elderly motor vehicle collision victims receiving care in the emergency department." [Journal of the American Geriatrics Society](#) 63: S247.

[Full-Text](#)

Department of Emergency Medicine

Introduction: Post-traumatic stress disorder (PTSD) is a common and preventable cause of disability. We sought to characterize risk factors for and consequences of PTSD among older adults following MVC. **Methods:** We conducted a longitudinal study of adults aged 65 years or older presenting to 1 of 8 US EDs following MVC and discharged home. PTSD symptoms were assessed at 6 months using the Impact of Event Scale - Revised (IES-R). **Results:** Of 136 participants, 40% (95% CI, 31%-47%) had an IES-R score of 33 or more, indicating significant PTSD symptoms. Individuals reporting severe pain or a perception that the MVC was life-threatening at time of ED evaluation were at increased risk for PTSD symptoms. Participants with PTSD symptoms were at higher risk for functional decline, persistent pain, and subsequent hospitalization (Table). **Conclusion:** Among older patients discharged home following MVC, PTSD symptoms were common and associated with adverse health outcomes. (Table Presented).

Nebolisa BC, Isenberg EE, Domeier RM, **Swor RA**, Hendry PL, Peak DA, Rathlev NK, Jones JS, Lee DC, McLean SA and Platts-Mills TF (2015). "Post-traumatic stress disorder among elderly motor vehicle collision victims receiving care in the emergency department: A prospective study." [Academic Emergency Medicine](#) 22(5): S119.

[Full-Text](#)

Department of Emergency Medicine

Background: Post-traumatic stress disorder (PTSD) is a common and preventable cause of disability and can occur following motor vehicle collision (MVC). MVC is the second most common mechanism of trauma among older adults, but little is known about PTSD after MVC in this population. **Objectives:** We sought to characterize risk factors for and consequences of PTSD among older adults who received care and were discharged from an ED following MVC. **Methods:** We conducted a prospective longitudinal study of adults aged 65 years or older who presented to one of eight US EDs following MVC and were discharged home. Participants were interviewed in the ED and then contacted by phone or mail 6 months following their ED visit. PTSD symptoms were assessed at 6 months using the Impact of Event Scale - Revised (IES-R). Consistent with prior work, an IES-R score of 33 or more was used to indicate PTSD. Relationships between

PTSD and outcomes were adjusted for patient age, sex, race, and ED pain severity. (Table presented) Results: Of the 136 participants who completed the 6-month interview, 40% (95% CI, 31%-47%) had an IES-R score of 33 or more. Individuals reporting moderate or severe vehicle damage, severe pain in the ED, and a perception that the MVC was life-threatening at the time of the ED evaluation were at increased risk for PTSD at 6 months. Participants with PTSD were at higher risk for functional decline and disability, persistent pain, and subsequent hospitalization related to the MVC (Table 260). Conclusion: In this sample of older adults discharged home following ED evaluation for MVC, PTSD symptoms at 6 months were common and associated with multiple important adverse health outcomes. Individuals at increased risk for PTSD could be identified using information available at the time of ED evaluation. Interventions to prevent PTSD in these patients may be of value.

Nojkov B and Cappell MS (2015). "Gastrointestinal bleeding from Dieulafoy's lesion: Clinical presentation, endoscopic findings, and endoscopic therapy." World J Gastrointest Endosc 7(4): 295-307.

[Full-Text](#)

Department of Internal Medicine

Although relatively uncommon, Dieulafoy's lesion is an important cause of acute gastrointestinal bleeding due to the frequent difficulty in its diagnosis; its tendency to cause severe, life-threatening, recurrent gastrointestinal bleeding; and its amenability to life-saving endoscopic therapy. Unlike normal vessels of the gastrointestinal tract which become progressively smaller in caliber peripherally, Dieulafoy's lesions maintain a large caliber despite their peripheral, submucosal, location within gastrointestinal wall. Dieulafoy's lesions typically present with severe, active, gastrointestinal bleeding, without prior symptoms; often cause hemodynamic instability and often require transfusion of multiple units of packed erythrocytes. About 75% of lesions are located in the stomach, with a marked proclivity of lesions within 6 cm of the gastroesophageal junction along the gastric lesser curve, but lesions can also occur in the duodenum and esophagus. Lesions in the jejunum or colon have been increasingly reported. Endoscopy is the first diagnostic test, but has only a 70% diagnostic yield because the lesions are frequently small and inconspicuous. Lesions typically appear at endoscopy as pigmented protuberances from exposed vessel stumps, with minimal surrounding erosion and no ulceration (visible vessel sans ulcer). Endoscopic therapy, including clips, sclerotherapy, argon plasma coagulation, thermocoagulation, or electrocoagulation, is the recommended initial therapy, with primary hemostasis achieved in nearly 90% of cases. Dual endoscopic therapy of epinephrine injection followed by ablative or mechanical therapy appears to be effective. Although banding is reportedly highly successful, it entails a small risk of gastrointestinal perforation from banding deep mural tissue. Therapeutic alternatives after failed endoscopic therapy include repeat endoscopic therapy, angiography, or surgical wedge resection. The mortality has declined from about 30% during the 1970's to 9%-13% currently with the advent of aggressive endoscopic therapy.

Nojkov B, Ghaith G and Cappell M (2014). "Simultaneous occurrence of eosinophilic esophagitis and esophageal granular cell tumor: Two case reports." American Journal of Gastroenterology 109: S247.

[Request Form](#)

Department of Internal Medicine

O'Neill WW, Schreiber T, Wohns DHW, Rihal C, Naidu SS, Civitello AB, **Dixon SR**, Massaro JM, Maini B and Ohman EM (2014). "The current use of impella 2.5 in acute myocardial infarction complicated by cardiogenic shock: Results from the USpella Registry." Journal of Interventional Cardiology 27(1): 1-11.

[Full-Text](#)

Department of Internal Medicine

Objectives: To evaluate the periprocedural characteristics and outcomes of patients supported with Impella 2.5 prior to percutaneous coronary intervention (pre-PCI) versus those who received it after PCI (post-PCI) in the setting of cardiogenic shock (CS) complicating an acute myocardial infarction (AMI). Background: Early mechanical circulatory support may improve outcome in the setting of CS complicating an AMI. However, the optimal timing to initiate hemodynamic support has not been well characterized. Methods: Data from 154 consecutive patients who underwent PCI and Impella 2.5 support from 38 US hospitals participating in

the USpella Registry were included in our study. The primary end-point was survival to discharge. Secondary end-points included assessment of patients' hemodynamics and in-hospital complications. A multivariate regression model was used to identify independent predictors for mortality. Results: Both groups were comparable except for diabetes (P = 0.02), peripheral vascular disease (P = 0.008), chronic obstructive pulmonary disease (P = 0.05), and prior stroke (P = 0.04), all of which were more prevalent in the pre-PCI group. Patients in the pre-PCI group had more lesions (P = 0.006) and vessels (P = 0.01) treated. These patients had also significantly better survival to discharge compared to patients in the post-PCI group (65.1% vs. 40.7%, P = 0.003). Survival remained favorable for the pre-PCI group after adjusting for potential confounding variables. Initiation of support prior to PCI with Impella 2.5 was an independent predictor of in-hospital survival (Odds ratio 0.37, 95% confidence interval: 0.17-0.79, P = 0.01) in multivariate analysis. The incidence of in-hospital complications included in the secondary end-point was similar between the 2 groups. Conclusions: The results of our study suggest that early initiation of hemodynamic support prior to PCI with Impella 2.5 is associated with more complete revascularization and improved survival in the setting of refractory CS complicating an AMI.

Opolski MP, Hartaigh BÓ, Berman DS, Budoff MJ, Achenbach S, Al-Mallah M, Andreini D, Cademartiri F, Chang HJ, **Chinnaiyan K**, Chow BJW, Hadamitzky M, Hausleiter J, Feuchtner G, Kim YJ, Kaufmann PA, Leipsic J, Maffei E, Pontone G, **Raff G**, Shaw LJ, Villines TC and Min JK (2015). "Current trends in patients with chronic total occlusions undergoing coronary CT angiography." Heart. ePub Ahead of Print.

[Request Form](#)

Department of Internal Medicine

Objective Data describing the prevalence, characteristics and management of coronary chronic total occlusions (CTOs) in patients undergoing coronary CT angiography (CCTA) have not been reported. The purpose of this study was to determine the prevalence, characteristics and treatment strategies of CTO identified by CCTA. Methods We identified 23 745 patients who underwent CCTA for suspected coronary artery disease (CAD) from the prospective international CCTA registry. Baseline clinical data were collected, and allocation to early coronary revascularisation performed within 90 days of CCTA was determined. Multivariable hierarchical mixed-effects logistic regression reporting OR with 95% CI was performed. Results The prevalence of CTO was 1.4% (342/23 745) in all patients and 6.2% in patients with obstructive CAD ($\geq 50\%$ stenosis). The presence of CTO was independently associated with male sex (OR 3.12, 95% CI 2.39 to 4.08, $p < 0.001$), smoking (OR 2.02, 95% CI 1.55 to 2.64, $p < 0.001$), diabetes (OR 1.60, 95% CI 1.22 to 2.11, $p = 0.001$), typical angina (OR 1.51, 95% CI 1.12 to 2.06, $p = 0.008$), hypertension (OR 1.47, 95% CI 1.14 to 1.88, $p = 0.003$), family history of CAD (OR 1.30, 95% CI 1.01 to 1.67, $p = 0.04$) and age (OR 1.06, 95% CI 1.05 to 1.07, $p < 0.001$). Most patients with CTO (61%) were treated medically, while 39% underwent coronary revascularisation. In patients with severe CAD ($\geq 70\%$ stenosis), CTO independently predicted revascularisation by coronary artery bypass grafting (OR 3.41, 95% CI 2.06 to 5.66, $p < 0.001$), but not by percutaneous coronary intervention ($p = 0.83$). Conclusions CTOs are not uncommon in a contemporary CCTA population, and are associated with age, gender, angina status and CAD risk factors. Most individuals with CTO undergoing CCTA are managed medically with higher rates of surgical revascularisation in patients with versus without CTO. © 2015 BMJ Publishing Group Ltd & British Cardiovascular Society.

Orgocka Z, Koerber J and **Smythe M** (2015). "Evaluation of a heparin-induced thrombocytopenia management protocol." Pharmacotherapy 35(5): E80-E81.

[Full-Text](#)

Department of Biomedical Sciences (BHS)

Osheroff N, Niederhoffer EC, **Sabina RL**, Cline SD, Wimmer MJ, Franklin DS, Diekman AB, Hogg T, Kearney KR, King SC, Pearson D, Slaughter CA and Thompson K (2015). "Teaching biochemistry to students of medicine, pharmacy and dentistry." Medical Science Educator: 1-5. ePub Ahead of Print.

[Full-Text](#)

Department of Biomedical Sciences (OU)

Otaki Y, Gransar H, Cheng VY, Dey D, Labounty T, Lin FY, Achenbach S, Al-Mallah M, Budoff MJ, Cademartiri F, Callister TQ, Chang HJ, **Chinnaiyan K**, Chow BJW, Delago A, Hadamitzky M, Hausleiter J, Kaufmann P, Maffei E, Raff G, Shaw LJ, Villines TC, Dunning A, Cury RC, Feuchtner G, Kim YJ, Leipsic J, Berman DS and Min JK (2015). "Gender differences in the prevalence, severity, and composition of coronary artery disease in the young: A study of 1635 individuals undergoing coronary CT angiography from the prospective, multinational confirm registry." European Heart Journal-Cardiovascular Imaging 16(5): 490-499.

[Full-Text](#)

Department of Internal Medicine

Objective Prior studies examining coronary atherosclerosis in the young have been limited by retrospective analyses in small cohorts. We examined the relationship between cardiovascular risk factors (RFs) and prevalence and severity of coronary atherosclerosis in a large, prospective, multinational registry of consecutive young individuals undergoing coronary computerized tomographic angiography (CCTA). Method and results Of 27 125 patients undergoing CCTA, 1635 young (<45 years) individuals without known coronary artery disease (CAD) or coronary anomalies were identified. Coronary plaque was assessed for any CAD, obstructive CAD ($\geq 50\%$ stenosis), and presence of calcified plaque (CP) and non-calcified plaque (NCP). Among 1635 subjects (70% men, age 38 +/- 6 years), any CAD, obstructive CAD, CP, and NCP were observed in 19, 4, 5, and 8%, respectively. Compared with women, men demonstrated higher rates of any CAD (21 vs. 12%, $P < 0.001$), CP (6 vs. 3%, $P = 0.01$), and NCP (9 vs. 5%, $P = 0.008$), although no difference was observed for rates of obstructive CAD (5 vs. 4%, $P = 0.46$). Any CAD, obstructive CAD, and NCP were higher for young individuals with diabetes, hypertension, dyslipidaemia, current smoking, or family history of CAD; while only diabetes and dyslipidaemia were associated with CP. Increasing cardiovascular RFs was associated with a greater prevalence and extent and severity of CAD, with individuals with 0, 1, 2, ≥ 3 RFs manifesting a dose-response increase in any CAD ($P < 0.001$, for trend), obstructive CAD ($P < 0.001$, for trend), NCP ($P < 0.001$, for trend), and CP ($P < 0.001$, for trend). In multivariable analysis adjusting for sex and cardiovascular RFs, male sex was the strongest predictor for any CAD (odds ratio [OR] = 1.95, 95% confidence interval [CI] = 1.43-2.66, $P < 0.001$), CP (OR = 1.46, 95% CI = 1.08-1.98, $P = 0.01$), and NCP (OR = 1.33, 95% CI = 1.06-1.67, $P = 0.01$); family history of CAD was the strongest predictor for obstructive CAD (OR = 2.71, 95% CI = 1.65-4.45, $P < 0.001$). Conclusion Any and obstructive CAD is present in 1 in 5 and 1 in 20 young individuals, respectively, with family history associated with the greatest risk of obstructive CAD.

Paich K, Dunn R, Skolarus T, Montie J, Palapattu G, **Wood D**, Mitchell S, Hola V, Erickson K, Shifferd J and Wittmann D (2015). "Acceptance of a pre-operative educational seminar about recovery from side-effects after prostate cancer surgery." Journal of Sexual Medicine 12: 116.

[Full-Text](#)

Department of Urology

Pamplona MDC, Silis SC, **Ysunza PA** and Morales S (2015). "Metacognitive strategies for enhancing language development in children with cleft palate." European Journal of Plastic Surgery. ePub Ahead of Print.

[Full-Text](#)

Department of Physical Medicine and Rehabilitation

Background: Children born with cleft palate frequently show compensatory articulation errors (CA), and they are also at risk for language delays. There is a need of studies on speech-language intervention in this patient group. The purpose of this paper is to study metacognitive strategies for enhancing language development in children with cleft palate. Methods: Twenty-six children with unilateral cleft lip and palate (UCLP) were studied and divided in two groups. The age of the patients ranged from 5 to 8 years. Language and articulation measurements for evaluating language development were made at the beginning and the end of the study. Both groups were treated with previously reported strategies routinely used for enhancing language. In addition, children from one group (active group) were exposed to metacognitive strategies which have been described as useful for enhancing expert thinking processes, such as think-aloud. For evaluating language development, all children were analyzed using the Situational-Discourse-Semantic Model. Results: The results indicate that children with UCLP and CA benefit from an intervention which also addresses specific aspects of language development. The patients included in the active group in which the

metacognitive strategies were used showed a greater improvement as compared with the patients from the control group. Conclusions: Intervention in children with cleft palate and CA should address not only the articulation processes, but also specific aspects of language development. Metacognitive strategies could be an adequate option for enhancing language performance in this patient group. Level of Evidence: Level III, therapeutic study

Pandya HK, **Faia LJ**, Robinson J and **Drenser KA** (2015). "Macular development in aggressive posterior retinopathy of prematurity." BioMed Research International 26(3): 1-5.

[Request Form](#)

Department of Ophthalmology

Purpose. To report anatomic outcomes after early and confluent laser photocoagulation of the entire avascular retina, including areas in close proximity to the fovea, in patients with APROP. We aspire to demonstrate fundoscopic evidence of transverse growth and macular development following laser treatment in APROP. Methods. Retrospective review of 6 eyes with APROP that underwent confluent laser photocoagulation of the entire avascular retina. Photographic fundoscopic imaging was performed using the RetCam to compare outcomes after treatment. Results. Mean birth weight and gestational age were 704.8 g and 24.33 weeks, respectively. There were 2 females and 1 male. The average time to laser was 9.3 weeks after birth, with the mean postmenstrual age of 34 weeks. Two eyes had zone 1 and 4 eyes had posterior zone 2 disease. Three eyes developed 4A detachments, which were successfully treated. All 6 eyes experienced transverse growth, with expansion of the posterior pole and anterior displacement of the laser treatment. Conclusion. Confluent photocoagulation of the entire avascular retina, regardless of foveal proximity, should be the mainstay for treating APROP. Examination should be conducted within 5-10 days to examine areas previously hidden by neovascularization to ensure prudent therapy. Macular development involves both transverse and anterior-posterior growth.

Parsh J, Seth M, Aronow H, **Dixon S**, Heung M, Mehran R and Gurm HS (2015). "Choice of estimated glomerular filtration rate equation impacts drug-dosing recommendations and risk stratification in patients with chronic kidney disease undergoing percutaneous coronary interventions." Journal of the American College of Cardiology 65(25): 2714-2723.

[Full-Text](#)

Department of Internal Medicine

Background Multiple equations exist to estimate glomerular filtration rate (GFR); however, there is no consensus on which is superior for risk classification in patients with chronic kidney disease (CKD) undergoing percutaneous coronary intervention (PCI). Objectives The goals of this study were to identify which equation to estimate GFR is superior for predicting adverse outcomes after PCI and to examine how equation selection would impact drug-dosing recommendations. Methods Estimated GFR (eGFR) was calculated with the Cockcroft-Gault, Modification of Diet in Renal Disease Study (MDRD), and Chronic Kidney Disease Epidemiology Collaboration (CKD-EPI) equations for 128,805 patients undergoing PCI in the state of Michigan. Agreement between patient pre-PCI eGFR estimates and resultant CKD stage classifications, their ability to discriminate post-procedural in-hospital clinical outcomes, and the impact of equation choice on dosing recommendations for commonly used antiplatelet and antithrombotic medications were investigated. Results CKD-EPI best discriminated post-PCI mortality by receiver operator characteristic analysis. There was wide variability in eGFR, which persisted after grouping by CKD stages. Reclassification by CKD-EPI resulted in net reclassification index improvement for acute kidney injury and new requirement for dialysis. Equation choice affected drug-dosing recommendations, with the formulas agreeing for only 50.3%, 40.0%, and 34.3% of potentially impacted patients for eGFR cutoffs of <60, <50, and <30 ml/min/1.73 m², respectively. Conclusions Different eGFR equations result in CKD stage reclassification that has major clinical implications for predicting adverse outcomes after PCI and drug-dosing recommendations. Our results support the use of CKD-EPI for risk stratification among patients undergoing PCI.

Pauls RN, Crisp CC, Oakley SH, Westermann LB, Mazloomdoost D, Kleeman SD, Ghodsi V and **Estanol MV** (2015). "Effects of dexamethasone on quality of recovery following vaginal surgery: A randomized trial." [American Journal of Obstetrics and Gynecology](#). ePub Ahead of Print.

[Full-Text](#)

Department of Obstetrics and Gynecology

Objective: Dexamethasone is a corticosteroid with minimal side effects that may improve quality of recovery. We sought to evaluate standard use of this medication prior to vaginal reconstructive surgery. **Study Design:** This was a double-blind, randomized, placebo-controlled trial of women undergoing vaginal reconstructive surgery for pelvic organ prolapse. Patients scheduled for an intraperitoneal vaginal vault suspension, with general anesthesia and an overnight stay, were enrolled. The intervention arm received dexamethasone 60 minutes prior to surgery, and controls received placebo. Postoperative pain medications, antiemetics, and voiding trials were standardized. Our primary outcome was the difference in Quality of Recovery (QoR-40) scores on postoperative day 1. Secondary measures included Postoperative Nausea and Vomiting Intensity scores, and visual analog scales for nausea/vomiting, and pain. Our power calculation demonstrated 31 subjects in each group would be necessary to document difference in QoR-40 scores; to allow for attrition, a goal of 74 subjects was set. **Results:** Seventy-four women were enrolled and randomized. Two withdrew, 9 were excluded, and 63 were analyzed (36 placebo, 27 dexamethasone). The mean age was 63 years. No significant differences were noted among demographics other than American Society for Anesthesiologists class; there were greater numbers of dexamethasone subjects that were class 3 (5 vs 11; $P = .030$). Postoperatively, more patients in the placebo group required promethazine as a rescue antiemetic for control of their nausea/vomiting (11 vs 2; $P = .029$). Placebo subjects also failed their voiding trials more frequently, which remained following a logistic regression controlling for suburethral sling (30 vs 15; $P = .037$). Regarding the QoR-40 following surgery, the emotional state domain declined less in dexamethasone patients (-14.3, interquartile range [IQR], 16.8 vs -4.6, IQR, 20.1; $P = .042$), indicating better symptoms. Whereas pain scales were similar, the visual analog scales for nausea/vomiting was lower in dexamethasone subjects (0.7; IQR, 4.1 vs 0.4; IQR, 1.4; $P = .042$). Postoperative Nausea and Vomiting Intensity scores were not significantly different; nevertheless, twice as many placebo subjects had severe range symptoms (4 vs 2; $P = .47$). No adverse effects from the dexamethasone were noted. **Conclusion:** Use of dexamethasone prior to vaginal reconstructive surgery was associated with less nausea/vomiting and need for antiemetics as well as greater success with voiding trials. Furthermore, quality of recovery was enhanced, suggesting use of dexamethasone should be considered for these patients.

Peters KM, Jayabalan N, Bui D, Killinger K, **Chancellor M** and Tyagi P (2015). "Effect of sacral neuromodulation on outcome measures and urine chemokines in interstitial cystitis/painful bladder syndrome patients." [LUTS: Lower Urinary Tract Symptoms](#) 7(2): 77-83.

[Full-Text](#)

Department of Urology

Objectives: Sacral neuromodulation (SNM) may improve interstitial cystitis/painful bladder syndrome (IC/BPS) symptoms of urinary frequency, urgency and perhaps even pain, but objective measures of improvement are lacking. We evaluated the potential for urinary chemokines to serve as measures of treatment response over time to SNM. **Methods:** Women with IC/BPS undergoing SNM consented for this study. Three-day bladder/pain diaries were collected at baseline and validated Interstitial Cystitis Symptom Problem Index (ICSPI) scores and mid-stream urine specimens were collected at baseline and at 24 weeks after successful implant. Collected urine was screened for infection by dipstick and analyzed for chemokines by luminex xMAP analysis. **Results:** At baseline ($n = 16$), urine levels of CXCL-1 positively correlated with pain score ($r = 0.63$, $P = 0.009$), urgency ($r = 0.61$, $P = 0.01$), ICSPI ($r = 0.43$, $P = 0.09$) and daily voids ($r = 0.44$, $P = 0.08$). ICSPI and pain scores also positively correlated with sIL-1ra ($r = 0.50$, $P = 0.04$) and monocyte chemoattractant protein-1 (MCP-1) or CCL2 positively correlated with daily voids ($r = 0.45$, $P = 0.07$) only. At 24 weeks, the median ICSPI index fell from 28 to 15 ($n = 7$, $P = 0.008$). Urine levels of sIL-1ra (633.8 ± 188.2 vs. 149.9 ± 41.62 pg/mL) and MCP-1 (448.3 ± 11.6 vs. 176.9 ± 46.16 pg/mL) and CCL5 (20.78 ± 4.09 vs. 11.21 ± 4.12 pg/mL) were also significantly reduced at the follow-up relative to baseline values ($P = 0.04$). Multivariable analysis of data revealed that sIL-1ra and MCP-1 together explained the majority of variance in

data. Levels of CXCL-1, CXCL-10, interleukin (IL)-8, vascular endothelial growth factor (VEGF), platelet-derived growth factor (PDGF) were also reduced at 24weeks, but differences were not significant. Conclusions: Concomitant decrease in urine levels of chemokines especially MCP-1 was associated with treatment response of SNM. These results support the role of chemokines as downstream effectors of neuromodulation response and could serve as potential non-invasive measures of treatment response. Clinical Trial Registration Number: NCT01739946.

Petrucelli N, Mange S, Fulbright JL, Dohany L, **Zakalik D** and Duquette D (2015). "To reflex or not: Additional BRCA1/2 testing in Ashkenazi Jewish individuals without founder mutations." Journal of Genetic Counseling 24(2): 285-293.

[Full-Text](#)

Department of Internal Medicine

This study determined the prevalence of non-Ashkenazi Jewish BRCA1/2 mutations in the Ashkenazi Jewish population in the state of Michigan, current provider testing practices, and the use of mutation probability models in determining which Ashkenazi Jewish individuals should be offered further analysis following negative BRCA1/2 founder testing. Testing patterns, mutation probabilities, and testing results were assessed for 327 Ashkenazi Jewish individuals seen for BRCA1/2 counseling in the state of Michigan who underwent testing for the Ashkenazi Jewish founder mutations. Only one (0.6 %) Ashkenazi Jewish individual with sequencing after negative founder analysis was found to have a non-founder mutation; no rearrangements were identified. Testing patterns varied by clinic, with the proportion of Ashkenazi Jewish individuals undergoing additional sequencing ranging from 22.2 to 92.9 %. In Ashkenazi Jewish individuals with a pre-test BRCAPRO risk calculation, the mean risk was significantly higher in those with follow-up sequencing compared to those who did not pursue additional testing. The low prevalence of non-founder BRCA1/2 mutations in Ashkenazi Jewish individuals does not warrant automatically reflexing to full analysis after negative mutation testing. Increased use of mutation probability models may aid in determining which cases warrant additional testing. © 2014, National Society of Genetic Counselors, Inc.

Peulen H, Belderbos J, Guckenberger M, Hope A, **Grills I**, van Herk M and Sonke JJ (2015). "Target delineation variability and corresponding margins of peripheral early stage NSCLC treated with stereotactic body radiotherapy." Radiotherapy and Oncology 114(3): 361-366.

[Full-Text](#)

Department of Radiation Oncology

Purpose: To quantify the target delineation variability in peripheral early stage lung cancer treated with SBRT and derive corresponding margins. Methods and materials: Sixteen early stage NSCLC GTV's were delineated by 11 radiation oncologists from 4 institutes. A median surface was computed and the delineation variation perpendicular to this surface was measured (local standard deviation = SD). The overall target delineation variability was quantified by the root-mean-square (rms) of the local SD. The required margin was determined by expanding all delineations to encompass the median surface, where after the underlying probability distribution was modeled by a number of uncorrelated 'pimples-and-dimples'. Results: The overall target delineation variability was 2.1 mm (rms). Institute I-III delineated significantly smaller volumes than institute IV, yielding target delineation variabilities of 1.2 mm and 1.8 mm respectively. The margin required to obtain 90% coverage of the delineated contours was 3.4 mm and 5.9 mm respectively. The factor α in $M = \alpha \Sigma$ required to calculate adequate margins was 2.8-3.2, which is larger than the 2.5 found for 3D rigid target displacement. Conclusion: A relatively small target delineation uncertainty of 1.2 mm-1.8 mm (1SD) was observed for early stage NSCLC. A 3.4-5.9 mm GTV-to-PTV margin was required to account for this uncertainty alone, ignoring other sources of geometric uncertainties. (c) 2015 Elsevier Ireland Ltd. All rights reserved.

Platts-Mills TF, Flannigan SA, Bortsov AV, Smith S, Domeier RM, **Swor RA**, Hendry PL, Peak DA, Rathlev NK, Jones JS, Lee DC, Keefe FJ, Sloane PD and McLean SA (2015). "Persistent pain among older adults discharged home from the emergency department after motor vehicle crash: A prospective cohort study." [Annals of Emergency Medicine](#). ePub Ahead of Print.

[Full-Text](#)

Department of Emergency Medicine

Study objective: Motor vehicle crashes are the second most common form of trauma among older adults. We seek to describe the incidence, risk factors, and consequences of persistent pain among older adults evaluated in the emergency department (ED) after a motor vehicle crash. Methods: We conducted a prospective longitudinal study of patients aged 65 years or older who presented to one of 8 EDs after motor vehicle crash between June 2011 and June 2014 and were discharged home after evaluation. ED evaluation was done through in-person interview; follow-up data were obtained through mail-in survey or telephone call. Pain severity (0 to 10 scale) overall and for 15 parts of the body were assessed at each follow-up point. Principal component analysis was used to assess the dimensionality of the locations of pain data. Participants reporting pain severity greater than or equal to 4 attributed to the motor vehicle crash at 6 months were defined as having persistent pain. Results: Of the 161 participants, 72% reported moderate to severe pain at the ED evaluation. At 6 months, 26% of participants reported moderate to severe motor vehicle crash-related pain. ED characteristics associated with persistent pain included acute pain severity; pain located in the head, neck, and jaw or lower back and legs; poor self-rated health; less formal education; pre-motor vehicle crash depressive symptoms; and patient's expected time to physical recovery more than 30 days. Compared with individuals without persistent pain, those with persistent pain were substantially more likely at 6-month follow-up to have also experienced a decline in their capacity for physical function (73% versus 36%; difference=37%; 95% confidence interval [CI] 19% to 52%), a new difficulty with activities of daily living (42% versus 17%; difference=26%; 95% CI 10% to 43%), a 1-point or more reduction in overall self-rated health on a 5-point scale (54% versus 30%; difference=24%; 95% CI 6% to 41%), and a change in their living situation to obtain additional help (23% versus 8%; difference=15%; 95% CI 2% to 31%). Conclusion: Among older adults discharged home from the ED post-evaluation after a motor vehicle crash, persistent pain is common and frequently associated with functional decline and disability.

Purohit T and **Cappell MS** (2015). "Primary biliary cirrhosis: Pathophysiology, clinical presentation and therapy." [World Journal of Hepatology](#) 7(7): 926-941.

[Full-Text](#)

Department of Internal Medicine

Primary biliary cirrhosis (PBC) is an autoimmune, slowly progressive, cholestatic, liver disease characterized by a triad of chronic cholestasis, circulating anti-mitochondrial antibodies (AMA), and characteristic liver biopsy findings of nonsuppurative destructive cholangitis and interlobular bile duct destruction. About 10% of PBC patients, however, lack AMA. A variant, called PBC-autoimmune hepatitis (AIH) overlap, is characterized by the above findings of PBC together with findings of elevated serum alanine aminotransferase, elevated serum immunoglobulin G, and circulating anti-smooth muscle antibodies, with liver biopsy demonstrating periportal or periseptal, lymphocytic, piecemeal necrosis. PBC is hypothesized to be related to environmental exposure in genetically vulnerable individuals. It typically occurs in middle-aged females. Prominent clinical features include fatigue, pruritis, jaundice, xanthomas, osteoporosis, and dyslipidemia. The Mayo Risk score is the most widely used and best prognostic system. Ursodeoxycholic acid is the primary therapy. It works partly by reducing the concentration and injury from relatively toxic bile acids. PBC-AIH overlap syndrome is treated with ursodeoxycholic acid and corticosteroids, especially budesonide. Obeticholic acid and fibrate are promising new, but incompletely tested, therapies. Liver transplantation is the definitive therapy for advanced disease, with about 70% 10-year survival after transplantation. Management of pruritis includes local skin care, dermatologist referral, avoiding potential pruritogens, cholestyramine, and possibly opioid antagonists, sertraline, or rifaximin. Management of osteoporosis includes life-style modifications, administration of calcium and vitamin D, and alendronate. Statins are relatively safe to treat the osteopenia associated with PBC. Associated Sjogren's syndrome is treated by artificial tears, cyclosporine ophthalmic emulsion to stimulate tear production; and saliva

substitutes, cholinergic agents, and scrupulous oral and dental care. Complications of cirrhosis from advanced PBC include esophageal varices, ascites, spontaneous bacterial peritonitis, hepatorenal syndrome, and hepatoma formation. © The Author(s) 2015. Published by Baishideng Publishing Group Inc.

Putnam A, Gu XK, Haymart B, Kline-Rogers E, **Almany S**, Kozlowski J, Krol G, Kaatz S, Froehlich JB and Barnes GD (2015). "The changing characteristics of atrial fibrillation patients treated with warfarin." *Vascular Medicine* 20(3): 295-296.

[Full-Text](#)

Department of Internal Medicine

Rajaraman R, Lerner J, **Arndt D**, McArthur D, Fischer J, Zeiger M, Choe M and Giza C (2015). "Predictive model for early post traumatic seizures in the PICU." *Epilepsy Currents* 15: 568.

[Request Form](#)

Department of Pediatrics

Rationale: Traumatic brain injury (TBI) affects over 500,000 children per year. A large proportion of these patients suffer from early post traumatic seizures (EPTS), defined as a seizure occurring <7 days post-injury. EPTS may indicate a more severe injury or an ongoing process such as an acute hemorrhage, hypoxia, or cerebral edema. Studies report that children are more prone to EPTS than adults, but these studies likely underestimated the EPTS population as there was no continuous EEG (cEEG) monitoring for subclinical seizures. In the study by Arndt and Lerner (2013), possible risk factors for EPTS were identified. In further analyzing the risk factors established in this study cohort, multimodal inference modeling was utilized to identify those with the greatest risk for subclinical seizures and status epilepticus (SE) in pursuit of establishing a predictive model for other institutions. Methods: Consecutive acute TBI patients requiring PICU admission from October 2008-April 2014 at UCLA Medical Center and July 2009 - May 2010 at Children's Hospital of Colorado were consented, placed on cEEG monitoring, and treated with PICU standard of care. All patients had a CT scan during the acute phase. The cohort was evaluated for variables that clinicians typically suspect as possible risk factors for EPTS, including age, gender, Glasgow Coma Scale, clinical seizure in the field, CT scan findings, and mechanism of injury. Statistical analyses were performed using R software (version 2.15.2) (R Core Team [2013]). Results: Of our cohort (n=135), 29% of patients had seizures (39/135), 12.6% having subclinical seizures (17/135), and 11% with subclinical SE (15/135). Abusive head trauma (AHT) was the leading mechanism for subclinical seizures (53.8%). Patients with AHT were 48x more likely to develop subclinical seizures versus other mechanisms (OR, 47.9; 95% CI 11.46-360.89). Additionally, all patients with subclinical seizures had intradural (blood below the dura mater) bleeding on CT scan (17/17). Using multimodal inference modeling, the leading risk factors for subclinical seizures were GCS, young age, and intradural bleed. For subclinical SE, gender was an additional risk factor. Conclusions: Continuous EEG monitoring in pediatric TBI patients significantly decreases morbidity as it is the only method for detecting subclinical seizures, which occurred in 12.6% of this cohort. This study validated the initial Arndt-Lerner study in terms of suspected variables for EPTS. Risk factors, determined by multimodal inference modeling, include GCS, young age, and intradural bleed for subclinical seizures, and additionally, gender for subclinical SE. This data demonstrates the risk for subclinical seizures is greatest for patients <2 years old with intradural blood and/or AHT as the injury of mechanism. Future analyses will include validation of these predictive variables using an independent institutional cohort to create a positive predictive model for EPTS in children.

Rao P, Shah AR, Michelotti MM, Anderson B, Abbey AM, Jain N, **Stec L**, Lowe L, Johnson MW and **Williams GA** (2015). "Bilateral acute endophthalmitis associated with munchausen syndrome." *Retinal Cases and Brief Reports* 9(2): 177-180.

[Request Form](#)

Department of Ophthalmology

Purpose: Endophthalmitis is a potentially blinding intraocular infection that requires urgent intervention. Self-inflicted endophthalmitis is rare, difficult to diagnose, and requires a multidisciplinary approach for management. The purpose is to present a rare case of sequential self-inflicted acute endophthalmitis as a

feature of Munchausen syndrome. Methods: This is a case report reviewing imaging and laboratory studies. Results: A 42-year-old female patient developed culture-proven acute endophthalmitis sequentially in both eyes with different bacterial strains. There was clear evidence of self-inflicted corneal puncture tracks in the right eye, and during the course of inpatient psychiatric evaluation, the patient admitted to self-inflicted ocular perforations. Conclusion: Patients with Munchausen syndrome often injure themselves as a method of drawing attention, sympathy, or reassurance. Although ocular injuries due to psychiatric disease are known to occur, intraocular injection as a mode of self-injury is extremely rare. A high index of suspicion must be maintained when the reported history and clinical course are inconsistent.

Rao P, Thomas BJ, Yonekawa Y, Robinson J and **Capone A** (2015). "Peripheral retinal ischemia, neovascularization, and choroidal infarction in Wyburn-Mason syndrome." JAMA Ophthalmology 133(7): 852-854.

[Full-Text](#)

Department of Ophthalmology

Redshaw S, Ingham V and **Loftus S** (2015). "Emergency decision making: An exploration of tensions between communities of practice." International Journal of Emergency Management 11(1): 62-75.

[Request Form](#)

Department of Biomedical Sciences (OU)

Through the lens of 'communities of practice' (Wenger, 2000) we examined decision-making boundaries and tensions in multiagency settings. Sixteen semi-structured interviews were conducted with operational decision makers from services across Australia. Data analysis was contextual and narrative, focusing on meanings signifying cultures and practices. Results indicate that protocols and guidelines which provide boundaries for a community of practice, could at times become an obstacle. Participants reported difficulties in sharing a 'common level of understanding' and 'getting the bigger picture'. The strongest theme was the importance placed on building relationships between services prior to emergency events. We found capability of multiagency decision making is enhanced when informal multiagency networks are already in place. These networks contribute to building a shared understanding. We propose that multiagency communities of practice could be enhanced if services increased their level of formal multiagency engagement and promoted the informal multiagency networking of their members and teams.

Reygaert W (2015). "An overview of the genetic causes of frontotemporal degeneration." Journal of Clinical Medicine Research Updates 2: 4-14.

[Request Form](#)

Department of Biomedical Sciences (OU)

Many neurodegenerative diseases (NDDs) have been thought to be caused mainly by conditions that were not controlled by genetic inheritance. Extensive research into these diseases has recently discovered that perhaps a majority of them have genetic inheritance components. Once thought to be a rare form of NDD, frontotemporal degeneration (FTD) is now considered to be the main cause of early onset NDD, and the information on genetic causes and inheritance has increased dramatically over the last 10 years. The main genes that have been found to be involved in frontotemporal degeneration, MAPT, TARDBP, GRN C9orf72, VCP, FUS, and CHMP2B, have also been found in related diseases such as Alzheimer's disease, Amyotrophic Lateral Sclerosis, and Parkinson's disease. This paper is intended as an updated review of the genetic causes of FTD. This information should aid physicians and scientists in understanding the current concepts, and encourage even more genetic testing so that a full knowledge of genetic inheritance in FTD will be soon be forthcoming.

Reygaert W (2015). "Potential for prevention of infection by green tea," In Powell N (ed). Green tea and health: antioxidant properties, consumption and role in disease prevention Hauppauge, NY: Nova Science Pub Inc.

[Request Form](#)

Department of Biomedical Sciences (OU)

Rihal CS, Naidu SS, Givertz MM, Szeto WY, Burke JA, Kapur NK, Kern M, Garratt KN, **Goldstein JA**, Dimas V and Tu T (2015). "2015 SCAI/ACC/HFSA/STS clinical expert consensus statement on the use of percutaneous mechanical circulatory support devices in cardiovascular care (Endorsed by the American Heart Association, the Cardiological Society of India, and Sociedad Latino Americana de Cardiologia Intervencion; Affirmation of Value by the Canadian Association of Interventional Cardiology - Association Canadienne de Cardiologie d'intervention)." Journal of Cardiac Failure 21(6): 499-518.

[Full-Text](#)

Department of Internal Medicine

Although historically the intra-aortic balloon pump has been the only mechanical circulatory support device available to clinicians, a number of new devices have become commercially available and have entered clinical practice. These include axial flow pumps, such as Impella[®]; left atrial to femoral artery bypass pumps, specifically the TandemHeart; and new devices for institution of extracorporeal membrane oxygenation. These devices differ significantly in their hemodynamic effects, insertion, monitoring, and clinical applicability. This document reviews the physiologic impact on the circulation of these devices and their use in specific clinical situations. These situations include patients undergoing high-risk percutaneous coronary intervention, those presenting with cardiogenic shock, and acute decompensated heart failure. Specialized uses for right-sided support and in pediatric populations are discussed and the clinical utility of mechanical circulatory support devices is reviewed, as are the American College of Cardiology/American Heart Association clinical practice guidelines.

Rihal CS, Naidu SS, Givertz MM, Szeto WY, Burke JA, Kapur NK, Kern M, Garratt KN, **Goldstein JA**, Dimas V and Tu T (2015). "2015 SCAI/ACC/HFSA/STS clinical expert consensus statement on the use of percutaneous mechanical circulatory support devices in cardiovascular care: Endorsed by the American Heart Association, the Cardiological Society of India, and Sociedad Latino Americana de Cardiologia intervencion; Affirmation of value by the Canadian Association of Interventional Cardiology-Association Canadienne de Cardiologie d'intervention." Journal of the American College of Cardiology 65(19): e7-e26.

[Full-Text](#)

Department of Internal Medicine

Although historically the intra-aortic balloon pump has been the only mechanical circulatory support device available to clinicians, a number of new devices have become commercially available and have entered clinical practice. These include axial flow pumps, such as Impella[®]; left atrial to femoral artery bypass pumps, specifically the TandemHeart; and new devices for institution of extracorporeal membrane oxygenation. These devices differ significantly in their hemodynamic effects, insertion, monitoring, and clinical applicability. This document reviews the physiologic impact on the circulation of these devices and their use in specific clinical situations. These situations include patients undergoing high-risk percutaneous coronary intervention, those presenting with cardiogenic shock, and acute decompensated heart failure. Specialized uses for right-sided support and in pediatric populations are discussed and the clinical utility of mechanical circulatory support devices is reviewed, as are the American College of Cardiology/American Heart Association clinical practice guidelines.

Rihal CS, Naidu SS, Givertz MM, Szeto WY, Burke JA, Kapur NK, Kern M, Garratt KN, **Goldstein JA**, Dimas V, Tu T, Scai, Hfsa, Sts, Aha and Acc (2015). "2015 SCAI/ACC/HFSA/STS clinical expert consensus statement on the use of percutaneous mechanical circulatory support devices in cardiovascular care (Endorsed by the American heart association, the cardiological society of India, and sociedad latino americana de cardiologia intervencion; Affirmation of value by the Canadian Association of Interventional Cardiology-Association Canadienne de Cardiologie d'intervention)." Catheterization and Cardiovascular Interventions 85(7): E175-E196.

[Full-Text](#)

Department of Internal Medicine

Although historically the intra-aortic balloon pump has been the only mechanical circulatory support device available to clinicians, a number of new devices have become commercially available and have entered clinical practice. These include axial flow pumps, such as Impella (R); left atrial to femoral artery bypass pumps, specifically the TandemHeart; and new devices for institution of extracorporeal membrane

oxygenation. These devices differ significantly in their hemodynamic effects, insertion, monitoring, and clinical applicability. This document reviews the physiologic impact on the circulation of these devices and their use in specific clinical situations. These situations include patients undergoing high-risk percutaneous coronary intervention, those presenting with cardiogenic shock, and acute decompensated heart failure. Specialized uses for right-sided support and in pediatric populations are discussed and the clinical utility of mechanical circulatory support devices is reviewed, as are the American College of Cardiology/American Heart Association clinical practice guidelines. (c) 2015 by The Society for Cardiovascular Angiography and Interventions, The American College of Cardiology Foundation, The Heart Failure Society of America, and The Society for Thoracic Surgery.

Rihal CS, Naidu SS, Givertz MM, Szeto WY, Burke JA, Kapur NK, Kern M, Garratt KN, **Goldstein JA**, Dimas V, Tu T, Scai, Hfsa, Sts, Aha and Acc (2015). "2015 SCAI/ACC/HFSA/STS clinical expert consensus statement on the use of percutaneous mechanical circulatory support devices in Cardiovascular Care (Endorsed by the American heart association, the Cardiological society of India, and Sociedad Latino Americana de Cardiologia Intervencionista; Affirmation of value by the Canadian association of interventional Cardiology-association Canadienne de Cardiologie d'intervention)." Catheterization and Cardiovascular Interventions 85(7): 1112-1114.

[Full-Text](#)

Department of Internal Medicine

This article provides a brief summary of the relevant recommendations and references related to percutaneous mechanical circulatory support. The goal was to provide the clinician with concise, evidence-based contemporary recommendations, and the supporting documentation to encourage their application. The full text includes disclosure of all relevant relationships with industry for each writing committee member. A fundamental aspect of all expert consensus statements is that these carefully developed, evidence-based documents can neither encompass all clinical circumstances, nor replace the judgment of individual physicians in management of each patient. The science of medicine is rooted in evidence, and the art of medicine is based on the application of this evidence to the individual patient. This expert consensus statement has adhered to these principles for optimal management of patients requiring percutaneous mechanical circulatory support. (c) 2015 by The Society for Cardiovascular Angiography and Interventions, The American College of Cardiology Foundation, the Heart Failure Society of America, and The Society of Thoracic Surgeons.

Rihal CS, Naidu SS, Givertz MM, Szeto WY, Burke JA, Kapur NK, Kern M, Garratt KN, **Goldstein JA**, Dimas V, Tu T, Soc Cardiovasc Angiography I, Heart Failure Soc Amer H, Soc Thoracic Surg STS, Amer Heart Assoc AHA and Amer Coll Cardiology ACC (2015). "2015 SCAI/ACC/HFSA/STS Clinical Expert Consensus Statement on the Use of Percutaneous Mechanical Circulatory Support Devices in Cardiovascular Care (Endorsed by the American Heart Association, the Cardiological Society of India, and Sociedad Latino Americana de Cardiologia Intervencion; Affirmation of Value by the Canadian Association of Interventional Cardiology-Association Canadienne de Cardiologie d'intervention)." Journal of Cardiac Failure 21(6): 499-518.

[Full-Text](#)

Department of Internal Medicine

Although historically the intra-aortic balloon pump has been the only mechanical circulatory support device available to clinicians, a number of new devices have become commercially available and have entered clinical practice. These include axial flow pumps, such as Impel le; left atrial to femoral artery bypass pumps, specifically the Tandem Heart; and new devices for institution of extracorporeal membrane oxygenation. These devices differ significantly in their hemodynamic effects, insertion, monitoring, and clinical applicability. This document reviews the physiologic impact on the circulation of these devices and their use in specific clinical situations. These situations include patients undergoing high-risk percutaneous coronary intervention, those presenting with cardiogenic shock, and acute decompensated heart failure. Specialized uses for right-sided support and in pediatric populations are discussed and the clinical utility of mechanical circulatory support devices is reviewed, as are the American College of Cardiology/American Heart Association clinical practice guidelines.

Rihal CS, Naidu SS, Givertz MM, Szeto WY, Burke JA, Kapur NK, Kern M, Garratt KN, **Goldstein JA**, Dimas V, Tu T, Soc Cardiovasc Angiography I, Heart Failure Soc Amer H, Soc Thoracic Surg STS, Amer Heart Assoc AHA and Amer Coll Cardiology ACC (2015). "2015 SCAI/ACC/HFSA/STS Clinical Expert Consensus Statement on the Use of Percutaneous Mechanical Circulatory Support Devices in Cardiovascular Care Endorsed by the American Heart Association, the Cardiological Society of India, and Sociedad Latino Americana de Cardiologia Intervencionista; Affirmation of Value by the Canadian Association of Interventional Cardiology-Association Canadienne de Cardiologie d'intervention." Journal of the American College of Cardiology 65(19): 2140-2141.

[Full-Text](#)

Department of Internal Medicine

Riofrio D, **Zhou J**, Ma L and Luan S (2015). "TU-AB-201-04: Optimizing the number of catheter implants and their tracks for prostate HDR brachytherapy." Medical Physics 42(6): 3594.

[Full-Text](#)

Department of Radiation Oncology

PURPOSE: In prostate HDR brachytherapy, interstitial implants are placed manually on the fly. The aim for this research is to develop a computer algorithm to find optimal and reliable implant trajectories using minimal number of implants. METHODS: Our new algorithm mainly uses these key ideas: (1) positive charged static particles are uniformly placed on the surface of prostate and critical structures such as urethra, bladder, and rectum. (2) Positive charged kinetic particles are placed at a cross-section of the prostate with an initial velocity parallel to the principal implant direction. (3) The kinetic particles move through the prostate, interacting with each other, spreading out, while staying away from the prostate surface and critical structures. The initial velocity ensures that the trajectories observe the curvature constraints of typical implant procedures. (4) The final trajectories of kinetic particles are smoothed using a third-degree polynomial regression, which become the implant trajectories. (5) The dwelling times and final dose distribution are calculated using least-distance programming. RESULTS: (1) We experimented with previously treated cases. Our plan achieves all prescription goals while reducing the number of implants by 41%! Our plan also has less uniform target dose, which implies a higher dose is delivered to the prostate. (2) We expect future implant procedures will be performed under the guidance of such pre-calculated trajectories. To assess the applicability, we randomly perturb the tracks to mimic the manual implant errors. Our studies showed the impact of these perturbations are negligible, which is compensated by the least distance programming. CONCLUSIONS: We developed a new inverse planning system for prostate HDR therapy that can find optimal implant trajectories while minimizing the number of implants. For future work, we plan to integrate our new inverse planning system with an existing needle tracking system.

Rodenbaugh D, Jung D, Augustyniak R and **Sabina R** (2015). "Carbon monoxide poisoning team-based learning (Peer Reviewed)." MedEdPortal Publication No. 10110

[Full-Text](#)

Department of Biomedical Sciences (OU)

Department of Emergency Medicine

This resource was developed to serve as an experiential Team-Based Learning (TBL) exercise to enable first-year medical students to apply foundational concepts related to hemoglobin structure/function and acid-base balance to the pathophysiology of carbon monoxide poisoning. TBL modules are essential components of our pre-clinical curriculum, and this particular module has been delivered near the end of the first semester in the second of two consecutive integrated basic science courses. Most recently, it was delivered at the beginning of the second semester in the Heme/Lymph course following the re-positioning of this course at the beginning of our organ system curriculum. This resource is directed primarily at pre-clerkship medical students and other healthcare professions students at comparable early levels of training, and uses TBL as the instructional method.

Rogers AM and **Swor R** (2015). "Usefulness of Google alerts in surveillance of school cardiac arrests." Academic Emergency Medicine 22(5): S362.

[Full-Text](#)

Department of Emergency Medicine

Background: Online news media have been a useful source of initial data in tracking infectious disease outbreaks. Cardiac arrests occurring in schools are highly-reported events, and currently no agency specifically tracks cardiac arrests occurring on school property. Objectives: To determine whether Google Alerts could be used to track the incidence of highly-reported events, such as cardiac arrests occurring in schools; and to describe demographics and clinical information one might gather from such reports. Methods: A new Google Alert was created for articles with keywords "school" and "cardiac arrest" beginning in January 2013. Consecutive alerts were archived, and retrospectively reviewed for all alerts received during the calendar year 2013 and presented in English. We included events occurring on school property in the US in 2013. We performed a structured review capturing patient demographics, location of event, treatment rendered and patient outcome. Results: We reviewed 194 news articles and video clips. Of these, 43 discussed cardiac events involving schools. We identified 35 unique events and 27 occurred in the US. For 22 events, the news source clearly stated the cardiac arrest occurred on school property. Of these events, 77% (17/22) involved individuals 18 or younger, with the majority (14/17, 82.5%) being male. Considering patients of all ages, 68% of events (15/22) occurred on a high school campus. Of the 17 cardiac arrests involving patients under 18, 53% (9/17) occurred during physical activity. 6 arrests (35%) occurred in a classroom or office. 1 was unwitnessed. Details were not available for 1 arrest. Bystander CPR was performed in 12 cases (54.5%) and an AED was present in 12 cases. In all cases where an AED was present, the patient was resuscitated. Thirteen patients (65%) were resuscitated. Hospital outcomes data and specific diagnoses were not consistently reported. Conclusion: Media reports from Google Alerts identified a higher number of school arrests than exist in published literature on school cardiac arrest. These reports preferentially describe pediatric events, and report higher rates of AED use and successful resuscitation. Google Alerts may be a useful adjunct for surveillance of school emergencies, but media reports lack necessary detail to monitor response to cardiac emergencies in schools.

Ross D, **Maerz T**, **Lynch J**, Norris S, **Baker K** and **Anderson K** (2014). "Rehabilitation following arthroscopic rotator cuff repair: A review of current literature." Journal of the American Academy of Orthopaedic Surgeons 22(1): 1-9.

[Full-Text](#)

Department of Surgery

Department of Orthopedic Surgery

Physical rehabilitation following arthroscopic rotator cuff repair has conventionally involved a 4- to 6-week period of immobilization; there are two schools of thought regarding activity level during this period. Some authors encourage early, more aggressive rehabilitation along with the use of a continuous passive motion device; others propose later, more conservative rehabilitation. Although some studies report trends in improved early range of motion, pain relief, and outcomes scores with aggressive rehabilitation following rotator cuff repair, no definitive consensus exists supporting a clinical difference resulting from rehabilitation timing in the early stages of healing. Rehabilitation timing does not affect outcomes after 6 to 12 months postoperatively. Given the lack of information regarding which patient groups benefit from aggressive rehabilitation, individualized patient care is warranted.

Sabesan VJ, Ackerman J, Sharma V, **Baker KC**, **Kurdziel MD** and **Wiater JM** (2015). "Glenohumeral mismatch affects micromotion of cemented glenoid components in total shoulder arthroplasty." Journal of Shoulder and Elbow Surgery 24(5): 814-822.

[Full-Text](#)

Department of Orthopedic Surgery

Department of Surgery

Background: The "rocking horse" phenomenon is considered the main cause of glenoid component loosening by eccentric loading of the glenoid rim. This study aimed to investigate the influence of increasing glenohumeral implant mismatch on bone-implant interface micromotion in a cemented all-polyethylene

pegged glenoid biomechanical model. Methods: Five glenoid sizes, 40mm, 44mm, 48mm, 52mm, and 56mm, representing +2mm, +6mm, +10mm, +14mm, and +18 mm glenohumeral mismatch, respectively, were cyclically loaded according to ASTM Standard F2028-08 at a constant frequency of 2Hz to a size-dependent humeral head subluxation translation. Additional glenoid components were cyclically loaded to their subluxation translations at a constant humeral head rate of 4.4mm/s. Component micromotion was characterized as compression, distraction, and superior-inferior translation measured by differential variable reluctance transducers. Results: During constant frequency tests, 52-mm and 56-mm glenoids were unable to complete cyclic testing because of catastrophic failure of the glenoid-implant interface and permanent glenoid deformation, probably due to increasing severity of testing parameters. When tested at a constant humeral head speed, 48-mm, 52-mm, and 56-mm glenoids had significantly increased glenoid distraction and glenoid translation at cycle 50,000 compared with cycle 1. Distraction and translation measurements for 52-mm and 56-mm glenoids were significantly greater compared with 40-mm, 44-mm, and 48-mm glenoids at 50,000 cycles. Conclusions: In a biomechanical model, optimal glenohumeral mismatch in cemented pegged glenoid implants is multifactorial and has not been definitively established. However, our data suggest that a radial mismatch of less than +10mm may decrease the risk of glenoid micromotion.

Sabesan VJ, Lombardo DJ, Khan J and **Wiater JM** (2015). "Assessment of the optimal shoulder outcome score for reverse shoulder arthroplasty." Journal of Shoulder and Elbow Surgery. ePub Ahead of Print.

[Full-Text](#)

Department of Orthopedic Surgery

Background: With growing attention being paid to quality and cost-effectiveness in health care, outcome evaluations are becoming increasingly important. This determination can be especially difficult in reverse shoulder arthroplasty (RSA) given the complex pathology and extensive disabilities in this patient population. This study evaluated the use of 3 validated questionnaires used to assess outcomes for RSA. Methods: Using a database of patients treated with RSA, we assessed preoperative and postoperative Constant-Murley Scores, American Shoulder and Elbow Surgeons Scores, and Subjective Shoulder Values in 148 shoulders. The outcomes at each scoring period were described, and the scores were compared with one another as well as with active range of motion. Results: There were no significant differences in the mean improvement of any of the scores. Improvements in all of the outcome scales were correlated with each other and with improvement in forward elevation but not with external rotation. Multivariate regression analysis the 3 outcome measures was able to predict 38.9% of the variation in improvement in functional outcomes (forward elevation). This was only slightly greater than that provided by improvements in the outcome variable Constant-Murley score alone (36.7%). Conclusions: The 3 shoulder outcome scores evaluated, regardless of whether they were patient reported or physician based, appear to appropriately reflect improvements after RSA with equal validity. The objective physician-assessed Constant-Murley score had the strongest correlation with function of the arm, and use of a combination of all 3 outcome scores did not increase the ability to predict range of motion compared with using the Constant-Murley score alone.

Sacks R, Dejong A, Brinks J, Spring T, Stemburgh L and **Franklin BA** (2014). "Cardiorespiratory responses to table tennis in low-fit coronary patients and implications for exercise training." American Journal of Cardiology 114(12): 1846-1849.

[Full-Text](#)

Department of Internal Medicine

Racquet sports may evoke excessive aerobic and/or cardiac demands for many coronary patients with impaired cardiorespiratory fitness. We evaluated the cardiorespiratory and hemodynamic responses to table tennis in clinically stable patients with coronary disease. Low-risk cardiac men (n = 10, mean +/- SD, age = 67.6 +/- 8.8 years) satisfying inclusion criteria (functional capacity <= 8 metabolic equivalents [METs] without evidence of impaired left ventricular function, significant dysrhythmias, signs and/or symptoms of myocardial ischemia, or orthopedic limitations), completed the study. Patients were monitored for heart rate (HR), blood pressure, rating of perceived exertion (6 to 20 scale), and electrocardiographic responses during a 10-minute bout of recreational table tennis. Metabolic data were directly obtained using breath-by-breath measurements of oxygen consumption. Treadmill testing in our subjects revealed an average estimated

exercise capacity of 6.8 +/- 1.4 METs. Aerobic requirements of table tennis averaged 3.2 +/- 0.5 METs; however, there was considerable variation in the oxygen consumption response to play (2.0 to 5.0 METs). Peak HR and systolic blood pressure responses during table tennis were 98.0 +/- 8.5 beats/min and 140.4 +/- 16.2 mm Hg, respectively. The average HR during table tennis represented 83% of the highest HR attained during treadmill testing. Rating of perceived exertion during table tennis averaged 10.6 +/- 1.7, signifying "fairly light" exertion. In conclusion, table tennis represents a relatively safe and potentially beneficial leisure-time activity for cardiac patients with impaired levels of cardiorespiratory fitness. The average aerobic requirement of table tennis approximated prescribed exercise training workloads for most of our patients. (C) 2014 Elsevier Inc. All rights reserved.

Sandesara PB, Lambert CT, Gordon NF, Fletcher GF, **Franklin BA**, Wenger NK and Sperling L (2015). "Cardiac rehabilitation and risk reduction." Journal of the American College of Cardiology 65(4): 389-395.

[Full-Text](#)

Department of Internal Medicine

Atherosclerotic cardiovascular disease (ASCVD) continues to increase annually in the United States along with its associated enormous costs. A multidisciplinary cardiac rehabilitation (CR) and risk reduction program is an essential component of ASCVD prevention and management. Despite the strong evidence for CR in the secondary prevention of ASCVD, it remains vastly underutilized due to significant barriers. The current model of CR delivery is unsustainable and needs significant improvement to provide cost-effective, patient-centered, comprehensive secondary ASCVD prevention. (C) 2015 by the American College of Cardiology Foundation.

Sandhu R, **Qin A** and **Yan D** (2015). "SU-E-J-67: Evaluation of adaptive MLC morphing for online correction of prostate cancer radiotherapy." Medical Physics 42(6): 3279.

[Full-Text](#)

Department of Radiation Oncology

PURPOSE: Online adaptive MLC morphing is desirable over translational couch shifts to accommodate target position as well as anatomic changes. A reliable method of adaptive MLC segment to target during prostate cancer IMRT treatment is proposed and evaluated by comparison with daily online-image guidance (IGRT) correction and online-IMRT planning. METHODS: The MLC adaptive algorithm involves following steps; move the MLC segments according to target translational shifts, and then morph the segment shape to maintain the spatial relationship between the planning-target contour and MLC segment. Efficacy of this method was evaluated retrospectively using daily-CBCT images on seven prostate patients treated with seven-beam IMRT treatment to deliver 64Gy in 20 fractions. Daily modification was simulated with three approaches; daily-IGRT correction based on implanted radio-markers, adaptive MLC morphing, and online-IMRT planning, with no-residual variation. The selected dosimetric endpoints and nEUD (normalized equivalent uniform dose to online-IMRT planning) of each organ of interest were determined for evaluation and comparison. RESULTS: For target(prostate), bladder and rectal-wall, the mean+/-sd of nEUD were 97.6%+3.2%, 103.9%+/-4.9% and 97.4%+/-1.1% for daily-IGRT correction; and 100.2%+0.2%, 108.9%+/-5.1% and 99.8%+/-1.2% for adaptive MLC morphing, respectively. For daily-IGRT correction, adaptive MLC morphing and online-IMRT planning, target D99 was <95% of the prescription dose in 30%, 0% and 0% of 140 fractions, respectively. For the rectal-wall, D5 exceeded 105% of the planned-D5 in 2.8%, 11.4% and 0% of 140 fractions, respectively. For the bladder, Dmax exceeded 105% of the planned-D5 in 2.8%, 5.6% and 0% of 140 fractions, respectively. D30 of bladder and rectal-wall were well within the planned-D30 for all three approaches. CONCLUSION: The proposed method of adaptive MLC morphing can be beneficial for the prostate patient population with large deformation and rotation. It is superior to the daily-IGRT correction, and comparable to the online-IMRT planning for dose to the target and rectal-wall.

Sandquist L, **Paris A** and **Fahim DK** (2015). "Definitive single-stage posterior surgical correction of complete traumatic spondyloptosis at the thoracolumbar junction." Journal of Neurosurgery-Spine 22(6): 653-657.

[Request Form](#)

OUIB Medical Student Author

Department of Neurology

Complete dislocation at the thoracolumbar junction is a rare occurrence, with only 4 previously reported cases in 3 separate series. Surgical procedures in the reported cases of spondyloptosis at the thoracolumbar junction have been described using instrumentation, reduction, decompression, and stabilization techniques. In this report the authors' patient presented with spondyloptosis at the thoracolumbar junction, resulting in a T-11 American Spinal Injury Association Grade A injury. The authors corrected the patient's thoracolumbar spondyloptosis with surgical reconstruction without the use of leveraged instrumented reduction. They describe a single-stage, posterior-only Spinal realignment, reconstruction, and stabilization. Within months of beginning postoperative therapy, the patient enrolled and attended courses at a local college and regained personal independence by learning to drive a motor vehicle with a hand control. Two-year radiographic and clinical follow-up confirms solid fusion across the reconstruction.

Sangal RB and Sangal JM (2015). "Use of EEG beta-1 power and theta/beta ratio over broca's area to confirm diagnosis of attention deficit/hyperactivity disorder in children." Clinical EEG and Neuroscience 46(3): 177-182.

[Full-Text](#)

Department of Family Medicine

The Food and Drug Administration has approved a medical device using the electroencephalogram (EEG) theta/beta ratio (tbr) to help assess pediatric attention deficit/hyperactivity disorder (ADHD). Tbr is reported to be higher in ADHD, with increased theta and decreased beta. This study examined theta and beta-1 power differences between ADHD and normal children, during tasks of selective attention, and elucidated topographical differences. EEGs were collected from 28 normal and 58 ADHD children, aged 6 to 14 years, using 31 scalp electrodes during auditory and visual tasks requiring selective attention. Spectral analysis was performed. Tbr was higher in ADHD than in normal children (2.60 vs 2.25, $P = .007$), with lower beta-1 (3.66 vs 4.22, $P = .01$), but no difference in theta power. There was lower beta-1 ($P < .001$) and higher tbr ($P = .002$) over Broca's area (electrode locations F7 and FC5). Beta-1 power over Broca's area was the best diagnostic test, with sensitivity 0.86 and specificity 0.57. Tbr is higher and beta-1 power lower in ADHD than in normal children, especially over Broca's area. Beta-1 power and tbr assist in confirming the diagnosis of ADHD in a sample with moderate pretest probability of ADHD.

Sawyer KN and Kurz MC (2015). "Assessing cardiac arrest beyond hospital discharge - We are only as "Good" as the outcomes we measure." Resuscitation 94(Sep): A1-A2.

[Full-Text](#)

Department of Emergency Medicine

Sawyer KN, Kurz MC and Elswick RK (2014). "An investigation of a hypothermic to ischemic ratio in patients following out-of-hospital cardiac arrest presenting with a shockable rhythm." Therapeutic Hypothermia and Temperature Management 4(2): 72-78.

[Request Form](#)

Department of Emergency Medicine

Targeted temperature management (TTM) improves outcome after out-of-hospital cardiac arrest (OHCA). We hypothesized that there may be a significant relationship between the dose of hypothermia, the time to return of spontaneous circulation (ROSC), and survival to discharge. Retrospective pilot investigation on 99 consecutive OHCA patients with initial shockable rhythm, surviving to admission, and undergoing TTM between 2008 and 2011. Dose of hypothermia was defined as the sum of the induction interval (time to target temperature [from ROSC to 33 degrees C]); the controlled hypothermia interval (from reaching 33 degrees C until rewarming); and the rewarming interval (from 33 degrees C to 37 degrees C). Time to ROSC was measured from pulselessness or 911 call time to ROSC. The ratio between the two was termed the hypothermic to ischemic ratio. Purposeful variable selection for logistic regression modeling was used to

assess the influence of the hypothermic/ischemic ratio on survival. Odds ratios (OR) were used to examine the effects of predictor variables on survival. Of 99 patients, eight were excluded for deviation from protocol, death during protocol, or missing data. From the univariate models, survivors were more likely to be younger, have a shorter time to ROSC, and have a larger hypothermic/ischemic ratio. Survivors also had a nonsignificant trend toward a longer time to target temperature. In multivariable modeling, the hypothermic/ischemic ratio was the most significant predictor for survival (OR 2.161 [95% confidence interval 1.371, 3.404]). In this pilot study, the hypothermic to ischemic ratio was significantly associated with survival to discharge for patients with an initial shockable rhythm. Further investigation of the relationship between the dose of hypothermia and time to ROSC for postresuscitation TTM is needed.

Setty P, D'Andrea KP, Stucken EZ, Babu S, Larouere MJ and **Pieper DR** (2015). "Endoscopic resection of vestibular schwannomas." Journal of Neurological Surgery, Part B: Skull Base 76(3): 230-238.

[Request Form](#)

Department of Neurosurgery

Objective To report our results and the technical details of fully endoscopic resection of vestibular schwannomas. **Design** Prospective observational study. **Setting** A single academic institution involving neurosurgery and neurotology. **Participants** Twelve consecutive patients who underwent fully endoscopic resection of a vestibular schwannoma. **Main Outcome Measures** Hearing preservation, based on the American Association of Otolaryngology-Head and Neck Surgeons (AAO-HNS) score as well as the Gardner and Robertson Modified Hearing Classification (GR). Facial nerve preservation based on the House-Brackmann (HB) score. **Results** All patients successfully underwent gross total resection. Facial nerve preservation rate was 92% with 11 of 12 patients retaining an HB score of 1/6 postoperatively. Hearing preservation rate was 67% with 8 of 12 patients maintaining a stable AAO-HNS grade and GR score at follow-up. Mean tumor size was 1.5 cm (range: 1-2 cm). No patients experienced postoperative cerebrospinal fluid leak, infection, or cranial nerve palsy for a complication rate of 0%. Mean operative time was 261.6 minutes with an estimated blood loss of 56.3 mL and average length of hospital stay of 3.6 days. **Conclusion** A purely endoscopic approach is a safe and effective option for hearing preservation surgery for vestibular schwannomas in appropriately selected patients. © 2015 Georg Thieme Verlag KG Stuttgart. New York.

Seymour EM, Warber SM, Kirakosyan A, Noon KR, Gillespie B, **Uhley VE**, Wunder J, Urcuyo DE, Kaufman PB and Bolling SF (2014). "Anthocyanin pharmacokinetics and dose-dependent plasma antioxidant pharmacodynamics following whole tart cherry intake in healthy humans." Journal of Functional Foods 11: 509-516.

[Full-Text](#)

Department of Biomedical Sciences (OU)

Anthocyanin-rich tart cherries may impart health benefits for oxidative stress and inflammation. Anthocyanin (ACN) pharmacokinetic studies often sample plasma and urine within hours of ingestion; these approaches do not reveal enterohepatic metabolites that may be critical for pharmacodynamic bioactivity. This study investigated ACN pharmacokinetics in healthy humans following intake of Montmorency tart cherries (*Prunus cerasus*). Using a within-subject crossover design, subjects (n = 12) ingested whole frozen tart cherries (45 or 90 cherries), and blood and urine samples were collected over 12 hours. LC-MS/MS identified two unmodified ACN in plasma and two ACN metabolites in urine. Intake of 45 cherries caused a biphasic antioxidant response, while 90 cherries caused a prolonged elevation over the 12 h period. The broad antioxidant peak beyond 8 h suggests that enterohepatic metabolites contribute to antioxidant pharmacodynamics. These findings should encourage extended pharmacokinetic studies with ACN-rich foods to reveal their breadth of bioavailability and bioactivity. (C) 2014 Elsevier Ltd. All rights reserved.

Sharma N and **Cappell MS** (2015). "Gastrointestinal and hepatic manifestations of ebola virus infection." Digestive Diseases and Sciences 60(9): 2590-2603.

[Full-Text](#)

Department of Internal Medicine

Aim: Although Ebola virus infection (EVI) clinically presents with common, prominent, gastroenterologic

manifestations, this subject has not been previously reviewed. This work critically and comprehensively reviews this subject. Methods: This study is a comprehensive literature review generated by computerized search of literature, supplemented by review of monographs and textbooks in pathology, gastroenterology, infectious diseases, and virology. Results: Common gastrointestinal manifestations include diarrhea—70 %, nausea and vomiting—60 %, and abdominal pain—45 %. The diarrhea and nausea and vomiting frequently produce profound, life-threatening hypovolemia requiring intravenous administration of crystalloid solutions, and frequently produce electrolyte disorders requiring electrolyte supplementation. Although gastrointestinal hemorrhage was commonly reported in early epidemics, its frequency has decreased to 10 % with prevention of disseminated intravascular coagulation. Hyperamylasemia is commonly reported, but the frequency of pancreatitis is unknown. The mean serum AST and ALT levels are each about 200/UL, with an unusual pattern for viral hepatitis of AST > ALT. The serum alkaline phosphatase averages about 160 IU/L, whereas the total bilirubin averages about 0.8 mg/dL. Risks of contracting infection during endoscopy performed on infected patients are unknown, but may be significant, as indicated by hundreds of healthcare workers contracting EVI during epidemics before instituting strict infectious control measures and anecdotal evidence of one endoscopist contracting EVI from performing endoscopy on an infected patient. Conclusions: Physicians must be vigilant for gastroenterologic manifestations of EVI for appropriate diagnosis and therapy. This work should stimulate clinicopathologic studies to improve the current understanding of the gastroenterologic pathophysiology. Endoscopy is currently not standardly recommended to evaluate diarrhea, nausea and vomiting, or abdominal pain associated with EVI due to potential risks, but may be considered for endoscopic therapy for active, life-threatening, GI hemorrhage.

Sheeran PD, Anton-Martin P, Thompson MT, **Fischer AC**, Taylor D and Thomas JA (2015). "The authors reply." *Pediatric Critical Care Medicine* 16(5): 494-495.

[Full-Text](#)

Department of Surgery

Shetty AS, Grajo JR, Decker S, Heitkamp DE, DeStigter KK, **Mezwa DG** and Deitte L (2015). "ABR core examination preparation. Results of a survey of fourth-year radiology residents who took the 2013 examination." *Academic Radiology* 22(1): 121-129.

[Full-Text](#)

Department of Diagnostic Radiology and Molecular Imaging

Rationale and Objectives: A survey was administered to fourth-year radiology residents after receiving their results from the first American Board of Radiology (ABR) Core examination in 2013. The purpose was to gather information regarding resources and study strategies to share with program directors and future resident classes. Materials and Methods: An online survey was distributed to examinees nationwide. The survey included free-response and multiple choice questions that covered examination results, perceived value of enumerated study resources, case-based and didactic teaching conferences, board reviews, study materials for noninterpretive skills, multidisciplinary conference attendance, and free-form comments. Results: Two hundred sixty-six of 1186 residents who took the Core examination responded to the survey. Some resources demonstrated a significant difference in perceived value between residents who passed the examination and residents who failed, including internal board reviews (1.10, $P < .01$), daily didactic conferences (1.51, $P < .01$), and daily case conferences (1.43, $P < .01$). Residents who passed reported that conferences and review sessions at their institutions were modified with multiple choice questions, audience response, and integration of clinical physics and patient safety topics compared to residents who failed. Conclusions: Radiology residents and residency programs have adapted their preparations for the ABR Core examination in a variety of ways. Certain practices and study tools, including daily conferences and internal board reviews, had greater perceived value by residents who passed the examination than by residents who failed. This survey provides insights that can be used to assess and modify current preparation strategies for the ABR Core examination. © 2015 AUR.

Siddiqui MR, **Abuelroos DM, Jackson RE** and Berger DA (2015). "Emergency department urosepsis and abdominal imaging." Academic Emergency Medicine 22(5): S401.

[Full-Text](#)

OUWB Medical Student Author

Department of Emergency Medicine

Background: Sepsis is an inflammatory response syndrome caused by infection, often resulting in decreased tissue perfusion and organ dysfunction. Since the advent of early goal-directed therapy (EGDT) and improving non-EGDT protocolized treatment, sepsis-associated mortality has decreased markedly. Urosepsis confers mortality of 26-30%. No protocols exist outlining appropriate use of imaging in uroseptic ED patients. Objectives: Our objective was to retrospectively evaluate uroseptic ED patients who underwent abdominal CT or US ordered by an ED provider, quantifying those requiring an emergent surgical consultation and underwent a procedure or surgery. Methods: We identified patients older than 17 years of age from January 2009 through December 2012 with an ICD-9 code for urinary obstruction or sepsis and an ICD-9 code for urinary infection or calculus. Patients also must have undergone CT or US ordered by an ED provider (N=1142). We re-reviewed each patient urinalysis (UA) to ensure it was equivocal or positive for infection, then analyzed if a patient satisfied two or more SIRS criteria. Since urosepsis can be secondary to bacteremia, we also reviewed for the presence of a positive blood culture(s) to ensure that the urosepsis itself was the primary etiology and eliminating this potential confounding factor. Results: Of the 1142 patients, 77 were excluded for having a negative UA, 167 were excluded for having less than two SIRS criteria, 320 were excluded for having positive blood culture(s) and 32 were excluded for incomplete data. 546 patients underwent review of the CT or US findings to determine the percentage who required emergent surgical consultation and the percentage who underwent a procedure or surgery. Of the 546 patients, 47% (256/546) had imaging results requiring emergency surgical consultation. 35% (189/546) underwent a procedure or surgery. An additional five patients were recommended to undergo surgery but declined. Conclusion: This retrospective descriptive study reveals that a 47% of our uroseptic population who underwent CT or US in the ED required emergent surgical consultation and 36% received a recommendation to undergo procedure or surgery. Our findings underscore the importance in performing a prospective randomized controlled trial to further study imaging in urosepsis. Limitations include that this is a retrospective study with a selection bias.

Singh D, Purohit T, **Amin M, Alexander T** and **Cappell M** (2014). "Severe hemorrhagic CMV colitis mimicking ulcerative colitis in an evidently immunocompetent elderly patient status post partial colectomy for colon cancer." American Journal of Gastroenterology 109: S425-S426.

[Request Form](#)

Department of Pathology

Department of Internal Medicine

Singh D, Purohit T, **Batke M** and **Cappell M** (2014). "Massive arterial bleeding after radiologic percutaneous gastrostomy: Successful hemostasis by angiographic embolization." American Journal of Gastroenterology 109: S266.

[Request Form](#)

Department of Internal Medicine

Singh D, Purohit T, **Batke M, Dixit PK** and **Cappell MS** (2015). "Current issue minerva gastroenterologica e dietologica." Minerva Gastroenterologica e Dietologica 61(3): 175-178.

[Request Form](#)

Department of Internal Medicine

Department of Diagnostic Radiology and Molecular Imaging

Singh D, Purohit T, **Batke M**, **Dixit PK** and **Cappell MS** (2015). "Durable hemostasis after embolization for massive arterial bleeding after percutaneous radiologic gastrostomy: Salvage of original gastrostomy tube for enteral feeding for eight months after embolization." Minerva Gastroenterologica e Dietologica 61(3): 175-178.

[Request Form](#)

Department of Internal Medicine

Department of Diagnostic Radiology and Molecular Imaging

Singh S, Manickam P, Iyer PG and **Desai TK** (2015). "Esophageal adenocarcinoma in Barrett's esophagus with low-grade dysplasia Response." Gastrointestinal Endoscopy 81(2): 484-485.

[Full-Text](#)

Department of Internal Medicine

Smorgick Y, **Baker KC**, Herkowitz H, **Montgomery D**, Badve SA, Bachison C, Ericksen S and **Fischgrund JS** (2015). "Predisposing factors for dural tear in patients undergoing lumbar spine surgery." Journal of Neurosurgery-Spine 22(5): 483-486.

[Request Form](#)

Department of Orthopedic Surgery

OBJECT The purpose of this prospective cohort study was to identify risk factors for incidental durotomies in lumbar spine surgery. The authors hypothesized that the incidence of durotomy would be higher in cases involving multiple operations. METHODS The authors prospectively evaluated 523 patients who underwent lumbar and thoracolumbar spine surgery. They compared data on patients in whom a dural tear occurred and those in whom a dural tear did not occur. Data from patients in whom a dural tear occurred were compared with data from patients who did not experience durotomy. The data included basic demographic information, intraoperative data, and clinical information from a medical record review. RESULTS One hundred thirty-one patients underwent discectomy and 392 patients underwent laminectomy. Among the 131 patients who underwent discectomy 6 patients had a dural tear. Among the 392 patients who underwent discectomy 49 patients had dural tear. Patients with incidental durotomy were older (mean 65 +/- 13 vs 60 +/- 14 years of age; p = 0.044, t-test), and had longer surgery (146 +/- 59 vs 110 +/- 54 minutes; p = 0.025, t-test), compared with the patients without dural tear. The incidence of dural tear was more common in patients with a history of previous spine surgery (p < 0.001). CONCLUSIONS In patients who underwent lumbar and thoracolumbar spine surgery for degenerative problems, previous surgery and older age were found to be predisposing factors for dural tear.

Sobolewski P, Fong A, Doherty A, Paul A and **Ogunyemi D** (2015). "Effect of pregnancy on plasma and urinary heavy metals in the national health and nutrition examination survey (NHANES) 2000-2010." Reproductive Sciences 22: 272A-273A.

[Full-Text](#)

Department of Obstetrics and Gynecology

INTRODUCTION: To determine the association between pregnancy status on plasma and urinary levels of heavy metal in adult women METHODS: Using retrospective data from NHANES 2000-2010 we identified patients responding to pregnant status n=4197. We excluded those over child bearing age of 55 years. 661 were pregnant(PG) and 3514 not pregnant(not-PG). 620 PG and 3387 not-PG had plasma heavy metals(HM) recorded. Urinary HM results were recorded for 1189 not-PG and 197 PG. Urinary HM in the database included Barium, Cadmium, Cesium Molybdenum, Cobalt, Lead, Antimony, Thallium, Tungsten, Uranium, and Mercury. Plasma HM in the database only included Lead, Cadmium, and Mercury. We compared patients using Wilcoxon rank sum tests RESULTS: All of the Plasma HM were lower in PG compared to the not-PG women, except for Mercury Inorganic which was slightly higher. PG women had lower urinary median HM levels, cadmium and Mercury with higher Barium and Cobalt compared to not PG women. The remaining urine HM variables were not statistically significantly different between these 2 groups of women. CONCLUSIONS: We report for the first time that PG may be associated with lower plasma lead, cadmium and total mercury but higher inorganic mercury when compared to not-PG cohort. Some of our urinary HM findings confirm a previous report (Table Presented).

Sobolewski P, **Kulkarni N**, Leahy J, Qu L and **Ogunyemi D** (2015). "Correlates of the lowest umbilical artery PH quartile in term singleton newborns." *Reproductive Sciences* 22: 351A.

[Full-Text](#)

OUWB Medical Student Author

Department of Obstetrics and Gynecology

INTRODUCTION: To determine obstetrical factors associated with a tendency to fetal umbilical artery acidosis. **METHODS:** Umbilical cord blood analysis is routinely performed on all deliveries in our health system. We obtained the obstetrical electronic records of over 8000 term singleton neonates delivered in 2013. We calculated the lowest quartile for the umbilical artery ph(pHA) and compared with demographic, medical, obstetrical and intrapartum factors. We used Chi-square, student T test and regression analysis as indicated. **RESULTS:** There were 5448 valid pHA results with a mean+SD of 7.27+0.064 and the lowest quartile was 7.24. Factors significantly associated with the lowest quartile pHA included higher maternal BMI, tobacco smoke, induction agents, pre-gestational diabetes, preeclampsia, Labetalol use, Magnesium sulfate use, PROM, shoulder dystocia, longer 2nd stage of labor and abnormal fetal heart rate patterns; whilst cesarean and cefalozin administration were protective. Regression analysis confirmed smoking(p=0.001), magnesium sulfate use(p=0.005), cesarean section(p=0.001), abnormal fetal heart rate(p=0.000), and second stage of labor(p=0.000) as independent predictors. **CONCLUSIONS:** There are identifiable potentially preventable and modifiable risk factors of intrapartum fetal acidosis (Table Presented).

Sobolewski P, Turner A, Davenport E, Paul A and **Ogunyemi D** (2015). "Urinary phthalate metabolites concentrations with dietary intake, demographic factors, obesity indices, insulin resistance and pregnancy status in the National Health and Nutrition Examination Survey (NHANES) 2000-2010." *Reproductive Sciences* 22: 273A.

[Request Form](#)

Department of Obstetrics and Gynecology

INTRODUCTION: To investigate phthalate exposure in adult women and the correlation with demographics, select cardiovascular, metabolic profiles and pregnancy status. **METHODS:** We used retrospective data from NHANES 2000-2010 including 235 pregnant (PG) and 1127 not pregnant (not PG) women with phthalate levels. We created an average phthalate level quartiles with the mean of 7 Mono phthalate variables. We compared average Phthalate quartiles with dietary intake, demographic factors, obesity indices, insulin resistance and PG status using Pearsons Chi-square, Fisher's Exact tests, Kruskal-Wallis tests, Jonckheere-Terpstra tests of trend (JT p). To assess pregnancy effect, we performed logistic regression analysis of the highest phthalates quartile with PG/noPG as a covariate using 4 models including urine creatinine ethnicity, Total Kcal of energy, total fats, age and smoking and waist circumference, arm circumference, BMI, Iron. **RESULTS:** Increasing age, decreasing income, single status, lack of college attainment, decreasing vitamin A intake were associated with higher phthalate levels in women. There were significant associations between higher phthalate concentrations with BMI, and obesity indices. A significant trend was noted between HOMA-IR and increasing phthalate levels. For all 4 models, PG increased the odds of having a phthalate value in the highest quartile, for model 4 OR= 2.335(1.46-3.72). **CONCLUSIONS:** Obesity indices, pregnancy and a specific demographic profile, correlate with higher phthalates exposure in adult women. (Table Presented).

Soto R and Yaldou B (2015). "The Michigan Opioid Safety Score (MOSS): A patient safety and nurse empowerment tool." *Journal of Perianesthesia Nursing* 30(3): 196-200.

[Full-Text](#)

Department of Anesthesiology

Safely treating postsurgical pain continues to be a challenge, despite more than a decade of focus on its appropriate management. Overuse of opioids and undertreatment of pain continues, as does insufficient monitoring of patients at risk for opioid and pain-related complications. It is clear that relying only on numeric subjective pain scores is inadequate when treating pain. Appropriate bedside evaluation should also include measures of respiration and sedation. Furthermore, assessment of risk should be done with initial pain assessment and continued throughout the pain management course. The recently developed Michigan

Opioid Safety Score integrates health risks and objective measures of respiratory rate and sedation, while encouraging the use of multimodal analgesia for all patients. © 2015 American Society of PeriAnesthesia Nurses.

Spilman S, Liao D, Sacco P and Moore A (2015). "Alcohol use and social networks in older adults." Journal of the American Geriatrics Society 63: S253.

[Full-Text](#)

OUWB Medical Student Author

Background: Bigger social networks and more social support are associated with alcohol consumption compared to abstinence. However, individuals with alcohol dependence have smaller and less diverse social networks compared to those with alcohol abuse disorder or no alcohol use. Because few studies have examined this issue in middle-aged and older adults, we asked whether social network diversity and perceived social support vary among different groups of drinkers. Methods: We used the National Epidemiologic Survey on Alcohol and Related Conditions (NESARC) Wave2 2004-2005 data for 15,580 people ages 50 and above to examine social network diversity (using Social Network Index-SNI) and perceived social support (using Interpersonal Support Evaluation List-12) among current drinkers, former drinkers and lifetime abstainers and again among infrequent, light, moderate and heavy drinkers. Results: Drinkers had significantly more diverse social networks (SNI range from 0-12 groups including children, neighbors, etc) (mean 5.59) compared to former drinkers (mean 5.01) and lifetime abstainers (mean 5.00). Among current drinkers, heavy drinkers had lower social network diversity (mean 5.59) compared to other drinkers (range 5.45 to 5.86). Adjusted regression analyses showed that drinkers had significantly more diverse networks compared to lifetime abstainers; odds ratio 1.08 (95% CI 1.03-1.13) but not former drinkers. Compared to light drinkers, heavy drinkers and infrequent drinkers had significantly less diverse social networks. Odds ratio 0.90 (95% CI 0.85-0.98) for heavy drinkers and odds ratio of 0.95 (95% CI 0.90- 1.00) for infrequent drinkers. Social network diversity did not differ between light and moderate drinkers. No significant differences were found between any of the drinking groups in perceived social support. Conclusion: Current drinkers have more diverse social networks compared to nondrinkers and light drinkers have more diverse social networks compared to heavy or infrequent drinkers. These findings provide evidence of the positive associations of measures of social health to light drinking in middle aged and older populations.

Spolyar JL, Hnatiuk M, **Shaheen KW**, Mertz JK, **Handler LF**, Jarial R and Camilo Roldán J (2015). "Tessier No. 3 and No. 4 clefts: Sequential treatment in infancy by pre-surgical orthopedic skeletal contraction, comprehensive reconstruction, and novel surgical lengthening of the ala base-canthal distance." Journal of Cranio-Maxillofacial Surgery 43(7): 1261-1268.

[Full-Text](#)

Department of Surgery

Department of Ophthalmology

Background: Repair of facial clefts implies wide tissue mobilization with multi-stage surgical treatment. Authors propose pre-surgical orthopedic correction for naso-oro-ocular clefts and a novel surgical option for Tessier No. 3 cleft. Methods: Two male infants, a Tessier No. 3 cleft (age 7 months) and another Tessier No. 4 (age 3 months), were treated with a modified orthopedic Latham device with additional septo-premaxillary molding and observed to age four years. Tessier No. 3 orthopedic measurements were obtained by image corrected cephalometric analysis. Subsequent repair included tissue expansion on Tessier No. 4 and naso-frontal Rieger flap combined with myocutaneous upper lid flap on Tessier No. 3. Results: Orthopedic movements ranged from 18.5mm in bi-planar to 33mm in oblique analyses. Tissue margins became aligned with platform normalization. Tissue expansion on Tessier No. 4 improved distances from ala base-lower lid and subalar base-lip. The naso-frontal flap combined with myocutaneous upper lid flap on Tessier No. 3 had similar achievement, but also sufficiently lengthened ala base-canthal distance. Conclusions: Repairs were facilitated by pre-surgical orthopedic correction. The naso-frontal flap combined with an upper lid myocutaneous flap seems viable as a single-stage option to lengthen ala base-canthal distance to advance repair achievement in unilateral Tessier No. 3.

Stone M, Dalal I, Stone C and **Dalal B** (2015). "18 -FDG uptake in pulmonary dirofilariasis." Journal of Radiology Case Reports 9(4): 28-33.

[Request Form](#)

Department of Surgery

Department of Internal Medicine

Solitary pulmonary nodules are a common finding on chest radiography and CT. We present the case of an asymptomatic 59-year-old male found to have a 13 mm left upper lobe nodule on CT scan. The patient was asymptomatic and the CT was performed to follow up mediastinal and hilar lymphadenopathy that had been stable on several previous CT scans. He had a history of emphysema and reported a 15 pack-year smoking history. PET-CT was performed which demonstrated mild 18-FDG uptake within the nodule. Given his age and smoking history, malignancy was a consideration and he underwent a wedge resection. Pathological examination revealed a necrobiotic granulomatous nodule with a central thrombosed artery containing a parasitic worm with internal longitudinal ridges and abundant somatic muscle, consistent with pulmonary dirofilariasis. *Dirofilaria immitis*, commonly known as the canine heartworm, rarely affects humans. On occasion it can be transmitted to a human host by a mosquito bite. There are two major clinical syndromes in humans: pulmonary dirofilariasis and subcutaneous dirofilariasis. In the pulmonary form, the injected larvae die before becoming fully mature and become lodged in the pulmonary arteries.

Tews MC, **Ditz Wyte CM**, Coltman M, Hiller K, Jung J, Oyama LC, Jubanyik K, Khandelwal S, Goldenberg W, Wald DA, Zun LS, Zinzuwadia S, Pandit K, An C and Ander DS (2015). "Implementing a third-year emergency medicine medical student curriculum." Journal of Emergency Medicine 48(6): 732-743.

[Full-Text](#)

Department of Emergency Medicine

Background Emergency medicine (EM) is commonly introduced in the fourth year of medical school because of a perceived need to have more experienced students in the complex and dynamic environment of the emergency department. However, there is no evidence supporting the optimal time or duration for an EM rotation, and a number of institutions offer third-year rotations. Objective A recently published syllabus provides areas of knowledge, skills, and attitudes that third-year EM rotation directors can use to develop curricula. This article expands on that syllabus by providing a comprehensive curricular guide for the third-year medical student rotation with a focus on implementation. Discussion Included are consensus-derived learning objectives, discussion of educational methods, considerations for implementation, and information on feedback and evaluation as proposed by the Clerkship Directors in Emergency Medicine Third-Year Curriculum Work Group. External validation results, derived from a survey of third-year rotation directors, are provided in the form of a content validity index for each content area. Conclusions This consensus-derived curricular guide can be used by faculty who are developing or revising a third-year EM medical student rotation and provide guidance for implementing this curriculum at their institution.

Tomasello G, Tralongo P, Damiani P, Sinagra E, Di Trapani B, Zeenny MN, **Hussein IH**, Jurjus A and Leone A (2014). "Dismicrobism in inflammatory bowel disease and colorectal cancer: Changes in response of colocytes." World Journal of Gastroenterology 20(48): 18121-18130.

[Full-Text](#)

Department of Biomedical Sciences (OU)

Patients with inflammatory bowel disease (IBD) have an increased risk of 10%-15% developing colorectal cancer (CRC) that is a common disease of high economic costs in developed countries. The CRC has been increasing in recent years and its mortality rates are very high. Multiple biological and biochemical factors are responsible for the onset and progression of this pathology. Moreover, it appears absolutely necessary to investigate the environmental factors favoring the onset of CRC and the promotion of colonic health. The gut microflora, or microbiota, has an extensive diversity both quantitatively and qualitatively. In utero, the intestine of the mammalian fetus is sterile. At birth, the intestinal microbiota is acquired by ingesting maternal anal or vaginal organisms, ultimately developing into a stable community, with marked variations in

microbial composition between individuals. The development of IBD is often associated with qualitative and quantitative disorders of the intestinal microbial flora (dysbiosis). The healthy human gut harbours about 10 different bacterial species distributed in colony forming units which colonize the gastrointestinal tract. The intestinal microbiota plays a fundamental role in health and in the progression of diseases such as IBD and CRC. In healthy subjects, the main control of intestinal bacterial colonization occurs through gastric acidity but other factors such as endoluminal temperature, competition between different bacterial strains, peristalsis and drugs can influence the intestinal microenvironment. The microbiota exerts diverse physiological functions to include: growth inhibition of pathogenic microorganisms, synthesis of compounds useful for the trophism of colonic mucosa, regulation of intestinal lymphoid tissue and synthesis of amino acids. Furthermore, mucus seems to play an important role in protecting the intestinal mucosa and maintaining its integrity. Changes in the microbiota composition are mainly influenced by diet and age, as well as genetic factors. Increasing evidence indicates that dysbiosis favors the production of genotoxins and metabolites associated with carcinogenesis and induces dysregulation of the immune response which promotes and sustains inflammation in IBD leading to carcinogenesis. A disequilibrium in gut microflora composition leads to the specific activation of gut associated lymphoid tissue. The associated chronic inflammatory process associated increases the risk of developing CRC. Ulcerative colitis and Crohn's disease are the two major IBDs characterized by an early onset and extraintestinal manifestations, such as rheumatoid arthritis. The pathogenesis of both diseases is complex and not yet fully known. However, it is widely accepted that an inappropriate immune response to microbial flora can play a pivotal role in IBD pathogenesis. (C) 2014 Baishideng Publishing Group Inc. All rights reserved.

Topf JM and Hiremath S (2015). "Social media, medicine and the modern journal club." International Review of Psychiatry 27(2): 147-154.

[Request Form](#)

Department of Internal Medicine

Medical media is changing along with the rest of the media landscape. One of the more interesting ways that medical media is evolving is the increased role of social media in medical media's creation, curation and distribution. Twitter, a microblogging site, has become a central hub for finding, vetting, and spreading this content among doctors. We have created a Twitter journal club for nephrology that primarily provides post-publication peer review of high impact nephrology articles, but additionally helps Twitter users build a network of engaged people with interests in academic nephrology. By following participants in the nephrology journal club, users are able to stock their personal learning network. In this essay we discuss the history of medical media, the role of Twitter in the current states of media and summarize our initial experience with a Twitter journal club.

Troeller A, Soehn M, **Grills I**, Guckenberger M, Belderbos J, Sonke J, Hope A, Werner-Wasik M, Xiao Y and **Yan D** (2015). "TH-AB-304-06: Investigation of fractionation issues in NTCP modeling of pneumonitis: An analysis of common NTCP models for hypo-fractionated and standard-fractionated data." Medical Physics 42(6): 3701.

[Full-Text](#)

Department of Radiation Oncology

PURPOSE: Previous studies showed that NTCP modeling of radiation pneumonitis for hypo-fractionated radiotherapy (HFRT) has resulted in different model parameters, e.g. a much higher MLD5(0), than for standard-fractionated RT (SFRT). This study investigates whether both fractionation schemes can be described by the same NTCP model. **METHODS:** We retrospectively investigated lung DVHs of 487 patients. Of those, 377 were treated with HFRT (3-10 fractions, median Rx=54Gy) at 5 institutions, and 110 were treated with SFRT (23-47 fractions, median Rx=63Gy) at a single institution. NTD(2) was calculated using the LQ-model and the low-dose-hyper-radiosensitivity model (LDHRS). The latter could possibly explain the reduced toxicities observed in HFRT by assuming a threshold dose for induced repair. NTCP was modeled for all patients using the Lyman-MLD and Lyman-EUD model and compared with AICc. Goodness-of-fit was determined using Hosmer-Lemeshow statistics. **RESULTS:** Within the HFRT group and SFRT group, 7.4% and 10.6% of patients experienced pneumonitis grade ≥ 2 (CTCAE), respectively (median follow-up=2.13 years). Optimal model parameters (Lyman-MLD-LQ: MLD5(0) (NTD)=38.3Gy, m=0.51, AICc=271.0; Lyman-EUD-LQ:

EUD5(0) (NTD)=24.3Gy, $m=0.55$, $a=0.6$, $AICc=271.3$; Lyman-MLD-LDHRs: MLD 5(0)(NTD)=42.5Gy, $m=0.51$, $AICc=272.0$) for all models yielded acceptable fits to the entire dataset and subgroups ($pHL>0.05$). Differences in log-likelihood and $AICc$ values were not large enough to prefer one model over the other. The low volume-effect parameter ($a<1$) for the Lyman-EUD-LQ model suggests that lower doses-per-fraction ($<0.58Gy$) may be an important factor determining NTCP. This is concurrent with the assumptions of the mechanistic LDHRs model. CONCLUSION: The results indicate that pneumonitis can, theoretically, be described by the same NTCP model for HFRT and SFRT using the investigated models. Furthermore, irradiation with low doses-per-fraction may play a role in causing toxicities. Prior findings of different NTCP model parameters for HFRT and SFRT may be due to extrapolation of the bias introduced by the individual datasets, such as differing volumes receiving low doses-per-fraction. This study was supported by the Elekta Collaborative Lung Research Group grant. Dr. Grills discloses stock ownership and is a member of the Greater Michigan Gamma Knife board of directors.

VanHulle R, Misra L, Haung J and Young M (2015). "Putting the pieces together: A curriculum designed to integrate the imaging and laboratory findings of a symptomatic patient (iCollaborative)." MedEdPortal Resource ID 4061
[Full-Text](#)

Department of Diagnostic Radiology and Molecular Imaging
Department of Internal Medicine
Department of Pathology

ED-17 states that the educational opportunities must be available in a medical education program in multidisciplinary content areas (e.g., emergency medicine, geriatrics) and in the disciplines that support general medical practice (e.g., diagnostic imaging, clinical pathology). A team at Oakland University William Beaumont designed a required two-week case based clerkship called Diagnostic Medicine that integrates the supporting disciplines diagnostic imaging and pathology. Didactic lectures, small group sessions, and online modules allow the student to take a daily clinical presentation, learn the appropriate radiologic imaging and laboratory studies to order, and interpret these results. This poster explores how this process was implemented.

Veenstra M, Pentiak P, Peeples C, Bair HA, Callahan RE and **Ivascu F** (2015). "Financial implication of proposed legislation on hospital reimbursement for the injured drunk driver." *American Surgeon* 81(5): 519-522.
[Request Form](#)

Department of Surgery

The state of Michigan currently has no-fault automobile insurance with personal injury protection, providing anyone injured in motor vehicle collisions with unlimited medical and rehabilitation benefits and lost wage recovery. A new bill proposal, Michigan House Bill 5588, will eliminate hospital reimbursement for those who are found to be intoxicated at the time of a motor vehicle collision. These medical costs will be passed on to patients, which may result in a large reimbursement deficit for hospitals caring for these patients. This retrospective review examines the costs of caring for all intoxicated drivers who were admitted to a Level 1 trauma center after a motor vehicle collision over a 2-year period. Intoxicated drivers were younger ($P = 0.0002$), had a lower Glasgow Coma Scale ($P = 0.0013$), and were more likely to meet Level 1 trauma criteria ($P = 0.0002$). The sum of total charges for injured drunk drivers totaled \$5.2 million. When taking into account fixed and variable costs of care, lost hospital net income would be \$3 million (21.9%) over a 3-year span whether House Bill 5588 passes. In conclusion, the passage of House Bill 5588 will lead to a large financial burden for hospitals that treat intoxicated drivers.

Vilchez G, Dai J, Gill N, Lagos M, **Bahado-Singh R** and Sokol RJ (2015). "Racial disparities in the optimal for induction of labor in low-risk term pregnancies: A national population-based study." *The Journal of Maternal-Fetal & Neonatal Medicine*: 1-4. ePub Ahead of Print.
[Request Form](#)

Department of Obstetrics and Gynecology

Vilchez G, Londra L, Hoyos LR, Sokol R and **Bahado-Singh R** (2015). "Intrapartum mean platelet volume is not a useful predictor of new-onset delayed postpartum pre-eclampsia." International Journal of Gynecology and Obstetrics. ePub Ahead of Print.

[Full-Text](#)

Department of Obstetrics and Gynecology

Objective: To determine whether intrapartum mean platelet volume (MPV) can predict new-onset delayed postpartum pre-eclampsia. Methods: In a retrospective study, data were obtained for women with delayed postpartum pre-eclampsia (\geq 48. hours after delivery) who attended the Detroit Medical Center, Detroit, MI, USA, between January 2002 and July 2010. Patients were divided into two subgroups: new-onset delayed postpartum pre-eclampsia (no history of hypertensive disorder before 48. hours after delivery) and other late-onset/delayed postpartum pre-eclampsia (history of hypertensive disorders). Cases with no hypertensive disorders paired by delivery date were selected as controls. Receiver operating characteristic (ROC) curves were used to determine whether MPV could distinguish between cases and controls. Results: Data for 130 cases of new-onset delayed postpartum pre-eclampsia, 71 cases of other late-onset/delayed postpartum pre-eclampsia, and 405 controls were collected. MPV was significantly different between the pre-eclampsia subgroups ($P = 0.007$). ROC curves showed that MPV significantly distinguished new-onset delayed postpartum pre-eclampsia cases (area under the curve 0.6, 95% confidence interval 0.5-0.6; $P = 0.02$), with a sensitivity and specificity of 58.1% and 55.4%, respectively. Conclusion: Although MPV was significantly lower in women who went on to develop new-onset delayed postpartum pre-eclampsia than among controls, it is not a useful predictor. The low MPV suggests a different mechanism for the development of new-onset delayed postpartum pre-eclampsia.

Villafuerte-Gonzalez R, Valadez-Jimenez VM, Hernandez-Lopez X and **Ysunza PA** (2015). "Acoustic analysis of voice in children with cleft palate and velopharyngeal insufficiency." International Journal of Pediatric Otorhinolaryngology 79(7): 1073-1076.

[Full-Text](#)

Department of Physical Medicine and Rehabilitation

Background: Acoustic analysis of voice can provide instrumental data concerning vocal abnormalities. These findings can be used for monitoring clinical course in cases of voice disorders. Cleft palate severely affects the structure of the vocal tract. Hence, voice quality can also be affected. Objective: To study whether the main acoustic parameters of voice, including fundamental frequency, shimmer and jitter are significantly different in patients with a repaired cleft palate, as compared with normal children without speech, language and voice disorders. Materials and methods: Fourteen patients with repaired unilateral cleft lip and palate and persistent or residual velopharyngeal insufficiency (VPI) were studied. A control group was assembled with healthy volunteer subjects matched by age and gender. Hypernasality and nasal emission were perceptually assessed in patients with VPI. Size of the gap as assessed by videonasopharyngoscopy was classified in patients with VPI. Acoustic analysis of voice including Fundamental frequency (F0), shimmer and jitter were compared between patients with VPI and control subjects. Results: F0 was significantly higher in male patients as compared with male controls. Shimmer was significantly higher in patients with VPI regardless of gender. Moreover, patients with moderate VPI showed a significantly higher shimmer perturbation, regardless of gender. Conclusion: Although future research regarding voice disorders in patients with VPI is needed, at the present time it seems reasonable to include strategies for voice therapy in the speech and language pathology intervention plan for patients with VPI.

Wakabayashi G, Cherqui D, Geller DA, Buell JF, Kaneko H, Han HS, Asbun H, O'Rourke N, Tanabe M, **Koffron AJ**, Tsung A, Soubrane O, Machado MA, Gayet B, Troisi RI, Pessaux P, Van Dam RM, Scatton O, Abu Hilal M, Belli G, Kwon CH, Edwin B, Choi GH, Aldrighetti LA, Cai X, Cleary S, Chen KH, Schön MR, Sugioka A, Tang CN, Herman P, Pekolj J, Chen XP, Dagher I, Jarnagin W, Yamamoto M, Strong R, Jagannath P, Lo CM, Clavien PA, Kokudo N, Barkun J and Strasberg SM (2015). "Recommendations for laparoscopic liver resection: A report from the Second International Consensus Conference held in Morioka." Annals of Surgery 261(4): 619-629.

[Full-Text](#)

Department of Surgery

The use of laparoscopy for liver surgery is increasing rapidly. The Second International Consensus Conference on Laparoscopic Liver Resections (LLR) was held in Morioka, Japan, from October 4 to 6, 2014 to evaluate the current status of laparoscopic liver surgery and to provide recommendations to aid its future development. Seventeen questions were addressed. The first 7 questions focused on outcomes that reflect the benefits and risks of LLR. These questions were addressed using the Zurich-Danish consensus conference model in which the literature and expert opinion were weighed by a 9-member jury, who evaluated LLR outcomes using GRADE and a list of comparators. The jury also graded LLRs by the Balliol Classification of IDEAL. The jury concluded that MINOR LLRs had become standard practice (IDEAL 3) and that MAJOR liver resections were still innovative procedures in the exploration phase (IDEAL 2b). Continued cautious introduction of MAJOR LLRs was recommended. All of the evidence available for scrutiny was of LOW quality by GRADE, which prompted the recommendation for higher quality evaluative studies. The last 10 questions focused on technical questions and the recommendations were based on literature review and expert panel opinion. Recommendations were made regarding preoperative evaluation, bleeding controls, transection methods, anatomic approaches, and equipment. Both experts and jury recognized the need for a formal structure of education for those interested in performing major laparoscopic LLR because of the steep learning curve.

Washington T, Kahale K, Swor R, Diouf AH, Berman A and Sawyer K (2015). "False cardiac catheterization lab activation in a two-tiered STEMI system." *Academic Emergency Medicine* 22(5): S392.

[Full-Text](#)

OUIWB Medical Student Author

Department of Emergency Medicine

Department of Internal Medicine

Background: Accurate ECG diagnosis of STEMI poses a substantial challenge to EM Physicians when posed with equivocal presentations. High rates of inappropriate STEMI team and cardiac catheterization laboratory (CCL) activation are costly and decrease the urgency of response to STEMI patients. To address a historical STEMI alert cancellation rate of 40%, we instituted a two-tiered, single page system to respond to confirmed or suspected STEMI patients. Objectives: Our objective is to evaluate the effect of a two-tiered STEMI system on CCL activation rates and time to reperfusion of STEMI patients. Methods: Beginning in April 2012, our large suburban, academic hospital developed two levels of alerts for patients with suspected STEMI. A Level 1 page was used for patients expected to require emergent CCL intervention. A Level 2 page alerted the STEMI team for consultation but did not mobilize the CCL. All adult, consecutive patients who received consultation at either of these levels were followed as part of a quality improvement database. Demographics, event time intervals (i.e. door to arrival, CCL activation, intervention (D2B)), and diagnostic test results were collected. Patients were excluded for presenting in cardiac arrest, in-hospital STEMI alert, refusing consent or DNR status, and missing data. Descriptive statistics are presented. Results: Between April 2012 and March 2014, 906 STEMI alerts were paged. After exclusions, 720 patients were included with 15.3% pages alerted prehospital. Patients had a mean age of 66.6 (SD 15.73) and 38.2% were female. Rates of emergent catheterization and D2B intervals are in Table 899. Of those Level 2 patients taken emergently to CCL, 32/ 48 (66.7%) were taken for evolving symptoms or ECG changes. Conclusion: Our two-tiered STEMI system reduced rates of CCL activation while maintaining D2B times for STEMI patients. Level 2 patients taken to CCL did experience increased D2B times, but often as a result of evolving ECG or clinical symptoms. We conclude a two-tier system improved efficiency and provided reasonable care to patients with subtle or dynamic STEMI presentations. (Table Presented).

Weber AE, Bedi A, Tibor LM, **Zaltz I** and Larson CM (2015). "The hyperflexible hip: Managing hip pain in the dancer and gymnast." *Sports Health* 7(4): 346-358.

[Full-Text](#)

Department of Orthopedic Surgery

Wedemeyer RA, Lucia VC and Afonso NM (2015). "Classroom to community - medical student as educator: The development and implementation of a service-learning campus community partnership (iCollaborative)." MedEdPortal Resource ID 4042

[Full-Text](#)

Department of Medical Education

Department of Biomedical Sciences (OU)

Administration

In today's healthcare environment, teaching is required of all physicians, yet they receive little formal training. Learning to teach and the education of patients directly ties to a number of core competencies: patient-centered care; practice-based learning and improvement; and interpersonal and communication skills. While research shows medical students who have an opportunity to teach show improved communication skills and ability to recognize the patient as the agent of change, few medical schools include teaching as a formal curricular component. This poster describes the initial component of a curricular thread to develop this core clinical skill in medical students.

Wedemeyer RA, Szura JM, Gillum LH, Afonso NM, Wunderlich TL and Fobar ED (2015). "Service in the pre-clinical years: Instilling the mission and vision of OUWB (iCollaborative)." MedEdPortal Resource ID 4043

[Full-Text](#)

Department of Medical Education

Administration

The changing nature of healthcare and increased needs of patients makes it imperative for medical schools to develop competent community based physicians. However, traditional didactic learning does not afford preclinical students opportunities to gain first-hand experiences and develop necessary skillsets. Community service and service-learning unites volunteer service and the practice of "soft skills" while promoting health, wellness, disease prevention, and health literacy. Further, "community service enhances civic involvement" encourages medical students to take an active role in the lives of their future patients. This poster explores these issues in the setting of the Oakland University William Beaumont School of Medicine.

Weston VC, Meurer WJ, Frederiksen SM, **Fox AK** and Scott PA (2014). "Prevention of emergency physician migratory contamination in a cluster randomized trial to increase tissue plasminogen activator use in stroke (the INSTINCT trial)." [American Journal of Emergency Medicine](#) 32(12): 1460-1463.

[Full-Text](#)

OUWB Medical Student Author

Objectives: Cluster randomized trials (CRTs) are increasingly used to evaluate quality improvement interventions aimed at health care providers. In trials testing emergency department (ED) interventions, migration of emergency physicians (EPs) between hospitals is an important concern, as contamination may affect both internal and external validity. We hypothesized that geographically isolating EDs would prevent migratory contamination in a CRT designed to increase ED delivery of tissue plasminogen activator (tPA) in stroke (the INSTINCT trial). Methods: INSTINCT was a prospective, cluster randomized, controlled trial. Twenty-four Michigan community hospitals were randomly selected in matched pairs for study. Contamination was defined at the cluster level, with substantial contamination defined a priori as greater than 10% of EPs affected. Nonadherence, total crossover (contamination + nonadherence), migration distance, and characteristics were determined. Results: Three hundred seven EPs were identified at all sites. Overall, 7 (2.3%) changed study sites. One moved between control sites, leaving 6 (2.0%) total crossovers. Of these, 2 (0.7%) moved from intervention to control (contamination); and 4 (1.3%) moved from control to intervention (nonadherence). Contamination was observed in 2 of 12 control sites, with 17% and 9% contamination of the total site EP workforce at follow-up, respectively. Average migration distance was 42 miles for all EPs moving in the study and 35 miles for EPs moving from intervention to control sites. Conclusion: The mobile nature of EPs should be considered in the design of quality improvement CRTs. Increased reporting of contamination in CRTs is encouraged to clarify thresholds and facilitate CRT design.

White DC, **Grines CL**, Grines LL, **Marcovitz P**, Messenger J and Schreiber T (2015). "Comparison of the usefulness of enoxaparin versus warfarin for prevention of left ventricular mural thrombus after anterior wall acute myocardial infarction." *American Journal of Cardiology* 115(9): 1200-1203.

[Full-Text](#)

Department of Internal Medicine

Left ventricular (LV) thrombus is one of the most common complications in patients with anterior acute myocardial infarction (AMI) and LV dysfunction. Although anticoagulation is frequently prescribed, data regarding the appropriate drug, duration, risks, and effect on echocardiographic indices of thrombus are lacking. Moreover, given the difficulty in obtaining adequate anticoagulation with warfarin, it is possible that short-term treatment with a more predictable agent would be effective. We randomized 60 patients at high risk of developing LV mural thrombus (anterior acute myocardial infarction with Q waves and ejection fraction $\leq 40\%$) to receive either enoxaparin 1 mg/kg (maximum 100 mg) subcutaneously every 12 hours for 30 days or traditional anticoagulation (intravenous heparin followed by oral warfarin for 3 months). Clinical evaluations and transthoracic echocardiograms were obtained at baseline, in-hospital, and at 3.5 months. There were no differences between the groups regarding baseline demographics, acute echocardiographic findings, and in-hospital outcomes. The length of hospital stay tended to be shorter for the enoxaparin group (4.6 vs 5.6; $p = 0.066$) and the corresponding hospital costs (\$25,837 vs \$34,666; $p = 0.18$). At 3 months, bleeding and thromboembolic events were rare and similar between enoxaparin and warfarin groups. Although more patients had probable mural thrombus in the enoxaparin group compared with warfarin at 3.5 months (15% vs 4%; $p = 0.35$), this was not significantly different. In conclusion, the use of enoxaparin tends to shorten hospitalization and lower cost of care. However, at 3.5 months, there appears to be numerically higher (but statistically insignificant) rates of LV thrombus in the enoxaparin group.

Wiater BP, **Baker EA**, Salisbury MR, Koueiter DM, **Baker KC**, Nolan BM and **Wiater JM** (2015). "Elucidating trends in revision reverse total shoulder arthroplasty procedures: A retrieval study evaluating clinical, radiographic, and functional outcomes data." *Journal of Shoulder and Elbow Surgery*. ePub Ahead of Print.

[Full-Text](#)

Department of Orthopedic Surgery

Background: The purpose of this study was to explore relationships between damage modes in explanted reverse total shoulder arthroplasty (RTSA) components, patient and radiographic risk factors, and functional data to elucidate trends in RTSA failure. Methods: Fifty RTSA systems, retrieved from 44 patients, with 50 polyethylene (PE) liners, 30 glenospheres, 21 glenoid baseplates, 13 modular humeral metaphases, and 17 humeral stems, were examined for damage modes, including abrasion, burnishing, dishing, embedding, scratching, and pitting. PE liners were also analyzed for delamination and edge deformation. Charts were reviewed for patient, surgical, and functional data. Pre-revision radiographs were analyzed for scapular notching and loosening. Results: Average term of implantation was 20 months (range, 0-81 months). Metallic components exhibited abrasion, burnishing, dishing, pitting, and scratching. PE liners displayed all damage modes. Damage was exhibited on 93% of glenospheres and 100% of PE liners. Of 29 aseptic shoulders, 13 showed evidence of scapular notching and 5 of humeral loosening. There was a moderate correlation between radiographically observed implant failure or dissociation and PE embedding ($r=0.496$; $P<.001$). There were weak and moderate correlations between scapular notching severity and PE dishing ($r=0.496$; $P=.006$), embedding ($r=0.468$; $P=.010$), and delamination ($r=0.384$; $P=.040$). Conclusions: To date, this is the largest series of retrieved RTSA components and the first to relate damage modes to radiographic and clinical data. Most damage was observed on the PE liners, on both the articular surface and rim, and glenosphere components. Correlation of retrieval findings with radiographic and clinical data may help establish predictors of prostheses at risk for failure.

Wilson GD, Thibodeau BJ, Fortier LE, Pruetz BL, Galoforo S, **Akervall J**, **Marples B** and Huang JY (2014). "Gene expression changes during repopulation in a head and neck cancer xenograft." Radiotherapy and Oncology 113(1): 139-145.

[Full-Text](#)

Department of Radiation Oncology

Department of Biomedical Sciences (BHS)

Background/purpose: To investigate temporal changes in global gene expression and pathways involved in the response to irradiation during phases of growth inhibition, recovery and repopulation in a human head and neck squamous cell cancer (HNSCC) xenograft. Methods and materials: Low passage head and neck squamous cancer cells (UT-14-SCC) were injected into the flanks of female nu/nu mice to generate xenografts. After tumors reached a size of 500 mm³, they were treated with either sham RT or 15 Gy in one fraction. At different time points, days 0, 3, and 10 for controls and days 4, 7, 12, and 21 after irradiation, the tumors were harvested for global gene expression analysis and pathway analysis. Results: The tumors showed growth inhibition through days 4-7 and began the transition to regrowth around the day 12 time point. When comparing the pooled controls to each day of treatment, there were 22,119, 125, and 25 differentially expressed genes on days 4, 7, 12, and 21 respectively using a $p \leq 0.01$ and a 2-fold cut-off. Gene Ontology (GO), gene set enrichment analysis (GSEA) and sub-network enrichment analysis (SNEA) identified different biological processes, cell process pathways and expression targets to be active on each time point after irradiation. An important observation was that the molecular events on day 12 which represented the transition from growth inhibition to regrowth identified interferon and cytokine related genes and signaling pathways as the most prominent. Conclusion: The findings in this study compliment research which has identified components of interferon-related signaling pathways to be involved in radioresistance. Further work will be required to understand the significance of these genes in both radioresistance and treatment response leading to new therapeutic strategies and prognostic tools. (C) 2014 Elsevier Ireland Ltd. All rights reserved.

Wobb J, **Krueger SA**, Kane JL, Galoforo S, **Grills IS**, **Wilson GD** and **Marples B** (2015). "The effects of pulsed radiation therapy on tumor oxygenation in 2 murine models of head and neck squamous cell carcinoma." International Journal of Radiation Oncology Biology Physics 92(4): 820-828.

[Full-Text](#)

Department of Radiation Oncology

Purpose To evaluate the efficacy of low-dose pulsed radiation therapy (PRT) in 2 head and neck squamous cell carcinoma (HNSCC) xenografts and to investigate the mechanism of action of PRT compared with standard radiation therapy (SRT). Methods and Materials Subcutaneous radiosensitive UT-SCC-14 and radioresistant UT-SCC-15 xenografts were established in athymic NIH III HO female mice. Tumors were irradiated with 2 Gy/day by continuous standard delivery (SRT: 2 Gy) or discontinuous low-dose pulsed delivery (PRT: 0.2 Gy \times 10 with 3-min pulse interval) to total doses of 20 Gy (UT14) or 40 Gy (UT15) using a clinical 5-day on/2-day off schedule. Treatment response was assessed by changes in tumor volume, ¹⁸F-fluorodeoxyglucose (FDG) (tumor metabolism), and ¹⁸F-fluoromisonidazole (FMISO) (hypoxia) positron emission tomography (PET) imaging before, at midpoint, and after treatment. Tumor hypoxia using pimonidazole staining and vascular density (CD34 staining) were assessed by quantitative histopathology. Results UT15 and UT14 tumors responded similarly in terms of growth delay to either SRT or PRT. When compared with UT14 tumors, UT15 tumors demonstrated significantly lower uptake of FDG at all time points after irradiation. UT14 tumors demonstrated higher levels of tumor hypoxia after SRT when compared with PRT as measured by ¹⁸F-FMISO PET. By contrast, no differences were seen in ¹⁸F-FMISO PET imaging between SRT and PRT for UT15 tumors. Histologic analysis of pimonidazole staining mimicked the ¹⁸F-FMISO PET imaging data, showing an increase in hypoxia in SRT-treated UT14 tumors but not PRT-treated tumors. Conclusions Differences in ¹⁸F-FMISO uptake for UT14 tumors after radiation therapy between PRT and SRT were measurable despite the similar tumor growth delay responses. In UT15 tumors, both SRT and PRT were equally effective at reducing tumor hypoxia to a significant level as measured by ¹⁸F-FMISO and pimonidazole.

Womble PR, Linsell SM, Gao Y, Ye Z, Montie JE, Gandhi TN, Lane BR, **Burks FN** and Miller DC (2015). "A statewide intervention to reduce hospitalizations after prostate biopsy." *Journal of Urology* 194(2): 403-409.

[Full-Text](#)

Department of Urology

Purpose: Recent data suggest that increasing rates of hospitalization after prostate biopsy are mainly due to infections from fluoroquinolone-resistant bacteria. We report the initial results of a statewide quality improvement intervention aimed at reducing infection related hospitalizations after transrectal prostate biopsy. Materials and Methods: From March 2012 through May 2014 data on patient demographics, comorbidities, prophylactic antibiotics and post-biopsy complications were prospectively entered into an electronic registry by trained abstractors in 30 practices participating in the MUSIC. During this period each practice implemented one or both of the interventions aimed at addressing fluoroquinolone resistance, namely 1) use of rectal swab culture directed antibiotics or 2) augmented antibiotic prophylaxis with a second agent in addition to standard fluoroquinolone therapy. We identified all patients with an infection related hospitalization within 30 days after biopsy and validated these events with claims data for a subset of patients. We then compared the frequency of infection related hospitalizations before (5,028 biopsies) and after (4,087 biopsies) implementation of the quality improvement intervention. Results: Overall the proportion of patients with infection related hospitalizations after prostate biopsy decreased by 53% from before to after implementation of the quality improvement intervention (1.19% before vs 0.56% after, $p=0.002$). Among post-implementation biopsies the rates of hospitalization were similar for patients receiving culture directed (0.47%) vs augmented (0.57%) prophylaxis. At a practice level the relative change in hospitalization rates varied from a 7.4% decrease to a 3.0% increase. Fourteen practices had no post-implementation hospitalizations. Conclusions: A statewide intervention aimed at addressing fluoroquinolone resistance reduced post-prostate biopsy infection related hospitalizations in Michigan by 53%. © 2015 American Urological Association Education and Research, Inc.

Wu C, Mikhail S, Wei L, Timmers C, Tahiri S, Neal A, Walker J, El-Dika S, Blazer M, Rock J, Clark DJ, Yang X, Chen JL, **Liu J**, Knopp MV and Bekaii-Saab T (2015). "A phase II and pharmacodynamic study of sunitinib in relapsed/refractory oesophageal and gastro-oesophageal cancers." *British Journal of Cancer* 113(2): 220-225.

[Request Form](#)

Department of Pathology

Background: Blockade of the vascular endothelial growth factor (VEGF) pathway shows evidence of activity in gastro-oesophageal (GE) and oesophageal cancer. We investigated the efficacy of sunitinib, a multikinase VEGF inhibitor, in patients with relapsed/refractory GE/oesophageal cancer. Methods: This was a single-stage Fleming phase II study. The primary end point was progression-free survival (PFS) at 24 weeks. If five or more patients out of a total of 25 were free of progressive disease at 24 weeks, sunitinib would be recommended for further study. Patients received sunitinib 37.5 mg orally daily and imaged every 6 weeks. Exploratory correlative analysis included serum growth factors, tumour gene expression and dynamic contrast-enhanced magnetic resonance imaging (DCE-MRI). Results: Twenty-five evaluable patients participated in the study. Progression-free survival at 24 weeks was 8% ($n=2$ patients; confidence interval (CI): 95% 1.4-22.5%), and the duration of best response for the patients was 23 and 72 weeks. Ten patients (42%) had stable disease (SD) for >10 weeks. Overall response rate is 13%. Median PFS is 7 weeks (95% CI: 5.6-11.4 weeks) and the median overall survival is 17 weeks (95% CI: 8.9-25.3 weeks). Most common grade 3/4 toxicities included fatigue (24%), anaemia (20%) thrombocytopenia (16%), and leucopenia (16%). No patients discontinued therapy due to toxicity. Serum VEGF-A and -C levels, tumour complement factor B (CFB) gene expression, and DCE-MRI correlated with clinical benefit, defined as SD or better as best response. Conclusion: Sunitinib is well tolerated but only a select subgroup of patients benefited. Serum VEGF-A and -C may be early predictors of benefit. On this study, patients with clinical benefit from sunitinib had higher tumour CFB expression, and thus has identified CFB as a potential predictor for efficacy of anti-angiogenic therapy. These findings need validation from future prospective trials.

Yadav D, Garg L, Narwal P, Ladkany R and **Franey L** (2015). "Concomitant takotsubo cardiomyopathy with PRES syndrome: A coincidence or a real heart-brain connection?" Journal of Cardiology Cases 12(2): 48-51.

[Full-Text](#)

Department of Internal Medicine

Takotsubo cardiomyopathy is a clinical entity characterized by reversible ventricular dysfunction in the absence of obstructive coronary artery disease. Posterior reversible encephalopathy syndrome is another rare clinical syndrome characterized by reversible neurological symptoms. Concomitant occurrence is increasingly reported leading to credence to hypothesis of "heart-brain connection". We present a case of a 60-year-old female admitted for neurological symptoms who developed takotsubo cardiomyopathy within 24. h of admission.<. Learning objective: Two relatively new clinical entities, namely takotsubo cardiomyopathy and PRES syndrome, might have common underlying pathophysiology as they are being increasingly reported to occur at the same time and under similar circumstances. Our case helps to further validate this theory which is yet to be well established.>.

Yadav S, Isaac D and **Zakalik D** (2015). "Male breast cancer receptor sub-types: Demographics, tumor characteristics and short term survival outcomes." Annals of Oncology 26(Sup 3): 24.

[Full-Text](#)

Department of Internal Medicine

Yadav S, Pereira-Rodrigues O, Dohany L, Dreyfuss H, Fulbright J, Reeves A and **Zakalik D** (2015). "Experience of pre-operative genetic testing on surgical decision making in newly diagnosed breast cancer patients." Cancer Research 75(9): 2.

[Full-Text](#)

Department of Internal Medicine

Yang A, **Arndt D**, Berg R, Carpenter J, Chapman K, Dlugos D, Gallentine W, Giza C, Goldstein J, Hahn C, Lerner J, Loddenkemper T, Matsumoto J, Nash K, Payne E, Fernández IS, Shults J, Topjian A, Williams K, Wusthoff C and Abend N (2015). "Development and validation of a seizure prediction model in critically ill children." Epilepsy Currents 15: 81-82.

[Full-Text](#)

Department of Pediatrics

Rationale: Electrographic seizures are common in encephalopathic critically ill children, even without a pre-existing diagnosis of epilepsy, but identification requires resource intense continuous EEG monitoring (CEEG). Development of a seizure prediction model would enable more efficient use of limited CEEG resources. We aimed to develop and validate a seizure prediction model. Methods: We developed a seizure prediction model using a retrospective multicenter database of children with acute encephalopathy without an epilepsy diagnosis, who underwent clinically indicated CEEG. We performed model validation using a separate single center prospective database. Predictor variables were chosen to be readily available to clinicians prior to the onset of CEEG and included: age, etiology category, clinical seizures prior to CEEG, initial EEG background category, and inter-ictal discharge category. Results: The model has fair to good discrimination ability and overall performance. At the optimal cut-off point in the validation dataset, the model has a sensitivity of 59% and specificity of 81%. Varied cut-off points are described which could be chosen to optimize sensitivity or specificity depending on available CEEG resources. Conclusions: A model developed from multi-center CEEG data can guide the use of limited EEG resources when applied at a single center. Depending on CEEG resources, centers could choose lower cut-off points to maximize identification of all patients who will experience electrographic seizures (but with lowered CEEG resource efficiency by monitoring more patients) or higher cut-off points to reduce resource utilization by reducing monitoring of lower risk patients (but sacrifice identification of some patients experiencing seizures). (Figure Presented).

Yang Y, Chen L, Yam Y, Achenbach S, Al-Mallah M, Berman DS, Budoff MJ, Cademartiri F, Callister TQ, Chang HJ, Cheng VY, **Chinnaiyan K**, Cury R, Delago A, Dunning A, Feuchtner G, Hadamitzky M, Hausleiter J, Karlsberg RP, Kaufmann PA, Kim YJ, Leipsic J, Labounty T, Lin F, Maffei E, Raff GL, Shaw LJ, Villines TC, Min JK and Chow BJW (2015). "A clinical model to identify patients with high-risk coronary artery disease." JACC: Cardiovascular Imaging 8(4): 427-434.

[Full-Text](#)

Department of Internal Medicine

Objectives This study sought to develop a clinical model that identifies patients with and without high-risk coronary artery disease (CAD). **Background** Although current clinical models help to estimate a patient's pre-test probability of obstructive CAD, they do not accurately identify those patients with and without high-risk coronary anatomy. **Methods** Retrospective analysis of a prospectively collected multinational coronary computed tomographic angiography (CTA) cohort was conducted. High-risk anatomy was defined as left main diameter stenosis $\geq 50\%$, 3-vessel disease with diameter stenosis $\geq 70\%$, or 2-vessel disease involving the proximal left anterior descending artery. Using a cohort of 27,125, patients with a history of CAD, cardiac transplantation, and congenital heart disease were excluded. The model was derived from 24,251 consecutive patients in the derivation cohort and an additional 7,333 nonoverlapping patients in the validation cohort. **Results** The risk score consisted of 9 variables: age, sex, diabetes, hypertension, current smoking, hyperlipidemia, family history of CAD, history of peripheral vascular disease, and chest pain symptoms. Patients were divided into 3 risk categories: low (≤ 7 points), intermediate (8 to 17 points) and high (≥ 18 points). The model was statistically robust with area under the curve of 0.76 (95% confidence interval [CI]: 0.75 to 0.78) in the derivation cohort and 0.71 (95% CI: 0.69 to 0.74) in the validation cohort. Patients who scored ≤ 7 points had a low negative likelihood ratio (< 0.1), whereas patients who scored ≥ 18 points had a high specificity of 99.3% and a positive likelihood ratio (8.48). In the validation group, the prevalence of high-risk CAD was 1% in patients with ≤ 7 points and 16.7% in those with ≥ 18 points. **Conclusions** We propose a scoring system, based on clinical variables, that can be used to identify patients at high and low pre-test probability of having high-risk CAD. Identification of these populations may detect those who may benefit from a trial of medical therapy and those who may benefit most from an invasive strategy.

Yarris LM, Juve AM, Artino ARJ, Sullivan GM, Rougas S, **Joyce B** and Eva K (2014). "Expertise, time, money, mentoring, and reward: Systemic barriers that limit education researcher productivity—proceedings from the AAMC GEA workshop." Journal of Graduate Medical Education 6(3): 430-436.

[Full-Text](#)

Department of Biomedical Sciences (OU)

Yonekawa Y and **Wolfe JD** (2015). "Monitoring age-related macular degeneration through an implantable miniature telescope using ultra-wide-field imaging." JAMA Ophthalmology 133(6): e1588.

[Request Form](#)

Department of Ophthalmology

Zacharias SK and **Goldstein JA** (2015). "Clinical assessment of the severity of aortic stenosis," In Abbas AE (ed). Aortic Stenosis: Springer London. pp: 21-28.

[Full-Text](#)

Department of Internal Medicine

Zaidi AU and **Berman B** (2014). "Crossing the thrombotic threshold: Deep vein thrombosis in henoch-schonlein purpura." Clinical Pediatrics 53(14): 1396-1398.

[Full-Text](#)

Department of Pediatrics

Zaltz I, Baca G, Kim YJ, Schoenecker P, Trousdale R, Sierra R, Sucato D, Sink E, Beaulé P, Millis MB, Podeszwa D and Clohisy JC (2014). "Complications associated with the periacetabular osteotomy a prospective multicenter study." Journal of Bone and Joint Surgery-American Volume 96A(23): 1967-1974.

[Full-Text](#)

Department of Orthopedic Surgery

Background: The purpose of this prospective multicenter study was to determine and categorize all complications associated with the periacetabular osteotomy performed by experienced surgeons. Methods: We prospectively analyzed perioperative complications in 205 consecutive unilateral periacetabular osteotomies performed at seven institutions by ten surgeons. All perioperative complications were recorded at an average of ten weeks and one year after surgery in standardized fashion using a validated complication grading scheme applied to hip preservation procedures. The mean patient age was 25.4 years. There were 143 female and sixty-two male patients. The most common diagnosis was developmental acetabular dysplasia, and concomitant procedures most commonly included femoral osteochondroplasty (58%) or hip arthroscopy (20%), which could include labral repair or resection. Results: Major complications (grade III or IV) occurred in twelve patients (5.9%). Seven complications were evident at the ten-week visit and five at the one-year visit. Nine of the complications required a second surgical intervention, including repair for acetabular migration or implant adjustment (four patients), incision and drainage for a deep infection (two patients), and heterotopic bone resection, contralateral peroneal nerve decompression, and posterior column fixation (one patient each). Three thromboembolic complications were managed medically. There were no vascular injuries, permanent nerve palsies, intra-articular osteotomies and/or fractures, or acetabular osteonecrosis. The most common grade-I or II complication was asymptomatic heterotopic ossification. Conclusions: For surgeons experienced with the periacetabular osteotomy, it is a safe procedure but is associated with a 5.9% risk of grade-III or IV complications beyond the learning curve. The majority of these complications are resolved without permanent disability.

Zein RK, Jolepalem P and **Oliver Wong C** (2015). "Implications of unexpected diffuse lung uptake on a ^{99m}Tc-Sestimibi parathyroid scan." Journal of Nuclear Medicine Technology 43(1): 64-65.

[Request Form](#)

Department of Diagnostic Radiology and Molecular Imaging

Diffuse ^{99m}Tc-sestimiibi uptake in the lungs is a sign of serious pathology and merits further work-up. We present a case in which diffuse lung uptake was incidentally found on a parathyroid scan.

Zhou J, Zamdborg L and Sebastian E (2015). "Review of advanced catheter technologies in radiation oncology brachytherapy procedures." Cancer Management and Research 7: 199-211.

[Full-Text](#)

Department of Radiation Oncology

The development of new catheter and applicator technologies in recent years has significantly improved treatment accuracy, efficiency, and outcomes in brachytherapy. In this paper, we review these advances, focusing on the performance of catheter imaging and reconstruction techniques in brachytherapy procedures using magnetic resonance images and electromagnetic tracking. The accuracy of catheter reconstruction, imaging artifacts, and other notable properties of plastic and titanium applicators in gynecologic treatments are reviewed. The accuracy, noise performance, and limitations of electromagnetic tracking for catheter reconstruction are discussed. Several newly developed applicators for accelerated partial breast irradiation and gynecologic treatments are also reviewed. New hypofractionated high dose rate treatment schemes in prostate cancer and accelerated partial breast irradiation are presented.

Zyczynski HM, Albo ME, Goldman HB, Wai CY, **Sirls LT**, Brubaker L, Norton P, Varner RE, Carmel M and Kim HY (2015). "Change in overactive bladder symptoms after surgery for stress urinary incontinence in women." Obstetrics and Gynecology 126(2): 423-430.

[Full-Text](#)

Department of Urology

OBJECTIVE: To assess change in overactive bladder (OAB) symptoms up to 5 years after surgery and to

identify associated predictors of change from baseline. METHODS: This is a secondary analysis of data from three multicenter urinary incontinence (UI) surgical trials of women with stress-predominant mixed UI assigned to Burch colposuspension, autologous fascial sling, or retropubic or transobturator midurethral slings. The primary outcome was improvement of 70% or greater from baseline in symptoms measured by the Urinary Distress Inventory-Irritative subscale. Surgical groups were compared within respective trials. Generalized linear models were fit using 1-year and up to 5-year data. RESULTS: Significant improvements in Urinary Distress Inventory-Irritative scores were reported by each surgical group 1 year after surgery ($P < .001$). Most women (50-71%) reported improvement in OAB symptoms. Improvements were similar between midurethral sling groups at 1 year (65.5% compared with 70.7%, $P = .32$; odds ratio [OR] 0.83, 95% confidence interval [CI] 0.57-1.20 for retropubic compared with transobturator sling) and throughout the 5-year follow-up period. More women reported OAB symptom improvement after Burch compared with pubovaginal sling (67.9% compared with 56.6%, $P = .01$; OR 1.59, 95% CI 1.10-2.31 for Burch compared with sling); this group difference at 1 year persisted throughout the 5-year follow-up. At 1-year, 50.0-64.3% of patients reported 70% greater improvement in UI. This proportion declined to 36.5-54.1% at 5 years ($P < .001$). Preoperative use of anticholinergics and urodynamic parameters was not predictive of OAB symptom change after surgery. CONCLUSION: Most women with stress-predominant mixed UI experienced significant improvement in OAB symptoms after incontinence surgery although this initial improvement diminished over time. Obesity blunted symptom improvement. LEVEL OF EVIDENCE: II