

**OAKLAND UNIVERSITY WILLIAM BEAUMONT SCHOOL OF MEDICINE  
PUBLICATION LIST  
April - June 2016**

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Al-Faham Z, Jolepalem P, **Rydberg J** and **Wong CYO** (2016). "Optimizing 18F-FDG uptake time before imaging improves the accuracy of PET/CT in liver lesions." [Journal of Nuclear Medicine Technology](#) 44(2): 70-72.

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*Department of Diagnostic Radiology and Molecular Imaging*

18F-FDG PET/CT has emerged as one of the fastest-growing imaging modalities. A shorter protocol results in a lower target-to-background ratio, which can increase the challenge of identifying mildly 18F-FDG-avid lesions and differentiating inflammatory or physiologic activity from malignant activity. The purpose of this study was to determine the delay between radiotracer injection and imaging that optimizes target-to-background ratio while maintaining counts high enough to ensure scan sensitivity. Methods: The study included 140 patients (66 male and 74 female; age range, 42-95 y) with suspected hepatic lesions as seen on an 18F-FDG PET scan. SUV was determined as region-of-interest activity/(dose/total body weight). Results: The mean injected dose was  $610 \pm 66.6$  MBq ( $16.5 \pm 1.8$  mCi), with a mean glucose level of  $107 \pm 26.6$  mg/dL (standardized to 90 mg/dL). The uptake time before imaging ranged from 61 to 158 min, with a mean of  $108.8 \pm 24.8$  min. The P values for the correlation of SUV to time were 0.004, 0.003, and 0.0001 for malignant lesions, benign lesions, and background hepatic tissue, respectively. Conclusion: An approximately 90-min time window from 18F-FDG injection to PET imaging would significantly improve target-to-background ratio and, thus, quantitation and visual interpretation. This benefit outweighs the minimal loss in patient throughput. © 2016 by the Society of Nuclear Medicine and Molecular Imaging, Inc.

Al-Faham Z, Jolepalem P and **Wong CYO** (2016). "The evaluation of cardiac sarcoidosis with 18F-FDG PET." [Journal of Nuclear Medicine Technology](#) 44(2): 92-93.

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*Department of Diagnostic Radiology and Molecular Imaging*

Cardiac involvement in sarcoidosis is associated with poor prognosis. 18F-FDG PET can detect the presence of cardiac sarcoidosis, assess disease activity, and serve as a means to monitor treatment response in patients with cardiac sarcoidosis. © 2016 by the Society of Nuclear Medicine and Molecular Imaging, Inc.

Al-Faham Z, Kassir MA, Wood D and **Balon HR** (2016). "Appearance of meningioma on 99mTc-HMPAO SPECT: Correlation with MRI." Journal of Nuclear Medicine Technology 44(2): 90-91.

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*Department of Diagnostic Radiology and Molecular Imaging*

On brain perfusion SPECT, a primary brain lesion presents as a localized defect that corresponds to the mass lesion. 99mTc- HMPAO images generally show a focal defect in the region of abnormality, whether containing necrotic tissue, recurrent tumor, or both. Further characterization with MR imaging is needed to confirm the diagnosis, as demonstrated in this case report. © 2016 by the Society of Nuclear Medicine and Molecular Imaging, Inc.

**Anderson W**, Lukas B, **Jones S**, **Sharma J** and **Bastani A** (2016). "How much to buy down your throughput?" Academic Emergency Medicine 23: S206.

[Full-Text](#)

*Department of Emergency Medicine*

*OUIWB Medical Student Author*

Background: Beginning in 2013, hospitals began reporting ED related throughput metrics to the Centers of Medicare and Medicaid Services (CMS). History indicates that these metrics will be used to encourage hospitals to improve their metrics by withholding reimbursement. Placing a physician-in-triage (PITDOC) to rapidly assess patients as they hit the door has had mixed results in improving these parameters. Furthermore, the financial considerations of PITDOC have not been previously described. Objectives: Our objectives were to describe the gross physician cost (GPC) of adding a PITDOC and calculate the difference in six key ED throughput metrics. Methods: At our 90,000 ED visit community hospital, we conducted a before and after trial of adding a PITDOC between 6pm - 10pm. The before cohort represented a historical control from September 21st to October 4th, 2015, while the after cohort represented the same time period between October 5th - October 17th, 2015. The investment to provide four hours of additional physician coverage per day was \$722.42. Our primary outcomes were to quantify the GPC to address ED throughput metrics and then provide this value on a per patient basis. Our secondary outcomes were to report differences in: 1) Door-to-Doc, 2) Door-to-Room, 3) Door-to-Admit 4) Door-to-Discharge, 5) Left without Being Seen, and 6) ED Length-of-Stay (EDLOS). The data were analyzed using descriptive statistics, t-test for significance and confidence intervals were reported using the modified Wald method. Results: During the study a total of 937 patients comprised the before cohort while 794 patients were in the after cohort. All primary outcomes are reported in Table 1. The mean Door-to-Doc and Door-to- Room times improved significantly resulting in a decreased EDLOS of 59.19 +/- 25.99 minutes between cohorts. This decrease in EDLOS resulted in 783.33 additional ED bed hours available during the study period with GPC of \$5.00 per patient. Conclusion: In our community hospital setting, a physician-in-triage can significantly reduce ED Length-of-Stay by improving front-end metrics at a cost of \$5.00 per patient. (Table Presented).

Auffenberg GB, Linsell S, Dhir A, Myers SN, **Rosenberg B** and Miller DC (2016). "Comparison of pathologic outcomes for men with low-risk prostate cancer from diverse practice settings-similar results from immediate prostatectomy or initial surveillance with delayed prostatectomy." Journal of Urology. ePub Ahead of Print.

[Full-Text](#)

*Department of Urology*

PURPOSE: We compare pathologic outcomes following radical prostatectomy for a population-based sample of men with low-risk prostate cancer managed with initial active surveillance and delayed prostatectomy versus those treated with immediate surgery in order to better understand this expectant management approach outside of the context of academic cohorts. We hypothesized that delays in surgery due to initial surveillance would not impact surgical pathological outcomes. MATERIAL AND METHODS: We performed a prospective cohort study of two groups of patients with National Comprehensive Cancer Network low-risk prostate cancer from practices in the Michigan Urological Surgery Improvement Collaborative (MUSIC): men who chose initial active surveillance and went on to delayed prostatectomy and those who chose immediate prostatectomy. Diagnoses occurred from January 2011 through August 2015. For these two groups, we compared radical prostatectomy Gleason scores, and rates of extra-prostatic disease, positive surgical margins, seminal vesicle invasion, and lymph node metastases. RESULTS: During median follow-up of 506

days, 79 (6%) of 1,359 low-risk men choosing initial surveillance transitioned to prostatectomy. Compared to those treated with immediate prostatectomy (n=778), men undergoing delayed surgery were more likely to have Gleason score  $\geq 7$  (69.2% vs 48.8% respectively,  $p=0.004$ ), but no more likely to have positive margins, extra-prostatic extension, seminal vesicle invasion, or lymph node metastases. CONCLUSIONS: Patients with low risk prostate cancer that enter active surveillance have higher grade disease at prostatectomy compared to those undergoing immediate surgery. However, the lack of differences in other adverse pathologic outcomes suggests preservation of the window of curability.

**Bahado-Singh RO**, Graham SF, Han BS, Turkoglu O, **Ziadeh J**, Mandal R, Er A, Wishart DS and Stahel PL (2016). "Serum metabolomic markers for traumatic brain injury: A mouse model." *Metabolomics* 12(6): 1-12.

[Full-Text](#)

*Department of Obstetrics and Gynecology*

*Department of Emergency Medicine*

Introduction: Traumatic brain injury (TBI) is physical injury to brain tissue that temporarily or permanently impairs brain function. Objectives: Evaluate the use of metabolomics for the development of biomarkers of TBI for the diagnosis and timing of injury onset. Methods: A validated model of closed injury TBI was employed using 10 TBI mice and 8 sham operated controls. Quantitative LC-MS/MS metabolomic analysis was performed on the serum. Results: Thirty-six (24.0 %) of 150 metabolites were altered with TBI. Principal component analysis (PCA) and Partial least squares discriminant analysis (PLS-DA) analyses revealed clear segregation between TBI versus control sera. The combination of methionine sulfoxide and the lipid PC aa C34:4 accurately diagnosed TBI, AUC (95 % CI) 0.85 (0.644–1.0). A combination of metabolite markers were highly accurate in distinguishing early (4 h post TBI) from late (24 h) TBI: AUC (95 % CI) 1.0 (1.0–1.0). Spermidine, which is known to have an antioxidant effect and which is known to be metabolically disrupted in TBI, was the most discriminating biomarker based on the variable importance ranking in projection (VIP) plot. Several important metabolic pathways were found to be disrupted including: pathways for arginine, proline, glutathione, cysteine, and sphingolipid metabolism. Conclusion: Using serum metabolomic analysis we were able to identify novel putative serum biomarkers of TBI. They were accurate for detecting and determining the timing of TBI. In addition, pathway analysis provided important insights into the biochemical mechanisms of brain injury. Potential clinical implications for diagnosis, timing, and monitoring brain injury are discussed. © 2016, Springer Science+Business Media New York.

Bailey TS, **Grunberger G**, Bode BW, Handelsman Y, Hirsch IB, Jovanovic L, Roberts VL, Rodbard D, Tamborlane WV and Walsh J (2016). "American Association of Clinical Endocrinologists and American College of Endocrinology 2016 Outpatient Glucose Monitoring Consensus Statement." *Endocrine Practice* 22(2): 231-261.

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*Department of Internal Medicine*

**Bastani A**, **Clark C**, **Bozyk P**, Grove S and **Anderson W** (2016). "Can we predict severe sepsis outcomes utilizing shock index?" *Academic Emergency Medicine* 23: S161-S162.

[Full-Text](#)

*Department of Emergency Medicine*

*Department of Internal Medicine*

Background: The shock index (SI), heart rate/systolic blood pressure, has previously been used in trauma patients to predict severity of illness. More recently the SI has been reported to predict elevated lactate and mortality in patients with severe sepsis/septic shock (SS/SS). Due to its ease of acquisition, SI has the potential to become the ideal real-time prognosticator for SS/SS patients both within the emergency department and on the wards. Objectives: Our objectives were to evaluate the initial SI's ability to predict in-house mortality and/or hyperlactatemia among all SS/SS patients within our three hospital system. Methods: We conducted a retrospective review of our SS/SS data from Jan 1st, 2015 to Jun 30th, 2015 utilizing an automated data aggregator built within our electronic medical record. This data-set provides quality assurance information regarding SS/SS patients across three hospitals within our health system, one large academic center and two community hospitals totaling 240,000 ED visits annually. Our review consisted of five main variables: 1) SI at 1.0 (SIHI), 2) SI at 0.7 (SILO), 3) Lactate at 4.0 (LAHI), 4) Lactate at 2.2 (LALO)

and 5) In-house mortality. Our primary outcome measure was the ability of the SIHI and SILO to predict in-house mortality. Our secondary outcomes were the ability of SIHI and SILO to predict LALO and LHI across all four permutations. The data was analyzed using descriptive statistics, 2x2 tables were created to assess for significance using Fisher's Exact test. Results: A total of 547 SS/SS patients presented to all three hospitals during the study period of whom 99 (18.1%) expired. Neither SIHI nor SILO were able to predict in-house mortality within our cohort,  $p = 0.805$  and  $p = 0.907$  respectively (See Table #1). However, SIHI was correlated with LAHI ( $p = 0.003$ ) and LALO ( $p < 0.001$ ). SILO was also correlated with LAHI and LALO with  $p < 0.001$  for both calculations. Conclusion: Within our three hospital cohort of SS/SS patients, the SI was not predictive of in-house mortality. However, SI did correlate with hyperlactatemia, which may make it a valuable marker of sepsis severity, particularly during the screening process. (Table presented).

Batman A, **Menoch M** and **Levasseur K** (2016). "Utility of a pediatric early warning score to identify disposition of potential septic patients in a pediatric emergency department." *Academic Emergency Medicine* 23: S152-S153.

[Full-Text](#)

*Department of Emergency Medicine*

Background: Sepsis in pediatric patients accounts for a significant amount of morbidity and mortality and can often be difficult to diagnose. Pediatric early warning score (PEWS) is a clinical severity score that has been validated on the pediatric floors and Emergency Department (ED) to identify evolving clinical deterioration. The utility of PEWS for detection of specific disease states, such as sepsis, is unknown. Objectives: To determine how well PEWS predicts disposition status in pediatric patients in sepsis or septic shock. Methods: A retrospective electronic chart review was performed from December 2013 through April 2015 of all ED visits for patients 0- 17 years of age who presented to an academic pediatric ED. Patients included in the study had to meet criteria for enrollment in the American Academy of Pediatrics: Pediatric Septic Shock Collaborative (PSSC) based on the trigger tool including vital signs and physical exam (appendix A). If patients had multiple visits with sepsis, only their first visit during this time period was included. These visits were then queried for age, race, gender, disposition, length of stay, treatment given (antibiotics, vasopressors, IV fluids), and PEWS score 0-11. Results: 192 visits, 175 had PEWS documented (173 individual patients). 52.6% were male; median age was 39 months (IQR: (19, 148). 44.5% Caucasian, 28.9% African American, 6.4% Asian and 20.2% were unknown. 120 (69.4%) were admitted. Median length of stay for discharged patients is 3.2 hours and for inpatients is 55.1 hours. For admitted patients, median PEWS was 3 (interquartile range = 2 to 5); for discharged patients, median PEWS was 2 (interquartile range = 1 to 3). 73% of patients with PEWS  $\geq 3$  were admitted; 65% of patients with PEWS  $< 3$  were admitted (table 1). The odds of admission with PEWS score  $\geq 3$  are 43% higher than the odds of admission with PEWS score  $< 3$ . The nonparametric version of Cochran-Armitage test for trend relating PEWS score to disposition was 1.79 ( $p=0.07$ ), suggesting that the proportion of admission might increase with PEWS score. Conclusion: PSSC patients with a PEWS  $>3$  may have a greater probability of being admitted. PEWS may be helpful in predicting disposition of patients who initially meet criteria for sepsis. More research is needed to determine if PEWS is a predictor of septic patients. (Table presented).

**Bauer ST**, Price L, MacEachern MP, Housey MT, Langen E and Bauer ME (2016). "Maternal leukocytosis after antenatal corticosteroid administration: A systematic review and meta-analysis [15]." *Obstetrics and Gynecology* 127(Suppl 1): 6s.

[Full-Text](#)

*Department of Obstetrics and Gynecology*

INTRODUCTION: To establish the expected range of maternal leukocytosis in healthy pregnant women without infection after antenatal corticosteroid administration. METHODS: PubMed, Embase, and ClinicalTrials.gov were searched to identify studies that reported white blood cell (WBC) counts in healthy women with singleton gestations without signs of clinical infection preceding and after antenatal corticosteroid administration at 24, 48, 72, and/or 96 hours. The mean, standard deviation, and two standard deviations from the mean were reported. The inverse variance weighting technique was used to calculate weighted means, as well as one and two standard deviations from the mean to determine the expected range of WBC count for each time period. RESULTS: Eight studies met inclusion criteria (695 patients and 1,748 data points). Mean maternal WBC count values prior to antenatal corticosteroid administration and 24,

48, 72, and 96 hours after corticosteroid administration were 10.4, 13.7, 12.8, 11.5, and 11.1x10<sup>6</sup>/L, respectively. A subset of patients with preterm premature rupture of membranes (PPROM) had mean WBC count values prior to corticosteroid administration and 24 and 48 hours after corticosteroid administration of 10.0, 13.8, and 13.0x10<sup>6</sup>/L. The highest second standard deviation from the mean was 18.3x10<sup>6</sup>/L, which occurred at 24 hours after antenatal corticosteroid administration. CONCLUSION/IMPLICATIONS: Leukocytosis mean peaks at 24 hours after corticosteroid administration. The highest second standard deviation from the mean was 18.3x10<sup>6</sup>/L. More studies are required to determine if further infectious workup is warranted in women receiving antenatal corticosteroids when WBC values are outside of this range.

Beeravolu N, Khan I, McKee C, Dinda S, Thibodeau B, **Wilson G, Perez-Cruet M, Bahado-Singh R** and Chaudhry GR (2016). "Isolation and comparative analysis of potential stem/progenitor cells from different regions of human umbilical cord." *Stem Cell Research* 16(3): 696-711.

[Full-Text](#)

*Department of Radiation Oncology*

*Department of Neurosurgery*

*Department of Obstetrics and Gynecology*

Human umbilical cord (hUC) blood and tissue are non-invasive sources of potential stem/progenitor cells with similar cell surface properties as bone marrow stromal cells (BMSCs). While they are limited in cord blood, they may be more abundant in hUC. However, the hUC is an anatomically complex organ and the potential of cells in various sites of the hUC has not been fully explored. We dissected the hUC into its discrete sites and isolated hUC cells from the cord/placenta junction (CPJ), cord tissue (CT), and Wharton's jelly (WJ). Isolated cells displayed fibroblastoid morphology, and expressed CD29, CD44, CD73, CD90, and CD105, and showed evidence of differentiation into multiple lineages in vitro. They also expressed low levels of pluripotency genes, OCT4, NANOG, SOX2 and KLF4. Passaging markedly affected cell proliferation with concomitant decreases in the expression of pluripotency and other markers, and an increase in chondrogenic markers. Microarray analysis further revealed the differences in the gene expression of CPJ-, CT- and WJ-hUC cells. Five coding and five lncRNA genes were differentially expressed in low vs. high passage hUC cells. Only MAEL was expressed at high levels in both low and high passage CPJ-hUC cells. They displayed a greater proliferation limit and a higher degree of multi-lineage differentiation in vitro and warrant further investigation to determine their full differentiation capacity, and therapeutic and regenerative medicine potential. © 2016 The Authors.

Benzon HT, Asher YG and **Hartrick CT** (2016). "Back pain and neuraxial anesthesia." *Anesthesia and Analgesia* 122(6): 2047-2058.

[Full-Text](#)

*Department of Anesthesiology*

The incidence of back pain after neuraxial anesthesia in the adult population is not different from that after general anesthesia. The pain is usually mild, localized in the low back, rarely radiates to the lower extremities, and has a duration of only a few days. The risk factors for development of back pain include the lithotomy position, multiple attempts at block placement, duration of surgery longer than 2.5 hours, body mass index  $\geq 32$  kg/m<sup>2</sup>, and a history of back pain. However, there is no permanent worsening of preexisting back pain after neuraxial anesthesia. The back pain has been attributed to tears in the ligaments, fascia, or bone with localized bleeding; immobility of the spine; relaxation of the paraspinal muscles under anesthesia; flattening of the normal lumbar convexity; and stretching and straining of the lumbosacral ligaments and joint capsules. The addition of an anti-inflammatory drug to the local anesthetic used for skin infiltration may decrease the incidence and severity of back pain. The use of spinal or epidural anesthesia in the adult, non-obstetric and obstetric populations should depend on the advantages offered by the technique and not on the occurrence of back pain after the procedure. Additional studies are needed to confirm the efficacy of epidural dexamethasone, or other steroids, or the addition of an anti-inflammatory drug to the local anesthetic infiltration for the prevention of back pain after neuraxial anesthesia. Future studies should involve a physician with expertise in the evaluation of chronic low back pain to help identify the cause of the back pain and institute appropriate treatment(s). © 2016 International Anesthesia Research Society.



Bhatti S, Hendel RC, Lopez-Mattei J, Schwartz RG, **Raff G** and Einstein AJ (2016). "Frequent MUGA testing in a myeloma patient: A case-based ethics discussion." Journal of Nuclear Cardiology. ePub Ahead of Print.

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*Department of Internal Medicine*

Blatt AZ, Saggi G, Kulkarni KV, **Cortes C**, Thurman JM, Ricklin D, Lambris JD, Valenzuela JG and Ferreira VP (2016). "Properdin-mediated c5a production enhances stable binding of platelets to granulocytes in human whole blood." Journal of Immunology 196(11): 4671-4680.

[Full-Text](#)

*Department of Biomedical Sciences (OU)*

Enhanced levels of platelet/granulocyte aggregates (PGAs) are found in patients suffering from many different inflammatory vascular diseases, and their formation in animal models of vascular disease is associated with increased thromboinflammation and worsened outcomes. The complement system, a part of the innate immune system, influences PGA formation, but the mechanisms for its effects are unknown. In this study, we have defined complement-mediated mechanisms that enhance PGA formation in human whole blood stimulated with thrombin receptor-activating peptide (TRAP) using ex vivo flow cytometry assays. We demonstrate that physiological properdin, a positive regulator of complement alternative pathway activity, increases PGA formation when added to TRAP-stimulated blood. All physiological properdin forms increase PGA formation, but properdin tetramers are the most efficient at increasing complement activity and PGA formation. Inhibition of endogenous properdin, either circulating in the blood or produced locally by leukocytes, impairs TRAP-mediated PGA formation to the same level as specific inhibition of either the alternative or classical pathway. Additionally, blocking the interaction of C5a with its cellular receptor prevents properdin-mediated increases in PGA formation. Adding either properdin tetramers or C5a to whole blood increases CD11b expression on granulocytes, and this increase is prevented by blockade of the C5a-C5a receptor axis. Finally, we demonstrate that the effects of properdin on PGA formation are tightly regulated by Factor H. Cumulatively, our data indicate that properdin enhances PGA formation via increased production of C5a, and that inhibition of properdin function has therapeutic potential to limit thromboinflammation in diseases characterized by increased PGA formation. Copyright © 2016 by The American Association of Immunologists, Inc.

Brown JR, **Rezaee ME**, Hisey WM, Cox KC, Matheny ME and Sarnak MJ (2016). "Reduced mortality associated with acute kidney injury requiring dialysis in the United States." American Journal of Nephrology 43(4): 261-270.

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*OUWB Medical Student Author*

Background: Dialysis-requiring acute kidney injury (AKI-D) is a documented complication of hospitalization and procedures. Temporal incidence of AKI-D and related hospital mortality in the US population has not been recently characterized. We describe the epidemiology of AKI-D as well as associated in-hospital mortality in the US. Methods: Retrospective cohort of a national discharge data (n = 86,949,550) from the Healthcare Cost and Utilization Project's National Inpatient Sample, 2001-2011 of patients' hospitalization with AKI-D. Primary outcomes were AKI-D and in-hospital mortality. We determined the annual incidence rate of AKI-D in the US from 2001 to 2011. We estimated ORs for AKI-D and in-hospital mortality for each successive year compared to 2001 using multiple logistic regression models, adjusted for patient and hospital characteristics, and stratified the analyses by sex and age. We also calculated population-attributable risk of in-hospital mortality associated with AKI-D. Results: The adjusted odds of AKI-D increased by a factor of 1.03 (95% CI 1.02-1.04) each year. The number of AKI-D-related (19,886-34,195) in-hospital deaths increased almost 2-fold, although in-hospital mortality associated with AKI-D (28.0-19.7%) declined significantly from 2001 to 2011. Over the same period, the adjusted odds of mortality for AKI-D patients were 0.60 (95% CI 0.56-0.67). Population-attributable risk of mortality associated with AKI-D increased (2.1-4.2%) over the study period. Conclusions: The incidence rate of AKI-D has increased considerably in the US since 2001. However, in-hospital mortality associated with AKI-D hospital admissions has decreased significantly. © 2016 S. Karger AG, Basel.

Brown JR, **Rezaee ME**, Marshall EJ and Matheny ME (2016). "Hospital mortality in the United States following acute kidney injury." BioMed Research International 19(100): 1-6.

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*OUWB Medical Student Author*

Acute kidney injury (AKI) is a common reason for hospital admission and complication of many inpatient procedures. The temporal incidence of AKI and the association of AKI admissions with in-hospital mortality are a growing problem in the world today. In this review, we discuss the epidemiology of AKI and its association with in-hospital mortality in the United States. AKI has been growing at a rate of 14% per year since 2001. However, the in-hospital mortality associated with AKI has been on the decline starting with 21.9% in 2001 to 9.1 in 2011, even though the number of AKI-related in-hospital deaths increased almost twofold from 147,943 to 285,768 deaths. We discuss the importance of the 71% reduction in AKI-related mortality among hospitalized patients in the United States and draw on the discussion of whether or not this is a phenomenon of hospital billing (coding) or improvements to the management of AKI. © 2016 Jeremiah R. Brown et al.

Burks CE, Richmond NL, Braz VA, **Swor RA**, Jones CW, Weaver M and Platts-Mills T (2016). "Modifiable risk factors for malnutrition among older adults receiving care in the emergency department." Journal of the American Geriatrics Society 64(Supplement 1): S97.

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*Department of Emergency Medicine*

Burmeister J, Chen Z, Chetty JJ, Dieterich S, Doemer A, Dominello MM, Howell RM, **McDermott P**, Nalichowski A, Prisciandaro J, Ritter T, Smith C, Schreiber E, Shafman T, Sutlief S and Xiao Y (2016). "The American Society for Radiation Oncology's 2015 core physics curriculum for radiation oncology residents." International Journal of Radiation Oncology Biology Physics 95(4): 1298-1303.

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*Department of Radiation Oncology*

**Purpose** The American Society for Radiation Oncology (ASTRO) Physics Core Curriculum Subcommittee (PCCSC) has updated the recommended physics curriculum for radiation oncology resident education to improve consistency in teaching, intensity, and subject matter. **Methods and Materials** The ASTRO PCCSC is composed of physicists and physicians involved in radiation oncology residency education. The PCCSC updated existing sections within the curriculum, created new sections, and attempted to provide additional clinical context to the curricular material through creation of practical clinical experiences. Finally, we reviewed the American Board of Radiology (ABR) blueprint of examination topics for correlation with this curriculum. **Results** The new curriculum represents 56 hours of resident physics didactic education, including a 4-hour initial orientation. The committee recommends completion of this curriculum at least twice to assure both timely presentation of material and re-emphasis after clinical experience. In addition, practical clinical physics and treatment planning modules were created as a supplement to the didactic training. Major changes to the curriculum include addition of Fundamental Physics, Stereotactic Radiosurgery/Stereotactic Body Radiation Therapy, and Safety and Incidents sections, and elimination of the Radiopharmaceutical Physics and Dosimetry and Hyperthermia sections. Simulation and Treatment Verification and optional Research and Development in Radiation Oncology sections were also added. A feedback loop was established with the ABR to help assure that the physics component of the ABR radiation oncology initial certification examination remains consistent with this curriculum. **Conclusions** The ASTRO physics core curriculum for radiation oncology residents has been updated in an effort to identify the most important physics topics for preparing residents for careers in radiation oncology, to reflect changes in technology and practice since the publication of previous recommended curricula, and to provide practical training modules in clinical radiation oncology physics and treatment planning. The PCCSC is committed to keeping the curriculum current and consistent with the ABR examination blueprint.

Burns RL and **Bhavnagri SJ** (2016). "Undiagnosed Sjogren's Syndrome presenting as mesenteric panniculitis." Case Reports in Rheumatology 2016: 7207638.

[Full-Text](#)

*Department of Diagnostic Radiology and Molecular Imaging*

Mesenteric panniculitis is a rare inflammatory and fibrotic process that affects the small intestine mesentery. It may occur following abdominal surgery or in association with a variety of conditions, including malignancy, infection, and certain autoimmune and inflammatory conditions. Herein, an unusual case of mesenteric panniculitis in a patient with primary Sjogren's syndrome will be presented. The patient presented with abdominal pain, weight loss, sicca symptoms, fatigue, and arthralgia. An abdominal CT revealed mesenteric fat stranding and prominent lymph nodes of the small intestine mesentery. She was found on laboratory workup to have positive antinuclear and anti-SSa antibodies. Minor salivary gland lip biopsy revealed focal lymphocytic sialadenitis. The patient's symptoms and CT findings improved with corticosteroids. This case suggests that Sjogren's syndrome should be considered as an underlying disease process in the evaluation of patients with mesenteric panniculitis.

**Cappell MS** (2016). "Massive prostatomegaly as a proposed unusual etiology of chronic diarrhea-predominant IBS with rectal urgency: Symptomatic relief after radical prostatectomy." Minerva Gastroenterologica e Dietologica 62(3): 269-270.

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*Department of Internal Medicine*

**Cappell MS** and Gillikin D (2016). "Major bibliographic errors in PubMed: Personal experience among 240 publications and proposed remediation process for errors." Journal of the Medical Library Association 104: 83-84.

[Full-Text](#)

*Department of Internal Medicine*

**Cappell MS**, Singh D, Sage R and **Amin MB** (2016). "Resolution of isolated, aspergillus colonization in a deep esophageal ulcer in an immunocompetent patient with ulcer healing without specific antifungal therapy." Digestive Diseases and Sciences 61(8): 2445-2450.

[Full-Text](#)

*Department of Internal Medicine*

*Department of Pathology*

Carty J, Lumley M, Holmes H, Tomakowsky J, Schubiner H, Dove-Medows E and **Peters K** (2016). "The effects of a stress and emotion interview for women with urogenital pain: A randomized trial." Journal of Pain 17(4): S103.

[Full-Text](#)

*Department of Urology*

Women with urogenital pain conditions such as interstitial cystitis, pelvic floor dysfunction, and vulvodynia, have elevated rates of lifetime trauma, emotional conflict, and mood disorders; but brief interventions that directly target trauma disclosure and emotion/pain links are lacking. Thus, we developed and conducted an initial test of a single, 90-minute, intensive interview, which examined links between trauma, emotional conflicts, and pelvic symptoms, and encouraged adaptive emotional expression. A sample of 61 women with urogenital pain (age M = 46.2 years, 87.3% Caucasian) was recruited from a tertiary care women's urology clinic, assessed for pelvic floor symptoms (PFDI), psychological distress (BSI), and interpersonal problems (IIP-32), and randomized to interview or wait-list control conditions. Patient and interviewer ratings were obtained post-interview, and conditions were compared on symptoms, distress, and interpersonal problems after 6 weeks. The majority of the 37 patients interviewed reported the interview useful (55%), taught them new skills (75%), and increased understanding of their problems (69.5%). Therapists perceived the vast majority of these patients as motivated to participate (91.9%), but noted many had at least moderate difficulty expressing emotions (81%) and developing new insights (72.9%). Repeated measures ANOVAs compared the conditions. The interview condition had marginally greater reduction in pelvic symptoms than controls,  $F(1, 59) = 2.89, p = .09$ . Interestingly, depression was marginally greater in the interview than control condition,  $F(1, 60) = 3.50, p = .07$ , and problems in interpersonal dominance / control were higher in



the interview condition than controls,  $F(1, 58) = 5.95, p = .02$ . These results suggest mixed outcomes for the interview. Many patients found it valuable, but some did not, and many had difficulty engaging in emotional expression. The interview raised patients' awareness of their negative emotions and problematic interpersonal styles, which might have led to a reduction in their physical symptoms.

Chartier-Kastler E, Rovner E, Hepp Z, Khalaf K, Ni Q and **Chancellor M** (2016). "Patient-reported goal achievement following onabotulinumtoxinA treatment in patients with neurogenic detrusor overactivity." Neurourology and Urodynamics 35(5): 595-600.

[Full-Text](#)

*Department of Urology*

**Aims:** To identify the self-reported treatment goals of patients with urinary incontinence (UI) due to neurogenic detrusor overactivity (NDO), determine whether patients achieved their goals following onabotulinumtoxinA treatment, and assess impact of neurogenic disease (multiple sclerosis or spinal cord injury) and/or clean intermittent catheterization (CIC) on goal achievement. **Methods:** Data from two Phase III studies of onabotulinumtoxinA 200U ( $n = 227$ ) or placebo ( $n = 241$ ) in NDO patients ( $\geq 14$  UI episodes/week; inadequately managed by anticholinergics) were pooled for analysis. At baseline, patients listed their top two qualitative treatment goals, which were distributed into eight subcategories. Six weeks post-treatment, patients rated whether they achieved their goals (5-point Likert scale). The frequency distribution of goals, the proportion of patients who achieved their goals, and goal achievement by etiology and use/non-use of CIC were assessed. **Results:** At baseline, the most common goals were "be dry" (37.9%), "reduce other urinary symptoms" (26.4%), and "improve quality of life/sleep/emotions" (21.4%). Significantly higher proportions of onabotulinumtoxinA-treated patients achieved their overall goals versus placebo (62.0% vs. 17.2%;  $P < 0.001$ ). OnabotulinumtoxinA treatment resulted in higher goal achievement in all goal categories, regardless of etiology. CIC use did not negatively impact patients' overall goal achievement; significantly higher proportions of onabotulinumtoxinA-treated patients versus placebo achieved their goals regardless of baseline catheterization use or de novo CIC during the first 6 weeks of the study. **Conclusions:** The majority of patients with UI due to NDO achieved their self-determined treatment goals following onabotulinumtoxinA 200U therapy, regardless of etiology or CIC use. *Neurourol. Urodynam.* 35:595–600, 2016. © 2015 The Authors. *Neurourology and Urodynamics*, published by Wiley Periodicals, Inc.

Chen S, Quan H, **Qin A**, Yee S and **Yan D** (2016). "MR image-based synthetic CT for IMRT prostate treatment planning and CBCT image-guided localization." Journal of Applied Clinical Medical Physics 17(3): 236-245.

[Request Form](#)

*Department of Radiation Oncology*

The purpose of this study was to propose and evaluate a method of creating a synthetic CT (S-CT) from MRI simulation for dose calculation and daily CBCT localization. A pair of MR and CT images was obtained in the same day from each of 10 prostate patients. The pair of MR and CT images was preregistered using the deformable image registration (DIR). Using the corresponding displacement vector field (atlas-DVF), the CT image was deformed to the MR image to create an atlas MR-CT pair. Regions of interest (ROI) on the atlas MR-CT pair were delineated and used to create atlas-ROI masks. 'Leave-one-out' test (one pair of MR and CT was used as subject-MR and subject-CT for evaluation, and the remaining 9 pairs were in the atlas library) was performed. For a subject-MR, autosegmentation and DVFs were generated using DIR between the subject-MR and the 9 atlas-MRs. An S-CT was then generated using the corresponding 9 paired atlas-CTs, the 9 atlas-DVFs and the corresponding atlas-ROI masks. The total 10 S-CTs were evaluated using the Hounsfield unit (HU), the calculated dose distribution, and the auto bony registration to daily CBCT images with respect to the 10 subject-CTs. HU differences (mean  $\pm$  STD) were ( $2.4 \pm 25.23$ ), ( $1.18 \pm 39.49$ ), ( $32.46 \pm 81.9$ ), ( $0.23 \pm 40.13$ ), and ( $3.74 \pm 144.76$ ) for prostate, bladder, rectal wall, soft tissue outside all ROIs, and bone, respectively. The discrepancy of dose-volume parameters calculated using the S-CT for treatment planning was small ( $\leq 0.22\%$  with 95% confidence). Gamma pass rate (2% & 2 mm) was higher than 99.86% inside PTV and 98.45% inside normal structures. Using the 10 S-CTs as the reference CT for daily CBCT localization achieved the similar results compared to using the subject-CT. The translational vector differences were within 1.08 mm ( $0.37 \pm 0.23$  mm), and the rotational differences were within  $1.1^\circ$  in all three directions. S-CT created from a simulation MR image using the proposed approach with the preconstructed

atlas library can replace the planning CT for dose calculation and daily CBCT image guidance.

Chen S, **Yan D, Wilson G, Krauss D** and **Chen P** (2016). "TH-CD-202-10: Tumor metabolic control probability & dose response mapping for adaptive dose painting by number." *Medical Physics* 43(6): 3878.

[Request Form](#)

*Department of Radiation Oncology*

Cheung AY, Yonekawa Y, **Balaraman S**, Thomas BJ, Xi AM, **Folberg R, Amin M**, Miller KT and **Faia LJ** (2016). "Multimodal imaging and histologic correlation of isolated metastasis of prostate adenocarcinoma to the choroid." *Retinal Cases & Brief Reports*. ePub Ahead of Print.

[Request Form](#)

*Department of Internal Medicine*

*Administration*

*Department of Pathology*

*Department of Ophthalmology*

**PURPOSE:** To provide correlative clinical-multimodal imaging-histopathologic findings of isolated prostatic choroidal metastasis. **METHODS:** Ophthalmologic examination, fluorescein angiogram, spectral-domain optical coherence tomography, fundus autofluorescence, computerized tomography, magnetic resonance imaging, positive emission tomography, CSF analysis, serologies, tissue pathology with immunohistochemistry, and examination of relevant literature. **RESULTS:** A 76-year-old man with a history of prostate adenocarcinoma was referred for 2 months of unilateral blurry vision. Fundus examination revealed elevated deep orange choroidal lesions in the macula with overlying retinal pigment epithelium mottling and subretinal fluid. Fluorescein angiogram demonstrated alternating areas of hypofluorescence and hyperfluorescence (staining) without leakage. Optical coherence tomography revealed dome-shaped and lumpy choroidal lesions with surrounding undulating "lumpy bumpy" and "rippled/seasick" patterns. Workup for a primary or additional metastatic lesion including computerized tomography of head/chest/abdomen/pelvis, lumbar puncture, magnetic resonance imaging brain, and whole-body positive emission tomography scan was negative. Full-thickness excisional chorioretinal biopsy was obtained through pars plana vitrectomy with diathermy and vertical scissors. Histologic examination revealed adenocarcinoma with weak positive staining for prostate specific antigen, moderate positive staining for P501S (prostein), and strong positive staining for prostatic acid phosphatase, consistent with metastasis from a prostate primary. Treatment consisted of local radiation with regression of the metastatic tumor. The patient is also on concomitant androgen deprivation treatment because there is a very high incidence of systemic recurrence due to hematogenous involvement. The patient's vision has continued to improve 6 months past treatment. **CONCLUSION:** The authors present a unique case to highlight the multimodal imaging and histology of a rare presentation of biopsy-proven, isolated metastasis of prostate adenocarcinoma to the choroid. Systemic workup is required, and if unrevealing of a primary or metastatic lesion, full-thickness chorioretinal biopsy and histopathology can provide a definitive diagnosis, allowing optimal treatment. Chorioretinal biopsy is a useful technique and may allow for visual preservation while also giving superior histologic quality.

Chin JL, Billia M, **Relle J**, Roethke MC, Popeneciu IV, Kuru TH, Hatiboglu G, Mueller-Wolf MB, Motsch J, Romagnoli C, Kassam Z, Harle CC, **Hafron J, Nandalur KR**, Chronik BA, Burtnyk M, Schlemmer HP and Pahernik S (2016). "Magnetic resonance imaging-guided transurethral ultrasound ablation of prostate tissue in patients with localized prostate cancer: A prospective phase 1 clinical trial." *European Urology*. ePub Ahead of Print.

[Full-Text](#)

*Department of Urology*

*Department of Diagnostic Radiology and Molecular Imaging*

**BACKGROUND:** Magnetic resonance imaging-guided transurethral ultrasound ablation (MRI-TULSA) is a novel minimally invasive technology for ablating prostate tissue, potentially offering good disease control of localized cancer and low morbidity. **OBJECTIVE:** To determine the clinical safety and feasibility of MRI-TULSA for whole-gland prostate ablation in a primary treatment setting of localized prostate cancer (PCa). **DESIGN, SETTING, AND PARTICIPANTS:** A single-arm prospective phase 1 study was performed at three tertiary referral centers in Canada, Germany, and the United States. Thirty patients (median age: 69 yr; interquartile

range [IQR]: 67-71 yr) with biopsy-proven low-risk (80%) and intermediate-risk (20%) PCa were treated and followed for 12 mo. INTERVENTION: MRI-TULSA treatment was delivered with the therapeutic intent of conservative whole-gland ablation including 3-mm safety margins and 10% residual viable prostate expected around the capsule. OUTCOME MEASUREMENTS AND STATISTICAL ANALYSIS: Primary end points were safety (adverse events) and feasibility (technical accuracy and precision of conformal thermal ablation). Exploratory outcomes included quality of life, prostate-specific antigen (PSA), and biopsy at 12 mo. RESULTS AND LIMITATIONS: Median treatment time was 36min (IQR: 26-44) and prostate volume was 44ml (IQR: 38-48). Spatial control of thermal ablation was +/-1.3mm on MRI thermometry. Common Terminology Criteria for Adverse Events included hematuria (43% grade [G] 1; 6.7% G2), urinary tract infections (33% G2), acute urinary retention (10% G1; 17% G2), and epididymitis (3.3% G3). There were no rectal injuries. Median pretreatment International Prostate Symptom Score 8 (IQR: 5-13) returned to 6 (IQR: 4-10) at 3 mo (mean change: -2; 95% confidence interval [CI], -4 to 1). Median pretreatment International Index of Erectile Function 13 (IQR: 6-28) recovered to 13 (IQR: 5-25) at 12 mo (mean change: -1; 95% CI, -5 to 3). Median PSA decreased 87% at 1 mo and was stable at 0.8 ng/ml (IQR: 0.6-1.1) to 12 mo. Positive biopsies showed 61% reduction in total cancer length, clinically significant disease in 9 of 29 patients (31%; 95% CI, 15-51), and any disease in 16 of 29 patients (55%; 95% CI, 36-74). CONCLUSIONS: MRI-TULSA was feasible, safe, and technically precise for whole-gland prostate ablation in patients with localized PCa. Phase 1 data are sufficiently compelling to study MRI-TULSA further in a larger prospective trial with reduced safety margins. PATIENT SUMMARY: We used magnetic resonance imaging-guided transurethral ultrasound to heat and ablate the prostate in men with prostate cancer. We showed that the treatment can be targeted within a narrow range (1mm) and has a well-tolerated side effect profile. A larger study is under way. TRIAL REGISTRATION: NCT01686958, DRKS00005311.

Conley A, Tarboush M, Manatsathit W, Meguid A, Szpunar S and **Hawasli A** (2016). "Do gallstones found before sleeve gastrectomy behave the same as those formed after surgery due to weight loss?" [American Journal of Surgery](#). ePub Ahead of Print.

[Full-Text](#)

*Department of Surgery*

Background: Gallstone formation is prevalent in the bariatric population and after weight loss. We believe that gallstones found preoperatively behave differently and may not cause significant complications as those developing after weight loss. Thus, prophylactic cholecystectomy before or during sleeve gastrectomy (SG) may not be necessary. Methods: Patients undergoing SG from January 2011 to May 2012 were evaluated for the presence of gallstones and development of symptoms or need for cholecystectomy postoperatively. Results: Group 1 (n = 18) had gallstones preoperatively. Group 2 (n = 29) developed gallstones after weight loss. Both groups' demographics were similar. Symptomatic gallstones occurred in 1 patient (5.6%) in group 1 and in 9 patients (31.0%) in group 2 (P = .19). Percent excess body mass index loss (%EBL) was 58 ± 24% vs 70 ± 22% (P = .11) with a mean follow-up of 8.9 ± 6.2 and 14.7 ± 3.9 months for group 1 and group 2, respectively (P = .005). Conclusions: Asymptomatic gallstones found before SG tend to have less risk of becoming symptomatic than those formed after weight loss. There was no statistical significant difference because of small sample. Prophylactic cholecystectomy, however, may not be warranted in these patients.

**DeVries JM** and Wilson S (2016). "GME policy: Promotion of resident/fellow wellness & reduction of stress (iCollaborative)." MedEdPortal Resource ID 4216

[Full-Text](#)

*Department of Pediatrics*

This is a GME policy promoting wellness and early identification of excess stress.

Diaz D, **Lick D**, Abdel-Aty K, Dulku J, Mir K and Ricketts R (2016). "Comparison of exclusion rates between station-based and single provider preparticipation evaluations: 340 Board #177 June 1, 11: 00 AM - 12: 30 PM." [Medicine & Science in Sports & Exercise](#) 48(5 Suppl 1): 88.

[Full-Text](#)

*Department of Family Medicine*

Doblecki-Lewis S, Chang A, **Jiddou-Yaladoo R**, Tomashek KM, Stanek D, Anil L and Lichtenberger P (2016). "Knowledge, attitudes, and practices of Florida physicians regarding dengue before and after an educational intervention." BMC Medical Education 16(1): 124.

[Full-Text](#)

*Department of Internal Medicine*

**BACKGROUND:** Failure to recognize and appropriately manage dengue early in the clinical course may result in late initiation of supportive treatment for severe disease. In Florida, travel-related and autochthonous dengue occur and are likely under-recognized. The objective of this study was to evaluate physician knowledge of dengue and its management before and after an educational intervention in Florida. **METHODS:** From 2012-13 we conducted 14 grand-rounds style lectures on dengue clinical management attended by 413 physicians, and analyzed data from the pre- and post-tests. **RESULTS:** Of those attending, 231 and 220 completed the pre-and post-tests, respectively. Overall, the mean pre-test score for knowledge-based questions was 74.3 and average post-test score was 94.2 %, indicating a mean increase of 19.9 % (P < 0.0001, 95 % CI 17.7-22.4). Reported confidence in dengue recognition and management also increased. Non-US trained physicians and those who had treated more than ten dengue cases performed significantly better in the pre-test. Post-test scores did not differ by subgroup. **CONCLUSIONS:** The train-the-trainer approach with grand-rounds style presentations appear to be an effective intervention to improve knowledge of dengue among physicians.

**Eisenbrey D**, Eisenbrey AB and **Pettengill P** (2016). "Laryngeal cuff force application modeling during air medical evacuation simulation." Air Medical Journal. ePub Ahead of Print.

[Full-Text](#)

*OUWB Medical Student Author*

*Department of Emergency Medicine*

Endotracheal tubes are intended to protect the airway and assist with mechanical ventilation in sedated patients. The blood vessels of the tracheal mucosa can be compressed by high tracheal tube cuff pressures (> 30 cm H<sub>2</sub>O), leading to reduced mucosal blood flow with resulting ischemia and morbidity. Previous research showed a direct correlation between aircraft pressure altitude and the pressure reading from the tracheal cuff, with resulting pressures > 80 cm H<sub>2</sub>O at 10,000 ft. Standard practice is to periodically remove air from the cuff during ascent based on assumed increased pressure on the adjacent tracheal mucosa. Using a vacuum chamber and a direct reading micropressure sensor in a 22-mm-diameter semirigid tube, we assessed the direct force applied by the tracheal cuff against the laryngeal tube analog. Standard tracheal cuffs showed direct force/pressure relationships when properly inflated to 20 cm H<sub>2</sub>O but much less than reported in the literature. Current literature reports values of 55 to 150 cm H<sub>2</sub>O at 5,000 ft, whereas we report 23 to 25 cm H<sub>2</sub>O. Our data indicate that a properly inflated cuff does not exceed the critical pressure of 30 cm H<sub>2</sub>O until the altitude exceeds 8,000 ft. Thus, the standard practice of deflating the laryngeal cuff on ascent should be reconsidered because it may be counterproductive to patient safety. © 2016 Air Medical Journal Associates.

Fabricant PD, Sankar WN, Seeley MA, Beaulé PE, Clohisy JC, Kim YJ, Millis MB, Peters CL, Podeszwa DA, Schoenecker PL, Sierra RJ, Sink EL, Sucato DJ and **Zaltz I** (2016). "Femoral deformity may be more predictive of hip range of motion than severity of acetabular disease in patients with acetabular dysplasia: An analysis of the ANCHOR cohort." Journal of the American Academy of Orthopaedic Surgeons 24(7): 465-474.

[Full-Text](#)

*Department of Orthopedic Surgery*

**Background:** It is generally believed that acetabular dysplasia (AD) is associated with increased hip range of motion (ROM). The purpose of this study was to investigate the associations between dysplasia severity and hip ROM in a large multicenter cohort. **Methods:** A prospective registry of patients undergoing periacetabular osteotomy for symptomatic AD by 1 of 13 surgeons was used to analyze 1,051 patients (mean age, 26 ± 10 years). Multivariable linear regression modeling was used to investigate for associations between dysplasia severity (severe, <5°; moderate, 5° to 15°; mild, >15°),  $\alpha$  angle, and hip ROM. **Results:** When controlling for age, sex, body mass index, and  $\alpha$  angle, only internal ( $\alpha$  1.94; P 0.005) and external ( $\alpha$

-2.63;  $P < 0.001$ ) rotation in extension were significantly different between groups with increasing dysplasia severity. Alpha angle was greater for those with severe AD compared with subjects with mild disease ( $60^\circ \pm 16^\circ$  versus  $57^\circ \pm 15^\circ$ ;  $P 0.038$ ). Alpha angle was also significantly correlated with rotational ROM parameters (internal and external rotation in flexion and extension) (Pearson  $r$ , range: -0.077 to -0.216;  $P < 0.05$  for all), but not with linear motion. Conclusions: Internal rotation in extension was directly associated with dysplasia severity, whereas external rotation in extension was inversely associated. Furthermore,  $\alpha$  angle was greater with increasing dysplasia severity and predictive of rotational ROM parameters. Taken together, these data suggest that femoral-sided deformity, including  $\alpha$  angle and possibly femoral version, may be responsible for differences in ROM based on dysplasia severity. © 2016 by the American Academy of Orthopaedic Surgeons.

Fredriksen S, Nasrallah HA and **Samaritan R** (2016). "The 'worried well' and the 'walking wounded': How will we know them?; 'Struggling with inner demons'." *Current Psychiatry* 15(4): e3.

[Request Form](#)

*Department of Psychiatry*

**Gillera JP**, Killinger K, **Boura J** and **Peters KM** (2016). "Number of active electrodes at time of staged tined lead interstim implant does not impact clinical outcomes." *Neurourology and Urodynamics* 35(5): 625-629.

[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  $\pm$  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  $1.5 \pm 1.5$ ,  $0.9 \pm 1.0$ , and  $0.8 \pm 1.0$ , 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. *Neurourol. Urodynam.* 35:625–629, 2016. © 2015 Wiley Periodicals, Inc. © 2015 Wiley Periodicals, Inc.

Gjeorgjievski M, Manickam P, **Ghaith G** and **Cappell MS** (2016). "Safety and efficacy of endoscopic therapy for nonmalignant duodenal duplication cysts." *Medicine (United States)* 95(22): e3799.

[Full-Text](#)

*Department of Internal Medicine*

Analyze efficacy, safety of endoscopic therapy for duodenal duplication cysts (DDC) by comprehensively reviewing case reports. Tandem, independent, systematic, computerized, literature searches were performed via PubMed using medical subject headings or Keywords "cyst" and "duodenal" and "duplication"; or "cyst", and "endoscopy" or "endoscopic", and "therapy" or "decompression"; with reconciliation of generated references by two experts. Case report followed CARE guidelines. Literature review revealed 28 cases (mean= $1.3 \pm 1.2$  cases/report). Endoscopic therapy is increasingly reported recently (1984-1999: 3 cases, 2000-2015: 25 cases,  $P=0.003$ ,  $OR=8.33$ , 95%-CI: 1.77-44.5). Fourteen (54%) of 26 patients were men (unknown-sex=2). Mean age= $32.2 \pm 18.3$  years old. Procedure indications: acute pancreatitis-16, abdominal pain-8, jaundice-2, gastrointestinal (GI) obstruction-1, asymptomatic cyst-1. Mean maximal DDC

dimension=3.20±1.53cm (range, 1-6.5cm). Endoscopic techniques included cyst puncture via needle knife papillotomy (NKP)/papillotome-18, snare resection of cyst-7, cystotome-2, and cyst needle aspiration/ligation-1. Endoscopic therapy was successful in all cases. Among 24 initially symptomatic patients, all remained asymptomatic post-therapy without relapses (mean follow-up=36.5±48.6 months, 3 others reported asymptomatic at follow-up of unknown duration; 1 initially asymptomatic patient remained asymptomatic 3 years post-therapy). Two complications occurred: mild intraprocedural duodenal bleeding related to NKP and treated locally endoscopically. A patient is reported who presented with vomiting, 15-kg-weight-loss, and profound dehydration for 1 month from extrinsic compression of duodenum by 14×6cm DDC, underwent successful endosonographic cyst decompression with large fenestration of cyst and endoscopic aspiration of 1L of fluid from cyst with rapid relief of symptoms. At endoscopy the DDC was intubated and visualized and random endoscopic mucosal biopsies were obtained to help exclude malignant or dysplastic DDC. Study limitations include retrospective literature review, potential reporting bias, limited patient number, variable follow-up. In conclusion, endoscopic therapy for DDC was efficacious in all 29 reported patients including current case, including patients presenting acutely with acute pancreatitis, or GI obstruction. Complications were rare and minor, suggesting that endoscopic therapy may be a useful alternative to surgery for nonmalignant DDC when performed by expert endoscopists. © 2016 Wolters Kluwer Health, Inc.

Goldfarb J, Borges N, **Gowans LK**, Kohn D, Worley S, Li L, Yen-Lieberman B, Lach D, Danziger-Isakov L, Yee-Guardino S, Trunick C and Pellett PE (2016). "Absence of human herpesvirus 6B detection in association with illness in children undergoing cancer chemotherapy." Journal of Medical Virology 88(8): 1427-1437.

[Full-Text](#)

*Department of Pediatrics*

The lymphotropic herpesviruses, cytomegalovirus (CMV), Epstein-Barr virus (EBV), and human herpesvirus 6B (HHV-6B) can reactivate and cause disease in organ transplant recipients; the contributions of HHV-6A and HHV-7 to disease are less certain. Less is known about their pathogenic roles in children undergoing treatment for malignancies. Children with newly diagnosed cancer were followed for 24 months. Clinical information and blood samples were collected during routine visits and during acute visits for fever or possible viral infections. Lymphotropic herpesvirus DNA in blood was measured by polymerase chain reaction (PCR). Although HHV-6B DNA was detected at least once in about half of the patients; the other viruses were seldom detected. There was no association between HHV-6B detection and individual acute clinical events, however, HHV-6B detection was more common in children who experienced more frequent acute clinical events. In children being treated for various malignancies, HHV-6B detection was common, but was not associated with individual events of acute illness. Thus, if HHV-6B is not assessed longitudinally, clinical events may be misattributed to the virus. The elevated frequency of detection of HHV-6B in sicker children is consistent with prior reports of its detection during apparently unrelated acute clinical events.

**Goldstein JA** (2016). ""Cardio-oncology": Implications for interventionists." Catheterization and Cardiovascular Interventions 87(5): 900-901.

[Full-Text](#)

*Department of Internal Medicine*

**Goldstein JA** (2016). "Statin attenuation of stent inflammatory response." Catheterization and Cardiovascular Interventions 87(2): 230-231.

[Full-Text](#)

*Department of Internal Medicine*

**Goncalves L**, Jain S, **Krishnan A**, Yuxiang Z, **Bloom D**, Lee W and Romero R (2016). "Quantitative MR assessment of the fetal posterior fossa: Reproducibility, reference ranges and diagnostic performance." Pediatric Radiology 46: S327-S328.

[Full-Text](#)

*Department of Obstetrics and Gynecology*

*Department of Diagnostic Radiology and Molecular Imaging*



Purpose or Case Report: To develop reference ranges for cerebellum and posterior fossa measurements by fetal MRI and to investigate the reproducibility and diagnostic performance of quantitative MR parameters for the differentiation of fetal posterior fossa abnormalities. Methods & Materials: We systematically evaluated the posterior fossa of normal fetuses by MRI, including presence of fastigial point (FP), visualization of cerebellar vermis (CV) fissures, tegmento-vermian (TV) angle, proportion of CV above/below the fastigium-declive line, CV anteroposterior (AP) diameter, CV height, CV area, transverse cerebellar diameter and cisterna magna (CM) diameter. Measurements were performed on sagittal and axial 2-3 mm T2 HASTE (Half-Fourier Acquisition Single-shot Turbo Spin Echo) sequences. Regression analysis was performed and normal reference ranges constructed for each parameter. Intra- and interobserver reliability, repeatability, and agreement were evaluated by intra-class correlation coefficient (ICC), Bland-Altman plots and kappa statistics. Cases of posterior fossa anomalies were evaluated using these parameters. Results: 116 normal fetuses and 13 fetuses with posterior fossa abnormalities were examined by fetal MRI between July 2005 and September 2015. Technically acceptable sagittal images of the CV were available for 95 of the 116 fetuses (81.8%). Intra- and inter-rater agreement were almost perfect ( $\kappa > 0.80$ ) for identification of the FP, primary and prepyramidal CV fissures. Intra- and inter-rater reliabilities were excellent ( $ICC > 0.75$ ) for CV area, AP and CC diameters, and pons AP diameter. Reliability was poor for the proportion of CV above/below the fastigium-declive line. TV angles were significantly different among the 13 abnormal cases: Dandy-Walker malformation (DWM) ( $n=3$ , 55-82.6 degrees), Blake's pouch cyst (BPC) ( $n=5$ , 22.3-41.8 degrees), mega cisterna magna (MCM) ( $n=4$ , 0-22.3 degrees), and arachnoid cyst (AC) ( $n=1$ , 1 degree) (Kruskal-Wallis test  $p=0.0001$ ) (Figure 1). DWM cases were also more likely to have CV area and AP diameter  $<$  5th percentile for gestational age (Figures 2 and 3). In addition, FP and primary cerebellar fissure were not visualized in DWM. Conclusions: Reference values for quantitative evaluation of posterior fossa may help differentiate among DWM, BPC, AC, and MCM. DWM is characterized by lack of visualization of the FP and primary CV fissure, large TV angle, as well as CV AP diameter and CV area below the 5th percentile for gestational age. (Figure Presented).

Gonzalez A, Murcia CH, Romero R, Escobar E, Garcia P, Walker G, Gallas M, Dickens E, **McIntosh B**, Norwood W, Kim K, Rabaza J and Parris D (2016). "A multicenter study of initial experience with Single-Incision Robotic Cholecystectomies (SIRC) demonstrating a high success rate in 465 cases." [Surgical Endoscopy and Other Interventional Techniques](#) 30(7): 2951-2960.

[Full-Text](#)

*Department of Surgery*

Background: Recently, the robotic single-site platform has been used to ameliorate the difficulties seen in single-incision laparoscopic surgery (SILC) while preserving the benefits of standard laparoscopic cholecystectomy. The purpose of this study is to describe the clinical outcomes of a large series of single-incision robotic cholecystectomy (SIRC). Methods: Medical records of consecutive patients who underwent SIRC were retrospectively reviewed. All procedures were performed by six surgeons at five different North American centers involved in the study. All patients included in the study underwent a cholecystectomy attempted through single site at the umbilicus, using the da Vinci® Surgical System (Intuitive Surgical Inc. Sunnyvale, CA). Results: A total of 465 patients met study criteria. Median age was 48 years (range 18–89); 351 (75.5 %) were female and 304 (66.4 %) were overweight or obese. Except for gender, case characteristics differed significantly by surgeon/site. Previous abdominal surgery was reported for 226 (48.6 %) cases. SIRC was successfully completed in 455 (97.8 %) cases, and there were no conversions to open surgery. Median surgical time was 52 min with a decreasing trend after 55–85 cases. Male gender, obesity and diagnoses other than biliary dyskinesia were independent predictors of longer surgical times. The complication rate was 2.6 %. Conclusions: Our large, multicenter study demonstrates that robotic single-site cholecystectomy is safe and feasible in a wide range of patients. © 2015, Springer Science+Business Media New York.

Graham SF, Kumar P, **Bahado-Singh RO**, Robinson A, Mann D and Green BD (2016). "Novel metabolite biomarkers of Huntington's Disease as detected by high-resolution mass spectrometry." Journal of Proteome Research 15(5): 1592-1601.

[Full-Text](#)

*Department of Obstetrics and Gynecology*

Huntington's disease (HD) is a fatal autosomal-dominant neurodegenerative disorder that affects approximately 3-10 people per 100-000 in the Western world. The median age of onset is 40 years, with death typically following 15-20 years later. In this study, we biochemically profiled post-mortem frontal lobe and striatum from HD sufferers (n = 14) and compared their profiles with controls (n = 14).

LC-LTQ-Orbitrap-MS detected a total of 5579 and 5880 features for frontal lobe and striatum, respectively. An ROC curve combining two spectral features from frontal lobe had an AUC value of 0.916 (0.794 to 1.000) and following statistical cross-validation had an 83% predictive accuracy for HD. Similarly, two striatum biomarkers gave an ROC AUC of 0.935 (0.806 to 1.000) and after statistical cross-validation predicted HD with 91.8% accuracy. A range of metabolite disturbances were evident including but-2-enoic acid and uric acid, which were altered in both frontal lobe and striatum. A total of seven biochemical pathways (three in frontal lobe and four in striatum) were significantly altered as a result of HD. This study highlights the utility of high-resolution metabolomics for the study of HD. Further characterization of the brain metabolome could lead to the identification of new biomarkers and novel treatment strategies for HD. © 2016 American Chemical Society.

Graham SF, Kumar PK, Bjorndahl T, Han B, Yilmaz A, Sherman E, **Bahado-Singh RO**, Wishart D, Mann D and Green BD (2016). "Metabolic signatures of Huntington's Disease (HD): 1H NMR analysis of the polar metabolome in post-mortem human brain." Biochimica et Biophysica Acta - Molecular Basis of Disease 1862(9): 1675-1684.

[Full-Text](#)

*Department of Obstetrics and Gynecology*

Huntington's disease (HD) is an autosomal neurodegenerative disorder affecting approximately 5-10 persons per 100,000 worldwide. The pathophysiology of HD is not fully understood but the age of onset is known to be highly dependent on the number of CAG triplet repeats in the huntingtin gene. Using 1H NMR spectroscopy this study biochemically profiled 39 brain metabolites in post-mortem striatum (n = 14) and frontal lobe (n = 14) from HD sufferers and controls (n = 28). Striatum metabolites were more perturbed with 15 significantly affected in HD cases, compared with only 4 in frontal lobe (p < 0.05; q < 0.3). The metabolite which changed most overall was urea which decreased 3.25-fold in striatum (p < 0.01). Four metabolites were consistently affected in both brain regions. These included the neurotransmitter precursors tyrosine and l-phenylalanine which were significantly depleted by 1.55-1.58-fold and 1.48-1.54-fold in striatum and frontal lobe, respectively (p = 0.02-0.03). They also included l-leucine which was reduced 1.54-1.69-fold (p = 0.04-0.09) and myo-inositol which was increased 1.26-1.37-fold (p < 0.01). Logistic regression analyses performed with MetaboAnalyst demonstrated that data obtained from striatum produced models which were profoundly more sensitive and specific than those produced from frontal lobe. The brain metabolite changes uncovered in this first 1H NMR investigation of human HD offer new insights into the disease pathophysiology. Further investigations of striatal metabolite disturbances are clearly warranted.

Gupta P, **Payne J**, Killinger KA, Ehlert M, **Bartley J**, **Gillera J**, **Boura JA** and **Sirls LT** (2016). "Analysis of changes in sexual function in women undergoing pelvic organ prolapse repair with abdominal or vaginal approaches." International Urogynecology Journal and Pelvic Floor Dysfunction: 1-6. ePub Ahead of Print.

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*OUIWB Medical Student Author*

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*Department of Biomedical Sciences (BHS)*

Introduction and hypothesis: To examine changes in sexual function after abdominal and transvaginal pelvic organ prolapse repair. Methods: Women enrolled in our prospective, longitudinal prolapse database with abdominal sacrocolpopexy (ASC) or transvaginal (TVR) pelvic organ prolapse (POP) repair with or without mesh, between 19 December 2008 through 4 June 2014. The Pelvic Organ Prolapse/Urinary Incontinence Sexual Questionnaire (PISQ-12) and the Pelvic Floor Distress Inventory (PFDI -20) were mailed preoperatively,

and at 6 and 12 months postoperatively. Patients completed Global Response Assessments to rate their overall satisfaction. Results: Two hundred and four of the 300 women met the inclusion criteria: 74 out of 204 (36 %) had ASC and 130 out of 204 (64 %) had TVR. Seventy-two out of seventy-four ASCs were performed robotically and 2 were open. Baseline demographics were similar except that the ASC patients were significantly younger (60 vs 63,  $P = 0.019$ ) and had a higher rate of apical repair (77 % vs 55 %). Thirty-six out of seventy-four ASC (48.7 %) and 63 out of 128 TVR patients (49.2 %) were sexually active at baseline ( $P = 0.94$ ). Sixteen out of thirty-eight ASC (42.1 %) and 18 out of 63 TVR patients (28.6 %;  $P = 0.16$ ) reported dyspareunia at baseline. Seventy-two out of seventy-four ASC (97 %) and 86 out of 130 TVR patients (66 %) had mesh-augmented repairs. There was no difference in sexual activity or dyspareunia between the groups at the 6- or 12-month follow-up. PISQ and PFDI scores improved significantly in both the ASC and TVR groups over time compared with the baseline ( $p < 0.0001$ ). Most women in the ASC (77.5 %) and TVR (64.8 %) groups were satisfied with the results of prolapse surgery at 12 months. Conclusions: Sexual function and pelvic floor symptoms improved in a similar manner in patients after abdominal and transvaginal POP surgery. © 2016 The International Urogynecological Association

Gupta R and **Soto R** (2016). "Erratum to: 'Prophylaxis and management of postoperative nausea and vomiting in enhanced recovery protocols'." *Perioperative Medicine (London)* 5(9): 1.

[Full-Text](#)

*Department of Anesthesiology*

[This corrects the article DOI: 10.1186/s13741-016-0029-0].

Gupta R and **Soto R** (2016). "Prophylaxis and management of postoperative nausea and vomiting in enhanced recovery protocols: Expert Opinion statement from the American Society for Enhanced Recovery (ASER)."

*Perioperative Medicine (London)* 5(4): 2.

[Full-Text](#)

*Department of Anesthesiology*

International experience and evidence-based practices have shown that reduction in variability through use of protocolized perioperative care improves surgical outcomes and reduces costs to patients and healthcare systems. In this series of Expert Opinions, we provide consensus recommendations for the various components of perioperative care to aid with the development of enhanced recovery after surgery protocols.

Haddow JE, Craig WY, Neveux LM, Palomaki GE, Lambert-Messerlian G, Malone FD, D'Alton ME, Welch K, Denchy R, Porter F, Belfort M, Oshiro B, Cannon L, **Nelson K**, Loucks C, Yoshimura A, Luthy D, Coe S, Schmidt D, Esler J, Hankins G, Saade G, Lee J, Eddleman K, Kharbutli Y, Merkatz I, Carter S, Hobbins J, Schultz L, Paidas M, Borsuk J, Isquith B, Berlin B, Duquette C, Island R, Baughman R, Hanson J, De La Cruz F, Tripp T, Emig D, Sullivan L, Bestwick J, Abuhamad A, Copel J, Goldberg J, Haddow J, Hogg A and Mennuti M (2016). "Free thyroxine during early pregnancy and risk for gestational diabetes." *PLoS One* 11(2): 1-11.

[Full-Text](#)

*Department of Biomedical Sciences (BHS)*

Several studies have now reported associations between gestational diabetes mellitus (GDM) and low free thyroxine (ft4) during the second and third trimesters, but not in the first trimester. The present study further examines relationships between low ft4, maternal weight, and GDM among women in the FaSTER (First and Second Trimester Evaluation of Risk) trial, in an effort to determine the extent to which thyroid hormones might contribute to causality. The FaSTER cohort includes 9351 singleton, euthyroid women; 272 of these women were subsequently classified as having GDM. Thyrotropin (TSH), ft4, and thyroid antibodies were measured at 11-14 weeks' gestation (first trimester) and 15-18.9 weeks' gestation (second trimester). An earlier report of this cohort documented an inverse relationship between ft4 in the second trimester and maternal weight. In the current analysis, women with GDM were significantly older (32 vs. 28 years) and weighed more (75 vs. 64.5 kg). Maternal weight and age (but not TSH) were significantly associated univariately with ft4 (dependent variable), in the order listed. Second trimester ft4 odds ratios (OR) for GDM were 2.06 [95% CI 1.37-3.09] (unadjusted); and 1.89 [95% CI 1.26-2.84] (adjusted). First trimester odds ratios were not significant: OR 1.45 [95% CI 0.97-2.16] (unadjusted) and 1.11 [95% CI 0.74-1.62] (adjusted). The second trimester ft4/GDM relationship thus appeared to strengthen as gestation progressed. In FaSTER,

high maternal weight was associated with both low fT4 and a higher GDM rate in the second trimester. Peripheral deiodinase activity is known to increase with high caloric intake (represented by high weight). We speculate that weight-related lowfT4 (the metabolically inactive prohormone) is a marker for deiodinase activity, serving as a substrate for conversion of fT4 to free triiodothyronine (fT3), the active hormone responsible for glucose-related metabolic activity. © 2016 Haddow et al. This is an open access article distributed under the terms of the Creative Commons Attribution License, which permits unrestricted use, distribution, and reproduction in any medium, provided the original author and source are credited.

**Haines DE** (2016). "Nanoparticles yield big results." [Circulation: Arrhythmia and Electrophysiology](#) 9(5): 1-2.

[Full-Text](#)

*Department of Internal Medicine*

Hans DR, Dubé P and **Wasserman JA** (2016). "Experimental evidence showing that physician guidance promotes perceptions of physician empathy." [AJOB Empirical Bioethics](#) 7(3): 135-139.

[Full-Text](#)

*Department of Biomedical Sciences (OU)*

Background: This article reports a study that assessed the link between physician guidance and perceptions of empathy. Previous literature suggests that patients prefer medical decision making to be a collaborative process. However, no study has specifically tested how physician guidance affects the way the patient perceives his or her physician's empathy. As a period of laissez-faire autonomy appears to be drawing to a close, it will be important to understand what kinds of guidance have positive effects on the physician-patient relationship. Methods: This study used a matched-vignette design to investigate whether individuals perceive a physician who provides an opinion on the best course of action for a patient as more empathic than one who does not. Surveys were administered at local YMCAs to capture the widest demographic possible, with participants randomly assigned to one of two vignettes. Results: Findings suggest that patients may indeed view physicians who guide medical decision making as more empathic. Specifically, those participants assigned the vignette in which the physician guided the patient's decision rated that physician as more empathic, even while controlling for gender. Conclusions: Some forms of physician input into patient decision making clearly improve patients' perceptions of physicians' empathy. However, more research is needed as to what types of involvement with patient decisions promote positive perceptions of physicians and under what conditions. © 2016 Taylor & Francis Group, LLC.

**Hartrick CT, Knapke DM, Ding L, Danesi H and Jones JB** (2016). "Fentanyl iontophoretic transdermal system versus morphine intravenous patient-controlled analgesia for pain management following orthopedic surgery: A pooled analysis of randomized, controlled trials." [Journal of opioid management](#) 12(1): 37-45.

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*Department of Anesthesiology*

*Department of Obstetrics and Gynecology*

RESULTS: Patients had a mean age of about 60 years, were predominantly Caucasian (90.5 percent), and the majority underwent hip replacement (80.3 percent). There were more patients treated with fentanyl ITS who rated their pain control method as "excellent" compared to morphine i.v. PCA at 24 hours postsurgery (44.8 percent vs 33.0 percent, respectively;  $p < 0.001$ ), 48 hours (37.5 percent vs 25.3 percent, respectively;  $p < 0.001$ ), and at the last assessment (54.3 percent vs 39.6 percent, respectively;  $p < 0.001$ ). There were more investigators who rated treatment with fentanyl ITS as "excellent" compared to morphine i.v. PCA at the last assessment (57.4 percent vs 36.9 percent, respectively;  $p < 0.001$ ). CONCLUSIONS: Following orthopedic surgery, patients and investigators more frequently reported global assessment of pain control as "excellent" on the PGA and IGA assessments with fentanyl ITS than with morphine i.v. PCA. OBJECTIVE: To compare the efficacy and safety of patient-controlled pain management following orthopedic surgery using either fentanyl iontophoretic transdermal system (ITS) or morphine intravenous (i.v.) patient-controlled analgesia (PCA). SETTING: Acute Care Hospital. PATIENTS: Three-open-label, multicenter, randomized, active-controlled, parallel-group phase 3B studies ( $N = 2095$ ) were conducted that compared fentanyl ITS with morphine i.v. PCA for postoperative pain in hospitalized postoperative patients. A subgroup of orthopedic surgery patients ( $N = 1,216$ ) was pooled for this analysis; of which 819 completed treatment.

INTERVENTIONS: A total of 590 patients received fentanyl ITS (40 µg/dose) and 626 patients received morphine i.v. PCA (1 mg/dose) for up to 72 hours. MAIN OUTCOME MEASURES: Efficacy measures included the patient global assessment (PGA) and the investigator global assessment (IGA) of the method of pain control.

**Hartrick CT**, Pestano CR, Ding L, Danesi H and Jones JB (2016). "Patient considerations in the use of transdermal iontophoretic fentanyl for acute postoperative pain." Journal of Pain Research 9: 215-222.

[Full-Text](#)

*Department of Anesthesiology*

Opioids are commonly used in the management of moderate-to-severe postoperative pain. Patient-controlled analgesic techniques are recognized as preferred administration methods. Previously, research has focused on intravenously administered opioids via a programmable pump. More recently, an iontophoretic transdermal system (ITS), which is patient controlled, has been developed. The focus of this review is on pain management using the fentanyl ITS during the 24-72-hour time period immediately following surgery. Fentanyl ITS offers a needle-free alternative to traditional intravenous (IV) patient-controlled analgesia (PCA) system that is as effective and safe as IV PCA. This system is easy to use for both patients and nurses. The use of fentanyl ITS is generally associated with a better ease-of-care profile, including a greater ease of mobility, from a patients' perspective when compared with morphine IV PCA. © 2016 Hartrick et al.

Hebert LE, Fabiyi C, Hasselbacher LA, **Starr K** and Gilliam ML (2016). "Variation in pregnancy options counseling and referrals, and reported proximity to abortion services, among publicly funded family planning facilities." Perspectives on Sexual and Reproductive Health 48(2): 65-71.

[Full-Text](#)

*Department of Obstetrics and Gynecology*

CONTEXT: As frontline providers, publicly funded family planning clinics represent a critical link in the health system for women seeking information about pregnancy options, yet scant information exists on their provision of relevant services. Understanding their practices is important for gauging how well these facilities serve patients' needs. METHODS: A 2012 survey of 567 publicly funded family planning facilities in 16 states gathered information on referral-making for adoption and abortion services, and perceived proximity to abortion services. Chi-square, multivariable logistic regression and multinomial logistic regression analyses were performed to assess differences among facilities in referral-making and reported proximity to abortion services. RESULTS: Abortion referrals were provided by a significantly smaller proportion of providers than were adoption referrals (84% vs. 97%). Health departments and community health centers were significantly less likely than comprehensive reproductive health centers to refer for abortion services and to have a list of abortion providers available (odds ratios, 0.1–0.2). Rural facilities were more likely than urban ones to report a distance of more than 100 miles to the closest first-trimester abortion provider (relative risk ratio, 11.4), second-trimester abortion provider (8.7) and medication abortion provider (8.0). Health departments were more likely than comprehensive reproductive health centers not to know the location of the closest first-trimester, second-trimester or medication abortion provider (2.5–3.5). CONCLUSION: A better understanding of disparities in provision of pregnancy options counseling and referrals at publicly funded family planning clinics is needed to ensure that women get timely care. Copyright © 2016 by the Guttmacher Institute

Heck MH, **Boura J** and **Franklin BA** (2016). "Modulators of improvements in depression scores following phase II cardiac rehabilitation: 291 Board #128 June 1, 11: 00 AM - 12: 30 PM." Medicine & Science in Sports & Exercise 48(5 Suppl 1): 71.

[Full-Text](#)

*Department of Biomedical Sciences (BHS)*

*Department of Internal Medicine*

Heintzman J, Bailey SR, DeVoe J, Cowburn S, Kapka T, **Duong TV** and Marino M (2016). "In low-income latino patients, post-Affordable Care Act insurance disparities may be reduced even more than broader national estimates: Evidence from Oregon." J Racial Ethn Health Disparities. ePub Ahead of Print.

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*OUWB Medical Student Author*

**BACKGROUND:** Early survey evidence suggests a reduction of disparities in insurance coverage between Latinos and non-Hispanic Whites post-Affordable Care Act (ACA). These findings may not describe the insurance status of vulnerable, low-income Latino populations served in community health centers (CHCs) over the course of this policy change. Cross-sectional surveys also may be of limited use in describing longitudinal phenomena such as changes in health insurance status. **METHODS:** Using electronic health record (EHR) data, we compared the insurance status of N = 42,392 low-income patients served in 23 CHCs in Oregon, by race/ethnicity and language, over a period of 6 years straddling the implementation of ACA-related Medicaid expansion on January 1, 2014. **FINDINGS:** Prior to 2014, Spanish-preferring Latinos were more likely to be uninsured than English-preferring Latinos and non-Hispanic Whites. Among uninsured patients who returned for at least one visit in 2014, Spanish-preferring Latinos had the largest increase in insurance coverage rates, and all three racial/ethnic/language groups had similar rates of insurance coverage. There were no racial/ethnic/language differences between those who did and did not have visit in 2014. **CONCLUSION:** Among previously uninsured low-income patients returning to Oregon CHCs, insurance disparities were eliminated after Medicaid expansion, especially in Spanish-speaking Latinos. Further study is needed to understand the elimination of insurance disparities in this cohort.

Hendrickson KD, **Franklin BA**, Yamarino M and **Boura J** (2016). "Frequency of structured exercise and modulators of attendance in long-term cardiac rehabilitation program participants: 290 Board #127 June 1, 11: 00 AM - 12: 30 PM." Medicine & Science in Sports & Exercise 48(5 Suppl 1): 70-71.

[Full-Text](#)

*Department of Internal Medicine*

*Department of Biomedical Sciences (BHS)*

Ho AG, Gowda AL and **Wiater M, J.** (2016). "Evaluation and treatment of failed shoulder instability procedures." Journal of Orthopaedics and Traumatology: 1-11. ePub Ahead of Print.

[Full-Text](#)

*Department of Orthopedic Surgery*

Management of the unstable shoulder after a failed stabilization procedure can be difficult and challenging. Detailed understanding of the native shoulder anatomy, including its static and dynamic restraints, is necessary for determining the patient's primary pathology. In addition, evaluation of the patient's history, physical exam, and imaging is important for identifying the cause for failure after the initial procedure. Common mistakes include under-appreciation of bony defects, failure to recognize capsular laxity, technical errors, and missed associated pathology. Many potential treatment options exist for revision surgery, including open or arthroscopic Bankart repair, bony augmentation procedures, and management of Hill Sachs defects. The aim of this narrative review is to discuss in-depth the common risk factors for post-surgical failure, components for appropriate evaluation, and the different surgical options available for revision stabilization. Level of evidence Level V.

Holmes H, Carty J, Lumley M, Tomakowsky J, Pegram S, Dove-Medows E and **Peters K** (2016). "Self-sacrificing moderates the relationship between emotional distress and pain among women with chronic urogenital pain." Journal of Pain 17(4): S101-S102.

[Full-Text](#)

*Department of Urology*

Urogenital pain syndromes include chronic pelvic pain, pelvic floor dysfunction, interstitial cystitis, and vulvodynia. The frequency and severity of chronic pain is positively associated with general psychological distress, including depression and anxiety. In addition, emotional and interpersonal factors, including difficulty expressing and asserting one's own feelings and needs and prioritizing others' interests above one's own, may augment pain severity. This study examined whether the construct of self-sacrificing



moderates the well-established relationship between general distress and pain symptoms among chronic urogenital pain patients. A sample of 68 female patients with urogenital pain conditions (86% European American, 8.3% African American, 4.2% other; age M = 45.4 years) was recruited from a tertiary care women's urology clinic. Patients completed measures of psychological distress (Brief Symptom Inventory Global Severity Index), pain (McGill Pain Questionnaire-Short Form), and interpersonal problems (Inventory of Interpersonal Problems- 32). We tested the main effect and moderation relationships of distress and self-sacrificing on pain. Both distress ( $r = .58, p < .001$ ) and self-sacrificing ( $r = .28, p = .02$ ) were significantly related to pain. These main effects, however, were moderated by a significant interaction between psychological distress and self-sacrificing ( $\beta = .17, t = 3.02, p < .01$ ). Post-hoc probing revealed that, for patients with relatively high self-sacrificing, psychological distress was strongly related to pain ( $r = .65, p < .001$ ), whereas among women low on self-sacrificing, distress was only weakly related to pain ( $r = .25, p = .15$ ). These findings suggest that chronic urogenital pain patients who do not sacrifice their needs in favor of others are protected from the negative impact of psychological distress on pain. Therefore, interventions aimed at improving the ability to attend to one's own emotional welfare may be beneficial for women with chronic urogenital pain.

Honda M, Yoshimura N, Kawamoto B, Hikita K, Muraoka K, Shimizu S, Saito M, **Chancellor MB** and Takenaka A (2016). "Anandamide transporter-mediated regulation of the micturition reflex in urethane-anesthetized rats." International Urology and Nephrology. ePub Ahead of Print.

[Full-Text](#)

*Department of Urology*

**PURPOSE:** The aim of this study was to investigate the effects of an anandamide transporter inhibitor that can increase endogenous anandamide concentration on the micturition reflex in urethane-anesthetized rats. **METHODS:** Continuous cystometrograms were performed in female Sprague-Dawley rats under urethane anesthesia. After stable micturition cycles were established, VDM11 (1, 3 and 10 mg/kg), an anandamide membrane transporter inhibitor, was administered intravenously to evaluate changes in bladder activity. In experiments examining the effects of cannabinoid (CB) receptor antagonists, VDM11 (10 mg/kg) was injected intravenously when the first bladder contraction was observed after intravenous administration of AM251, a CB1 receptor antagonist (3 mg/kg), or AM630, a CB2 receptor antagonist (3 mg/kg). **RESULTS:** Intravenous administration of VDM11 increased intercontraction intervals and threshold pressure at doses of 3 mg/kg or higher in dose-dependent fashion. When AM251 was administered one voiding cycle before VDM11 administration, the increases in intercontraction intervals and threshold pressure induced by VDM11 administration alone were not seen. In contrast, when AM630 was administered before VDM11 administration, increases in intercontraction intervals and threshold pressure were observed, as they were after VDM11 alone. **CONCLUSION:** These results suggest that anandamide, an endogenous CB ligand, can modulate the micturition reflex and that anandamide transporters play an important role in this modulation. In urethane-anesthetized rats, inhibition of the uptake of anandamide can inhibit the micturition reflex and these inhibitory effects of VDM11 are at least in part mediated by the CB1 receptor.

**Ibrahim M**, Ogunleye FN, Yadav S, **Jaiyesimi IA** and **Zakalik D** (2016). "Cancer characteristics of male BRCA mutation carriers in a Cancer Genetics Clinic database: The Beaumont Health System experience." ASCO Annual Meeting Proceedings 34(15\_suppl): e13007.

[Full-Text](#)

*Department of Internal Medicine*

Jae SY, Bunsawat K, Yoon ES, Kim HJ, Park WH, Fernhall B and **Franklin B** (2016). "Cardiorespiratory fitness attenuates the risk of subclinical atherosclerosis in men with cardiometabolic syndrome: 817 Board #133 June 1, 2: 00 PM - 3: 30 PM." Medicine & Science in Sports & Exercise 48(5 Suppl 1): 226.

[Full-Text](#)

*Department of Internal Medicine*

Jae SY, Kurl S, Laukkanen JA, Zaccardi F, Choi YH, Fernhall B, Carnethon M and **Franklin BA** (2016). "Exercise heart rate reserve and recovery as predictors of incident type 2 diabetes." American Journal of Medicine 129(5): 536.e537-536.e512.

[Full-Text](#)

*Department of Internal Medicine*

Background We tested the hypothesis that selected exercise heart rate responses, specifically those providing indices of autonomic dysfunction, may be associated with incident type 2 diabetes in 2231 apparently healthy men with normal baseline fasting glucose levels. Methods Heart rate reserve was calculated as the difference between the maximal attained heart rate and the supine resting heart rate, whereas heart rate recovery was defined as the maximal heart rate minus the heart rate measured at 2 minutes of recovery after peak or symptom-limited cardiopulmonary exercise testing. Type 2 diabetes was defined as glycosylated hemoglobin >6.5% or fasting plasma glucose >126 mg/dL at the follow-up examination. Results During a median follow-up interval of 5 years, 90 of the 2231 men (4.0%) developed type 2 diabetes. The relative risks of incident type 2 diabetes in men within the lowest quartiles of heart rate reserve and heart rate recovery versus men comprising the highest quartiles of heart rate reserve and heart rate recovery were 2.71 (95% confidence interval, 1.20-6.11) and 2.81 (95% confidence interval, 1.36-5.78) after adjusting for potential confounding variables. Each unit increment (1 beat/min) in heart rate reserve and heart rate recovery was associated with a 2% to 3% decreased incidence of type 2 diabetes. Conclusions Exercise heart rate reserve and recovery predicted incidence of type 2 diabetes in healthy men, suggesting that autonomic dysfunction may be associated with an increased likelihood for the development of this cardiometabolic risk factor. © 2016 Elsevier Inc.

Jinna S and **Zarouk SS** (2016). "Human Immune Deficiency virus (HIV) membranous glomerulopathy recurrence in kidney allograft." American Journal of Kidney Diseases 67(5): A58.

[Full-Text](#)

*Department of Internal Medicine*

A 47 year old Caucasian male presented in December 2007 with bilateral lower extremity edema from bilateral deep vein, inferior vena cava, and renal vein thrombosis. History is significant for hypertension and HIV positive since 1990. He was on lamivudine/zidovudine, efavirenz, valsartan, furosemide, hydrochlorothiazide and aspirin. Laboratory values revealed eGFR 76 cc/minute, proteinuria 8.7 g/day, CD4 703, and LUV RNA < 400 were found. Serology was negative for anti-nuclear antibody, anti-neutrophil cytoplasmic antibody, normal complement levels and negative hepatitis B and C. He was started on anticoagulation. Kidney biopsy was done 3 months post presentation, and showed possible primary membranous glomerulopathy (GN). He was started on prednisone with no response. Later on, he was started on tacrolimus, then cyclophosphamide and eventually rituximab without remission of his proteinuria. His renal function deteriorated. He received a living related donor kidney transplant in September 2010. He was started on prednisone, mycophenolate mofetil, and cyclosporine for immunosuppression. Kidney biopsy of his transplant allograft was done in December 2010, and showed recurrence of membranous GN. He received rituximab in February 2011. Currently, his eGFR is 12 cc/min. In 2015, we reviewed his native kidney biopsy done in 2007 and performed IgG4 staining, and it was negative. Electron microscopy showed focal tubuloreticular inclusion body in one of the glomerular endothelial cells not initially recognized in 2007. These findings, in retrospect, strongly suggest secondary HIV membranous GN. In African Americans, HIV associated nephropathy (HIVAN) is a collapsing form of Focal Segmental Glomerulosclerosis. In Caucasians, a wide spectrum of HIV immune complex kidney disease (HTVTCK) were reported in the literature. Only one case of HTVTCK has been reported to recur in kidney transplants. This case highlights the recurrence of membranous GN in the HIV transplanted patient, the importance of IgG4 staining, and the lack of response to rituximab in the native kidneys and the transplanted kidney.

John J, Garg L, Desai T, **Haines DE** and **Wong W** (2016). "Characteristics of esophageal injury from radiofrequency catheter ablation of atrial fibrillation and the effect of esophageal cooling using cold saline." Heart Rhythm 13(5): S476.

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*Department of Internal Medicine*

Introduction: Catheter ablation of atrial fibrillation (CA-AF) is a widely accepted rhythm control strategy in patients (pts) with AF. Studies of esophageal (Eso) cooling to reduce Eso injury during CA-AF have shown conflicting results. Our study aims to define the characteristics of Eso lesions (EsoL) seen within 24 hours of CA-AF and determine the predictors of the incidence of EsoL, including temperature guided Eso cooling during CA-AF. Methods: Data from 30 pts with symptomatic AF who underwent a first time radiofrequency CA-AF by a single operator were retrospectively analyzed. All pts had Eso-probe monitored temperature recorded during ablation. A 0.5°C rise triggered temporary halting of delivery of RF energy until normalization of temperature. In addition, 15 pts had Eso cooling using 20 mL cold saline infusion through a tube positioned in esophagus above the ablated areas. All pts underwent EGD 24 hours post procedure, and EsoL were graded 0-4 on the basis of severity of lesion by a gastroenterologist ( Grade 0: Normal, Grade 1: Mucosal damage <1 cm wide, Grade 2: Mucosal damage 1-3cm wide, Grade 3: Mucosal damage 3 cm wide or visualization of deeper muscular layer, Grade 4: evidence of bleeding or overlying clot). Results: Out of 30 pts, 19 (63%) had grade 2-4 lesions, and 11 (37%) had grade 0-1 lesions. The 2 groups were comparable in patient and procedural characteristics, except that mean power delivered (MPD) for grades 2-4 EsoL was significantly higher than for grades 0-1 (32.0 W +/- 4.3 versus 28.8 W +/- 4.0 respectively, p = 0.045). Of pts with grades 0-1 EsoL, cooling was performed in 63% versus 42% in the pts with grades 2-4 EsoL (p=0.45). In a multivariate regression, MPD was independently associated with grades 2-4 EsoL (HR= 1.509; CI= 1.015-2.243; p= 0.042) and cooling was not (HR = 4.003; CI= 0.330-48.48; p= 0.276). Conclusions: Esophageal injury during CA-AF can be mitigated by decreasing MPD. Esophageal cooling with saline infusion did not reduce the incidence of esophageal injury caused during CA-AF.

Johnson MD and **Krauss DJ** (2016). "Surgical resection of brain metastases and the risk of leptomeningeal recurrence in patients reply." International Journal of Radiation Oncology Biology Physics 95(3): 1085.

[Full-Text](#)

*Department of Radiation Oncology*

**Joshi R**, Johnson MD, Maitz A, Marvin KS, **Olson RE** and **Grills IS** (2016). "Utility of graded prognostic assessment in evaluation of patients with brainstem metastases treated with radiosurgery." Clinical Neurology and Neurosurgery 147: 30-33.

[Full-Text](#)

*OUWB Medical Student Author*

*Department of Neurosurgery*

*Department of Radiation Oncology*

Objectives Prospective data regarding the safety and efficacy of stereotactic radiosurgery (SRS) for patients with metastatic disease involving the brainstem are lacking. The aim of this study was to assess the efficacy and toxicity of SRS for patients with brainstem metastases treated at our institution. Patients and methods From September 2007 to October 2015, patients treated with SRS for brain metastases were prospectively entered into an institutional database. Forty eight patients with 51 lesions involving the brainstem with clinical follow-up were identified. Local control (LC), elsewhere brain failure (EBF) and overall survival (OS) were assessed from the date of radiosurgery using the Kaplan-Meier method. Univariate and multivariate analyses of factors related to OS were performed using a Cox proportional hazards model. Results Median clinical follow-up was 4.8 months. Median patient age was 62 (range: 28-87); non-small cell lung and breast cancer were the most common primaries at 54% and 21% respectively. Median brainstem lesion volume was 0.12 cm<sup>3</sup> (range: 0.01-3.67 cm<sup>3</sup>). Whole brain radiotherapy was previously utilized in 19 patients (40%). The median OS was 7.6 months and the 12 month LC rate was 89%. Only 2 patients (4%) experienced grade 3 motor toxicity secondary to SRS. 11 of the 16 patients (69%) initially presenting with symptoms related to brainstem metastases had symptom improvement or resolution following SRS. On multivariate analysis, graded prognostic assessment (GPA) score  $\geq 2$  was predictive of improved survival (p  $< 0.01$ ) while prior chemotherapy use predicted decreased survival (p = 0.049). Conclusions SRS is associated with high LC rates and low toxicity for brainstem metastases. Improved OS was seen for patients with GPA score  $\geq 2$ . GPA appears to be a useful tool for assessing prognosis in patients with brainstem metastases. Small volume lesions were safely treated with or without prior whole brain radiotherapy. © 2016 Elsevier B.V.

JunMei H, Bortsov AV, Ballina L, Orrey DC, **Swor RA**, Peak D, Jones J, Rathlev N, Lee DC, Domeier R, Hendry P, Parry BA, McLean SA and Hu J (2016). "Chronic widespread pain after motor vehicle collision typically occurs through immediate development and nonrecovery: Results of an emergency department-based cohort study." [Pain \(03043959\)](#) 157(2): 438-444.

[Full-Text](#)

*Department of Emergency Medicine*

Motor vehicle collision (MVC) can trigger chronic widespread pain (CWP) development in vulnerable individuals. Whether such CWP typically develops through the evolution of pain from regional to widespread or through the early development of widespread pain with nonrecovery is currently unknown. We evaluated the trajectory of CWP development (American College of Rheumatology criteria) among 948 European-American individuals who presented to the emergency department (ED) for care in the early aftermath of MVC. Pain extent was assessed in the ED and 6 weeks, 6 months, and 1 year after MVC on 100%, 91%, 89%, and 91% of participants, respectively. Individuals who reported prior CWP at the time of ED evaluation (n = 53) were excluded. Trajectory modeling identified a 2-group solution as optimal, with the Bayes Factor value (138) indicating strong model selection. Linear solution plots supported a nonrecovery model. Although the number of body regions with pain in the non-CWP group steadily declined, the number of body regions with pain in the CWP trajectory group (192/895, 22%) remained relatively constant over time. These data support the hypothesis that individuals who develop CWP after MVC develop widespread pain in the early aftermath of MVC, which does not remit.

Kane JL, **Krueger SA**, Hanna A, Raffel TR, **Wilson GD**, Madlambayan GJ and **Marples B** (2016). "The effect of irradiation on tumor microenvironment and bone marrow cell migration in a pre-clinical tumor model." [International Journal of Radiation Oncology\\* Biology\\* Physics](#). ePub Ahead of Print.

[Request Form](#)

*Department of Radiation Oncology*

Kashani AH, Zhang YN, **Capone A**, **Drenser KA**, Puliafito C, Moshfeghi AA, **Williams GA** and **Trese MT** (2016). "Impaired retinal perfusion resulting from vitreoretinal traction: A mechanism of retinal vascular insufficiency." [Ophthalmic Surgery Lasers & Imaging Retina](#) 47(3): 215.

[Request Form](#)

*Department of Ophthalmology*

BACKGROUND AND OBJECTIVE: To demonstrate vitreoretinal traction as a mechanism of abnormal retinal vascular perfusion. PATIENTS AND METHODS: Retrospective report of three cases demonstrating vitreoretinal traction concurrent with abnormal retinal perfusion. Subjects were retrospectively identified based on clinical records from two tertiary care retina subspecialty practices. All subjects underwent complete ophthalmic examination and ancillary testing as necessary for their standard clinical care. Vascular perfusion was assessed by one or more methods, including wide-field fluorescein angiography and optical coherence tomography angiography (OCTA). Vitreoretinal traction was assessed by clinical examination; intraoperative surgical observations; and fundus imaging, including wide-field, red-free, and color images as well as OCT. RESULTS: Three cases are shown in which vitreoretinal traction was clearly documented and correlated with abnormal retinal vascular perfusion. Abnormal vascular perfusion correlated with the distribution of vessels affected by vitreoretinal traction in all cases. Vascular perfusion normalized in all cases after surgery was used to relieve vitreoretinal traction. CONCLUSION: The authors demonstrate that vitreoretinal traction can alter retinal vascular perfusion in a reversible fashion. These results suggest that there can be a direct mechanical effect of vitreous traction on retinal vascular perfusion. Further advances in wide-field imaging, wide-field OCT, and OCTA will help better evaluate this cause of retinal vascular insufficiency.

Kawamorita N, Yoshikawa S, Kashyap M, Tyagi P, Arai Y, **Chancellor MB** and Yoshimura N (2016). "Liposome based intravesical therapy targeting nerve growth factor ameliorates bladder hypersensitivity in rats with experimental colitis." [Journal of Urology](#) 195(6): 1920-1926.

[Full-Text](#)

*Department of Urology*

Purpose Pelvic organ cross sensitization is considered to contribute to overlapping symptoms in chronic pelvic pain syndrome. Nerve growth factor over expression in the bladder is reportedly involved in the symptom development of bladder pain syndrome/interstitial cystitis. We examined whether a reduction of over expressed nerve growth factor in the bladder by intravesical treatment with liposome and oligonucleotide conjugates would ameliorate bladder hypersensitivity in a rat colitis model. Materials and Methods Adult female rats were divided into 1) a control group, 2) a colitis-oligonucleotide group with intracolonic TNBS (2,4,6-Trinitrobenzene sulfonic acid) enema and intravesical liposome-oligonucleotide treatments, 2) a colitis-saline group with intracolonic TNBS and intravesical saline treatments, 4) a sham oligonucleotide group with intravesical liposome-oligonucleotide treatment without colitis and 5) a sham-saline group with intravesical saline treatment without colitis. Liposomes conjugated with nerve growth factor antisense oligonucleotide or saline solution were instilled in the bladder and 24 hours later colitis was induced by TNBS enema. Effects of nerve growth factor antisense treatment were evaluated by pain behavior, cystometry, molecular analyses and immunohistochemistry 10 days after TNBS treatment. Results In colitis-oligonucleotide rats nerve growth factor antisense treatment ameliorated pain behavior and decreased a reduction in the intercontraction interval in response to acetic acid stimulation as well as nerve growth factor expression in the bladder mucosa. All were enhanced in colitis-saline rats compared to sham rats. Conclusions Nerve growth factor over expression in the bladder mucosa and bladder hypersensitivity induced after colitis were decreased by intravesical application of liposome-oligonucleotide targeting nerve growth factor. This suggests that local antinerve growth factor therapy could be effective treatment of bladder symptoms in chronic pelvic pain syndrome. © 2016 American Urological Association Education and Research, Inc.

Khalili H and **Hanzel GS** (2016). "Letter: Periprocedural bleeding in patients undergoing WATCHMAN device placement an unavoidable complication?" *JACC: Cardiovascular Interventions* 9(8): 865-866.

[Full-Text](#)

*Department of Internal Medicine*

Koreckij TD, Davidson AA, **Baker KC** and **Park DK** (2016). "Retropharyngeal steroids and dysphagia following multilevel anterior cervical surgery." *Spine* 41(9): E530-E534.

[Full-Text](#)

*Department of Orthopedic Surgery*

Study Design. A retrospective case-control study. Objective. The aim of this study was to determine the effect of retropharyngeal steroids on postoperative dysphagia scores and clinical outcomes following multilevel anterior cervical discectomy and fusion (ACDF). Summary of Background Data. Dysphagia is a well-known complication following ACDF surgery and increased rates of dysphagia are seen with increased levels of surgery. Retropharyngeal steroids have been shown to decrease painful swallowing and prevertebral soft tissue (PSTS) swelling in 1- and 2-level anterior cervical surgery. Methods. A retrospective review of 44 patients undergoing multilevel (2-, 3-, 4-level) ACDF. Twenty-two patients who received retropharyngeal steroids (methylprednisone) placed on a collagen sponge at the time of surgery were compared with a matched cohort of controls who did not receive local steroids. Postoperative day 1 and 6-week radiographs were analyzed for differences in PSTS. Clinical outcomes were measured preoperatively, 6 weeks, and 3 months postoperatively utilizing the Neck Disability Index (NDI), the Bazaz-Yoo Dysphagia Scoring System, and Eat Assessment Tool (EAT-10). Results. Significant improvement in dysphagia scores were seen utilizing both outcome measures. Bazaz-Yoo scores were significantly better at both 6 weeks and 3 months in patients receiving local steroids compared with controls ( $P=0.008$  and  $P=0.022$ , respectively). EAT-10 showed similar improvement of the steroid group versus control at 6 weeks and 3 months ( $P=0.067$  and  $P=0.012$ , respectively). A trend toward decreased PSTS was found with locally delivered steroids on initial postoperative radiographs ( $P=0.07$ ), but was no longer evident at 6 weeks. NDI, although improved from pre-operative scores, failed to demonstrate significant differences between groups. No differences in length of stay or complications were observed between the groups. Conclusion. The use of retropharyngeal steroids resulted in decreased rates of dysphagia following multilevel ACDF. Locally delivered methylprednisone did not result in increased rates of short-term postoperative complications. © 2016 Wolters Kluwer Health, Inc.

**Krueger S**, Kane JL, Dabjan M, **Wilson GD** and **Marples B** (2016). "Pulsed radiotherapy alters dynamic tumor contrast enhancement in a mouse model of glioblastoma." *Molecular Imaging and Biology* 18(1): S286.

[Full-Text](#)

*Department of Radiation Oncology*

**Purpose/Objectives:** Recent studies have demonstrated that pulsed radiotherapy (PRT) may be associated with greater sparing of vasculature and decreased levels of tumor hypoxia compared to standard radiotherapy (SRT) (2-4). PRT divides a standard 2-Gy fraction into ten 0.2-Gy pulses that are delivered every three minutes. It is hypothesized that this type of delivery may exploit the therapeutic ratio via differential effects on DNA damage recognition, allowing for greater repair of radiation-induced damage in normal tissue (5). In this study, it is shown that a short course of PRT in a mouse model of glioblastoma may promote changes in vasculature which can be visualized by dynamic MRI. **Materials/Methods:** Nu/nu mice were injected intracranially with U87MG cells to establish orthotopic tumors. Whole brain irradiation (WBI) was given by either SRT (one continuous fraction) or PRT (10 pulses with a 3-minute pulse interval) and comprised of a 2-Gy dose delivered for five consecutive days. Treatment was given as a single planar beam via a 160 kVp Faxitron x-ray machine. Tumors were imaged with dynamic contrast enhanced (DCE) MRI before and after treatment. Semi-quantitative analysis was done on dynamic images examining changes in signal intensity (SI) over time (1). Following post-treatment imaging, animals were injected with Hoechst 33342 and pimonidazole to evaluate perfusion and hypoxia. Brain tissue was then collected and snap frozen. Tissue sections were stained to evaluate hypoxia and vascularity. **Results:** Compared to contralateral normal brain, tumors in all groups at all time-points demonstrated significant contrast enhancement. After treatment, PRT treated tumors showed little change in tumor SI (Maximum relative enhancement=7.7%) while SRT and control tumors both showed increased enhancement, (27.7 and 27.2% respectively). In addition, the time to 90% maximum SI (T90) was unchanged in PRT treated tumors, but increased 20% following SRT and 50% in control animals. The rate of enhancement was also increased 150% in control animals, 43.6% in SRT treated animals but dropped 6.2% in PRT treated mice. Histopathology to confirm changes in vasculature and perfusion are ongoing. **Conclusions:** Previous work in this animal model has demonstrated that PRT may be less damaging to normal brain tissue, particularly in terms of vascular sparing (2,3). The data from this study suggests a normalization of vasculature following PRT that is absent after SRT. Utilization of this type of RT, either alone or as a part of a standard schedule, could potentially improve tumor response to radiation via reduction of hypoxia and spare normal tissue (4). Because only 10 Gy was delivered in this study, there was little effect on tumor growth; studies are currently in progress to look at the effects of longer courses of treatment on tumor vascularity and tumor response.

Kruger LC, O'Malley HA, Hull JM, Kleeman A, **Patino GA** and Isom LL (2016). " $\beta$ 1-C121W is down but not out: Epilepsy-associated scn1b-C121W results in a deleterious gain-of-function." *Journal of Neuroscience* 36(23): 6213-6224.

[Full-Text](#)

*Department of Biomedical Sciences (OU)*

Voltage-gated sodium channel (VGSC)  $\beta$  subunits signal through multiple pathways on multiple time scales. In addition to modulating sodium and potassium currents,  $\beta$  subunits play nonconducting roles as cell adhesion molecules, which allow them to function in cell-cell communication, neuronal migration, neurite outgrowth, neuronal pathfinding, and axonal fasciculation. Mutations in SCN1B, encoding VGSC  $\beta$ 1 and  $\beta$ 1B, are associated with epilepsy. Autosomal-dominant SCN1B-C121W, the first epilepsy-associated VGSC mutation identified, results in genetic epilepsy with febrile seizures plus (GEFS+). This mutation has been shown to disrupt both the sodium-current-modulatory and cell-adhesive functions of  $\beta$ 1 subunits expressed in heterologous systems. The goal of this study was to compare mice heterozygous for Scn1b-C121W (Scn1b+*/W*) with mice heterozygous for the Scn1b-null allele (Scn1b+*/-*) to determine whether the C121W mutation results in loss-of-function in vivo. We found that Scn1b+*/W* mice were more susceptible than Scn1b+*/-* and Scn1b+*/+* mice to hyperthermia-induced convulsions, a model of pediatric febrile seizures.  $\beta$ 1-C121W subunits are expressed at the neuronal cell surface in vivo. However, despite this,  $\beta$ 1-C121W polypeptides are incompletely glycosylated and do not associate with VGSC subunits in the brain.  $\beta$ 1-C121W subcellular localization is restricted to neuronal cell bodies and is not detected at



axon initial segments in the cortex or cerebellum or at optic nerve nodes of Ranvier of Scn1bW/W mice. These data, together with our previous results showing that  $\beta$ 1-C121W cannot participate in trans-homophilic cell adhesion, lead to the hypothesis that SCN1B-C121W confers a deleterious gain-of-function in human GEFS+ patients. © 2016 the authors.

**Lauter CB** (2016). "Recurrent idiopathic anaphylaxis in a woman after suspected food poisoning." Journal of Allergy and Clinical Immunology 137(2): AB53.

[Full-Text](#)

*Department of Internal Medicine*

**RATIONALE:** Recurrent idiopathic anaphylaxis represents a vexing clinical problem associated with stress for patients and allergists. The cause is often not identified despite exhaustive testing. **METHODS:** The history of a 54-year-old woman with repeated bouts of unexplained anaphylaxis is reviewed. The relationship between preceding or active infection (emphasis on GI infections) and chronic idiopathic urticaria (CIU) and anaphylaxis was explored by electronic media search (PubMed, Google) and review of reference lists of published articles. The literature on the relationship of *Campylobacter jejuni*, infection and urticaria is reviewed. Gastrointestinal infections (*Giardia*, *Anisakis*) have been better documented in such patients. **RESULTS:** The patient had persistent flatulence, looser and more frequent bowel movements for months after recovery from a bout of food poisoning. A diagnosis of "post infectious irritable bowel syndrome" was made by a gastroenterologist. These symptoms were not related to her simultaneous diagnosis of CIU and idiopathic anaphylaxis. After treatment with azithromycin (positive stool culture for *Campylobacter jejuni*) she had a systemic allergic reaction. Subsequently, the diarrhea and urticaria/ anaphylaxis cleared. *Campylobacter jejuni* has been reported to cause chronic urticaria, but predominantly in children. A related organism, *Helicobacter pylori*, has been associated with CIU. Anaphylaxis has not been related to *Campylobacter*, infection in the past. **CONCLUSIONS:** Chronic urticaria and recurrent bouts of mild unexplained anaphylaxis were triggered by *Campylobacter jejuni* infection. The allergic and GI symptoms resolved after treatment. Gastrointestinal infections should be looked for in patients with urticaria or anaphylaxis.

Lavie C, **Franklin B** and Mittleman M (2016). "Acute cardiac events and the preventive role of regular exercise." The Medical Roundtable General Medicine Edition 1(1): 17-27. ePub Ahead of Print.

[Request Form](#)

*Department of Internal Medicine*

Lee WA, Lee JT, **Long G** and Sanborn KJ (2016). "Results from the PRESERVE II zenith iliac branch clinical study." Journal of Vascular Surgery 63(6): 227S-228S.

[Full-Text](#)

*Department of Surgery*

Levine GN, Bates ER, Blankenship JC, Bailey SR, Bittl JA, Cercek B, Chambers CE, Ellis SG, Guyton RA, Hollenberg SM, Khot UN, Lange RA, Mauri L, Mehran R, Moussa ID, Mukherjee D, Ting HH, O'Gara PT, Kushner FG, Ascheim DD, Brindis RG, Casey DE, Chung MK, de Lemos JA, Diercks DB, Fang JC, **Franklin BA**, Granger CB, Krumholz HM, Linderbaum JA, Morrow DA, Newby LK, Ornato JP, Ou N, Radford MJ, Tamis-Holland JE, Tommaso CL, Tracy CM, Woo YJ, Zhao DX, Pci Writing C and Stemi Writing C (2016). "2015 ACC/AHA/SCAI focused update on primary percutaneous coronary intervention for patients with ST-elevation myocardial infarction: An update of the 2011 ACCF/AHA/SCAI guideline for percutaneous coronary intervention and the 2013 ACCF/AHA guideline for the management of ST-elevation myocardial infarction." Catheterization and Cardiovascular Interventions 87(6): 1001-1019.

[Full-Text](#)

*Department of Internal Medicine*

**Maerz T**, Newton MD, **Kurdziel MD**, Altman P, **Anderson K**, Matthew HW and **Baker KC** (2016). "Articular cartilage degeneration following anterior cruciate ligament injury: A comparison of surgical transection and noninvasive rupture as preclinical models of post-traumatic osteoarthritis." [Osteoarthritis and Cartilage](#). ePub Ahead of Print.

[Full-Text](#)

*Department of Surgery*

*Department of Orthopedic Surgery*

OBJECTIVE: Post-traumatic osteoarthritis (PTOA) is commonly studied using animal models. Surgical ACL transection is an established model, but noninvasive models may mimic human injury more closely. The purpose of this study was to quantify and compare changes in 3D articular cartilage (AC) morphology following noninvasive ACL rupture and surgical ACL transection. METHODS: Thirty-six rats were randomized to uninjured control, noninvasive ACL rupture (Rupture), and surgical ACL transection (Transection), and 4 and 10 week time points (n = 6 per group). Contrast-enhanced micro-computed tomography (CE- $\mu$ CT) was employed for AC imaging. Femoral and tibial AC were segmented and converted into thickness maps. Compartmental and sub-compartmental AC thickness and surface roughness (Sa) were computed. OARSI histologic scoring was performed. RESULTS: In both injury groups, zones of adjacent thickening and thinning were evident on the medial femoral condyle, along with general thickening and roughening of femoral and tibial AC. The posterior tibia exhibited drastic thickening and surface degeneration, and this was worse in Transection. Both injury groups had increased AC thickness and Sa compared to Control at both time points, and Transection exhibited significantly higher Sa in every tibial compartment compared to Rupture. Histologic score was elevated in both groups, and the medial femur exhibited the most severe histologic degeneration. CONCLUSIONS: This is the first 3D quantification of preclinical AC remodeling after ACL injury. Both injury models induced similar changes in AC morphology, but Transection exhibited higher tibial Sa and a greater degree of posterior tibial degeneration. We conclude that AC degeneration is a time-, compartment-, and injury-dependent cascade.

Manatsathit W, Leelasincharoen P, Al-Hamid H, Szpunar S and **Hawasli A** (2016). "The incidence of cholelithiasis after sleeve gastrectomy and its association with weight loss: A two-centre retrospective cohort study." [International Journal of Surgery](#) 30: 13-18.

[Full-Text](#)

*Department of Surgery*

Introduction: Gallstones commonly develop after Roux-en-Y gastric bypass and other bariatric surgery; however, incidence of gallstone development after SG has not been adequately studied. Methods: We conducted a retrospective cohort study of patients who underwent SG at two institutions from January 1, 2011 to December 31, 2012. Patients with previous cholecystectomy, preexisting gallstones, gallbladder polyps, or the absence of preoperative abdominal imaging were excluded. Follow-up abdominal ultrasonography was performed once the patients achieved 80-lb weight loss, became symptomatic, or reached one-year post-surgery. The incidence of gallstones and symptomatic gallstones and/or bile sludge was calculated. Different parameters of early and late postoperative weight loss were compared between the patients who developed gallstones and those who did not. Results: During the study period, 253 underwent laparoscopic sleeve gastrectomy. Ultimately, 96 patients met inclusion criteria and were evaluated. The incidence of gallstone formation was 47.9% (46/96), and the incidence of symptomatic gallstones was 22.9% (22/96). None of the weight loss parameters during the early and late postoperative period were significantly different between the patients who developed gallstones and those who did not. Conclusion: Gallstones are a common complication after rapid weight loss from SG. Our data suggest that gallstone formation during the weight loss period is not associated with amount or rate of weight loss both during the early or late postoperative period. (c) 2016 IJS Publishing Group Ltd. Published by Elsevier Ltd. All rights reserved.

Marinos A, **Bhagwan S**, Sruthi J, Ogunleye F, **Reddy G**, Li W, **Jaiyesimi I** and **Kellerman P** (2016). "Acute kidney injury in a patient with type II cryoglobulinemia from extra nodal marginal zone b-cell lymphoma (MALT): Case report and review of the literature." [American Journal of Kidney Diseases](#) 67(5): A70.

[Full-Text](#)

*OUWB Medical Student Author*

*Department of Internal Medicine*

*Department of Pathology*

Cryoglobulinemia is characterized by the presence of cold-precipitable immunoglobulins. The vast majority of cryoglobulemic kidney disease is related to mixed cryoglobulinemia secondary to infections such as hepatitis C or HIV. Type I and type II cryoglobulinemias associated with malignancies, with either monoclonal or mixed monoclonal/polyclonal antibodies, are much less common. Herein, we report the case of a 67-year-old female with a new diagnosis of lung MALT lymphoma that presented with constitutional symptoms, a diffuse erythematous macular rash, digital cyanosis, encephalopathy and anuric AKI. Kidney biopsy demonstrated prominent cryoglobulin pseudo-thrombi obstructing capillary loops, with focal necrotizing arteritis and acute tubular injury. Laboratory testing was positive for cryoglobulinemia type II with a monoclonal IgM-kappa and polyclonal IgG, cryocrit was 7% and hepatitis PCR was negative. The patient was emergently treated with plasmapheresis, rituximab, and high dose steroids, with rapid resolution of the encephalopathy and ischemic digital lesions, and partial recovery of renal function after 4 months of hemodialysis. Type I and II cryoglobulinemia have been associated with monoclonal gammopathies and lymphomas, however kidney disease related to MALT lymphomas is uncommon, with prior reports of kidney disease from direct parenchymal involvement, minimal change disease, membranoproliferative glomerulonephritis, exudative lupus-like glomerulonephritis and acute kidney failure related to tumor lysis syndrome. This case is unique in the literature due to the unusual presentation of MALT lung lymphoma in association with Type II cryoglobulinemia causing pseudothrombi and vasculitis in the kidney, resulting in severe anuric AKI, successfully treated with immunosuppression and plasmapheresis.

Masek BB, Baker DS, Dorfman RJ, Dubrucq K, **Francis VC**, Nagy S, Richey BL and Soltanshahi F (2016). "Multistep reaction based de novo drug design: Generating synthetically feasible design ideas." [Journal of Chemical Information and Modeling](#) 56(4): 605-620.

[Full-Text](#)

*OUWB Medical Student Author*

We describe a "multistep reaction driven" evolutionary algorithm approach to de novo molecular design. Structures generated by the approach include a proposed synthesis path intended to aid the chemist in assessing the synthetic feasibility of the ideas that are generated. The methodology is independent of how the design ideas are scored, allowing multicriteria drug design to address multiple issues including activity at one or more pharmacological targets, selectivity, physical and ADME properties, and off target liabilities; the methods are compatible with common computer-aided drug discovery "scoring" methodologies such as 2D- and 3D-ligand similarity, docking, desirability functions based on physiochemical properties, and/or predictions from 2D/3D QSAR or machine learning models and combinations thereof to be used to guide design. We have performed experiments to assess the extent to which known drug space can be covered by our approach. Using a library of 88 generic reactions and a database of ~20 000 reactants, we find that our methods can identify "close" analogs for ~50% of the known small molecule drugs with molecular weight less than 300. To assess the quality of the in silico generated synthetic pathways, synthesis chemists were asked to rate the viability of synthesis pathways: both "real" and in silico generated. In silico reaction schemes generated by our methods were rated as very plausible with scores similar to known literature synthesis schemes. © 2016 American Chemical Society.

Mattos MA and **Brown OW** (2016). "Advanced vascular surgery surgical skills and simulated assessment program for senior vascular surgery trainees." [Journal of Vascular Surgery](#) 63(6): 53S.

[Full-Text](#)

*Department of Surgery*

**Menoch M**, Vermeulen A and **Levasseur K** (2016). "How well does modified PEWS apply to different hospital departments? Pediatric early warning score at a community-based teaching hospital: Evaluation of implementation." *Academic Emergency Medicine* 23: S265.

[Full-Text](#)

*Department of Emergency Medicine*

Background: A variety of pediatric early warning score (PEWS) systems have shown potential to identify evolving critical illness for different pediatric departments, with any score  $\geq 3$  directing clinical action. It is unknown how well this scoring system performs when implemented hospital-wide with pediatric patients. Objectives: Evaluate the clinical utility modified PEWS system implementation for hospital wide community based teaching hospital by analyzing compliance, clinical acknowledgment of high scores, and if actions were taken for a high score. The emergency department data was then compared to the in-patient data. Methods: We reviewed all pediatric emergency department and pediatric inpatient visits during the first six months of modified PEWS implementation, extracting data for any high risk patient (score  $\geq 3$ ). These charts were individually reviewed for any note addressing the high score, any order placed at the time of the high score, or if the patient was transferred to a higher level of care. Results: Out of the 16,632 visit total, 70% had a PEWS recorded. Of the scores obtained, 83% were obtained in the emergency department. Our cohort of interest with a score  $\geq 3$ , was 8% (1,318) of these patients. Of these, 55.6% had a score of 3, with 45.4% scoring higher. The median time to obtain a score was 46 minutes, with a median hospital length of stay 1.6 days. Of these high scoring patients, 97% did not have any form of documentation acknowledging the high risk score, and 63% had no intervention. Of the interventions performed, 10% of the patients had supplemental oxygen given, 10% had intravenous fluids given, and 13% had a medication given. PICU transfers occurred in 4.6% of these cases. Conclusion: Implementation of a PEWS system likely has many challenges for compliance within different pediatric departments of the same hospital system, explaining the large compliance difference seen between our emergency department and pediatric inpatient units. If the high score is not being acknowledged or acted upon, it is unknown if the patient was truly decompensating or if the PEWS scored high but was not clinically useful (a false trigger).

**Mi M** and Riley-Doucet C (2016). "Health professions students' lifelong learning orientation: Associations with their self-assessed competency in information skills." *Evidence-Based Library and Information Practice* 11(2): 121-135.

[Full-Text](#)

*Medical Library*

Minhas AS, Jiang Q, Gu X, Haymart B, Kline-Rogers E, **Almany S**, Kozlowski J, Krol GD, Kaatz S, Froehlich JB and Barnes GD (2016). "Renal function in atrial fibrillation patients switched from warfarin to a direct oral anticoagulant." *Journal of Thrombosis and Thrombolysis*: 1-7. ePub Ahead of Print.

[Full-Text](#)

*Department of Internal Medicine*

All available direct oral anticoagulants (DOACs) are at least partially eliminated by the kidneys. These agents are increasingly being used as alternatives to warfarin for stroke prevention in patients with atrial fibrillation. The aim of this study was to identify changes in renal function and associated DOAC dosing implications in a multicenter cohort of atrial fibrillation patients switched from warfarin to DOAC treatment. We included all patients in the Michigan Anticoagulation Quality Improvement Initiative cohort who switched from warfarin to a DOAC with atrial fibrillation as their anticoagulant indication between 2009 and 2014, and who had at least two creatinine values. Compliance with FDA-recommended dosing based on renal function was assessed. Of the 189 patients switched from warfarin to a DOAC, 34 (18.0 %) had a baseline creatinine clearance  $< 50$  mL/min and 23 (12.2 %) experienced important fluctuations in renal function. Of these 23 patients, 6 (26.1 %) should have impacted the DOAC dosing, but only 1 patient actually received an appropriate dose adjustment. Additionally, 15 (7.9 %) of patients on DOACs had a dose change performed, but only one patient demonstrated a change in renal function to justify the dose adjustment. Most atrial fibrillation patients who switched from warfarin to a DOAC had stable renal function. However, the majority of patients who had a change in renal function did not receive the indicated dose change. As the use of DOACs expands, monitoring of renal function and appropriate dose adjustments are critical. © 2016 Springer Science+Business Media New York

Motwani M, Dey D, Berman DS, Germano G, Achenbach S, Al-Mallah MH, Andreini D, Budoff MJ, Cademartiri F, Callister TQ, Chang HJ, **Chinnaiyan K**, Chow BJ, Cury RC, Delago A, Gomez M, Gransar H, Hadamitzky M, Hausleiter J, Hindoyan N, Feuchtner G, Kaufmann PA, Kim YJ, Leipsic J, Lin FY, Maffei E, Marques H, Pontone G, **Raff G**, Rubinshtein R, Shaw LJ, Stehli J, Villines TC, Dunning A, Min JK and Slomka PJ (2016). "Machine learning for prediction of all-cause mortality in patients with suspected coronary artery disease: A 5-year multicentre prospective registry analysis." European Heart Journal. ePub Ahead of Print.

[Full-Text](#)

*Department of Internal Medicine*

AIMS: Traditional prognostic risk assessment in patients undergoing non-invasive imaging is based upon a limited selection of clinical and imaging findings. Machine learning (ML) can consider a greater number and complexity of variables. Therefore, we investigated the feasibility and accuracy of ML to predict 5-year all-cause mortality (ACM) in patients undergoing coronary computed tomographic angiography (CCTA), and compared the performance to existing clinical or CCTA metrics. METHODS AND RESULTS: The analysis included 10 030 patients with suspected coronary artery disease and 5-year follow-up from the COronary CT Angiography EvaluationN For Clinical Outcomes: An InteRnational Multicenter registry. All patients underwent CCTA as their standard of care. Twenty-five clinical and 44 CCTA parameters were evaluated, including segment stenosis score (SSS), segment involvement score (SIS), modified Duke index (DI), number of segments with non-calcified, mixed or calcified plaques, age, sex, gender, standard cardiovascular risk factors, and Framingham risk score (FRS). Machine learning involved automated feature selection by information gain ranking, model building with a boosted ensemble algorithm, and 10-fold stratified cross-validation. Seven hundred and forty-five patients died during 5-year follow-up. Machine learning exhibited a higher area-under-curve compared with the FRS or CCTA severity scores alone (SSS, SIS, DI) for predicting all-cause mortality (ML: 0.79 vs. FRS: 0.61, SSS: 0.64, SIS: 0.64, DI: 0.62;  $P < 0.001$ ). CONCLUSIONS: Machine learning combining clinical and CCTA data was found to predict 5-year ACM significantly better than existing clinical or CCTA metrics alone.

Mukthapuram S, **Dewar D** and **Maisels MJ** (2016). "Extreme hyperbilirubinemia and G6PD deficiency with no laboratory evidence of hemolysis." Clinical Pediatrics 55(7): 686-688.

[Full-Text](#)

*Department of Pediatrics*

**Myers S** and **Patino G** (2016). "Clinico-topographical relationship of cerebellar symptoms: An analysis of the literature." Neurology 86(16): Supplement P2.388.

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*OUWB Medical Student Author*

*Department of Biomedical Sciences (OU)*

Objective: The objective of this project is to evaluate the concordance of commonly utilized neuroanatomy textbooks with recent review articles in regards to the clinical manifestations of cerebellar lesions  
Background: A common objective of medical neuroscience courses is to teach clinical localization of neurological signs and symptoms. Amidst the delivery of the neuroscience sequence at our institution, it became evident that a given cerebellar symptom would be attributed to the pathology of a different region depending on the consulted textbook. Methods: We identified commonly used neuroanatomy textbooks at the graduate medical level. Review articles on clinical localization of cerebellar symptoms were retrieved from PUBMED. To date, 6 textbooks and 6 review articles have been reviewed. Their dates of publication range from 2008 to 2015. We tabulated the regional localization of cerebellar symptoms presented in each text, into four cerebellar regions: Vermis, paravermis, hemispheres, and flocculo-nodulus. Results: Preliminary results indicate that very few cerebellar symptoms were consistently localized to a specific region across the literature. Ataxia is reportedly confined to the vermis and flocculo-nodular lobe, while ocular dysmetria has a reported association with the hemispheres and flocculo-nodulus. In other cases, symptoms were localized to all regions with the exception of the vermis. These symptoms included: Dysdiadochokinesia, cerebellar tremor, and rebound phenomenon. However, the great majority of symptoms were attributed to lesions in every region of the cerebellum. Conclusions: Our preliminary results suggest there exists a significant

amount of discrepancies between neuroanatomy texts. These findings call into question the emphasis towards regional localization of cerebellar symptoms in medical neuroscience courses.

**Navalpakam A**, Dany M and **Hajj Hussein I** (2016). "Behavioral perceptions of Oakland University female college students towards human papillomavirus vaccination." *PloS One* 11(5): 1-9.

[Full-Text](#)

*OUWB Medical Student Author*

*Department of Biomedical Sciences (OU)*

Human Papillomavirus (HPV) vaccination decreases the risk for cervical cancer. However, the uptake of HPV vaccine remains low when compared with other recommended vaccines. This study evaluates the knowledge and attitudes towards HPV infection and vaccination, and the readiness for the uptake of HPV vaccine amongst female students attending Oakland University (OU) in Michigan, United States. This is a cross-sectional study targeting a randomized sample of a 1000 female OU students using an online questionnaire. The data were statistically analyzed using SPSS software. A total of 192 female students, with the mean age of 24 years completed the survey. The majority of participants had previous sexual experience with occasional use of contraceptives (78.1%), were non-smokers (92.7%), and non-alcohol drinkers (54.2%). The participants had a mean knowledge score of 53.0% with a standard error of 2.3% translating to a moderately informed population. The majority agreed that HPV is life threatening (79%), the vaccine prevents cervical cancer (62%), and that side effects would not deter them from vaccination (63%). Although two thirds (67%) believed that, based on sexual practices in the United States, female college students in Michigan have a higher chance of contracting HPV, about 50% did not believe they themselves were at risk. Higher knowledge correlated with increased recommendation for the vaccine (correlation-factor 0.20,  $p = 0.005$ ). Results suggested that the best predictor for improvement of vaccination was the awareness level and health education. This indicates a need for an educational intervention to raise awareness, increase HPV vaccine uptake, and decrease the incidence of cervical cancer.

Newton MD, Hartner SE, Timmons S, Delaney ND, Pirrone MG, **Baker KC** and **Maerz T** (2016). "Contrast-enhanced microCT of the intervertebral disc: A comparison of anionic and cationic contrast agents for biochemical and morphological characterization." *Journal of Orthopaedic Research*. ePub Ahead of Print.

[Full-Text](#)

*Department of Orthopedic Surgery*

*Department of Surgery*

The objective of this study was to quantify and compare the contrast-enhancing properties of the anionic contrast agent ioxaglate/Hexabrix, and cationic contrast agent CA4+ for biochemical and morphological characterization of the intervertebral disc (IVD) via microCT. Optimal contrast agent concentrations were determined by incubating rat lumbar IVDs in dilutions of Hexabrix-320 (20%, 30%, 40%, and 50%) and CA4+ (10, 20, 30, and 40 mgI/mL). microCT imaging was performed at 70 kVp, 114 microA, and 250 ms integration time, 12 microm voxel size. The kinetics of contrast enhancement were quantified with cumulative incubations for 0.5, 1, 2, 12, 16, 20, and 24 hours using both agents. Agreement in morphological quantification was assessed via serial scans of the same IVDs. Correlation of attenuation to glycosaminoglycan (GAG) content was determined by enzymatic digestion of IVDs, subsequent microCT imaging, and GAG quantification via dimethylmethylene blue assay. 40% Hexabrix and 30 mgI/mL CA4+ were chosen as optimal concentrations. Hexabrix enabled greater delineation of the IVD from surrounding tissues, and CA4+ had the lowest uptake in surrounding soft tissue. 24-hour incubation was sufficient for >99% equilibration of both agents. A high level of agreement was observed in the quantification of IVD volume (ICC = 0.951,  $r = 0.997$ ) and height (ICC = 0.947,  $r = 0.991$ ). Both agents exhibited strong linear correlations between microCT attenuation and GAG content (Hexabrix:  $r = -0.940$ ; CA4+ :  $r = 0.887$ ). Both agents enable biochemical and morphological quantification of the IVD via contrast-enhanced microCT and are effective tools for preclinical characterization. This article is protected by copyright. All rights reserved.



Nudleman E, **Wolfe JD**, Woodward MA, Yonekawa Y, **Williams GA** and **Hassan TS** (2016). "Worsening anatomic outcomes following aflibercept for neovascular age-related macular degeneration in eyes previously well controlled with ranibizumab." *Clinical Ophthalmology* 10: 1053-1057.

[Full-Text](#)

*Department of Ophthalmology*

Purpose: Antivascular endothelial growth factor injection is the mainstay of treating neovascular age-related macular degeneration (AMD). Previous studies have shown that switching treatment from ranibizumab to aflibercept led to an improvement in eyes with recalcitrant activity. Herein, we identify a unique subset of patients whose eyes with neovascular AMD were previously well controlled with ranibizumab injections were then worsened after being switched to aflibercept. Methods: This is a retrospective interventional case series. Eyes with neovascular AMD, previously well controlled with monthly injections of ranibizumab, which then developed worsening of subretinal fluid after being switched to aflibercept were included. Results: A total of 17 eyes were included. All eyes developed increased subretinal fluid when switched from ranibizumab to aflibercept. Fourteen patients were switched back to ranibizumab after a single injection of aflibercept and had subsequent rapid resolution of subretinal fluid. Three patients continued with monthly aflibercept injections for two subsequent months and demonstrated the persistence of the increased subretinal fluid until they were switched back to treatment with ranibizumab at which time the fluid resolved. No eye had persistent decline in visual acuity. Conclusion: Switching from intravitreal ranibizumab to aflibercept in eyes with well-controlled neovascular AMD may result in worsening in a subset of patients and resolves when therapy is switched back to ranibizumab. © 2016 Nudleman et al.

**Page TP** and Whitman J (2016). "A stepwise approach for the management of capsular contraction syndrome in hinge-based accommodative intraocular lenses." *Clinical Ophthalmology* 10: 1039-1046.

[Full-Text](#)

*Department of Ophthalmology*

Purpose: The aims of this study are to define the various stages of capsular contraction syndrome (CCS) and its effect on refractive error with hinge-based accommodating intraocular lenses (IOLs) and to describe a systematic approach for the management of the different stages of CCS. Methods: Hinge-based accommodative IOLs function via flexible hinges that vault the optic forward during accommodation. However, it is the flexibility of the IOL that makes it prone to deformation in the event of CCS. The signs of CCS are identified and described as posterior capsular striae, fibrotic bands across the anterior or posterior capsule, and capsule opacification. Various degrees of CCS may affect hinge-based accommodating IOLs in a spectrum from subtle changes in IOL appearance to significant increases in refractive error and loss of uncorrected visual acuity. The signs of CCS and its effect on IOL position and the resulting changes in refractive error are matched to appropriate treatment plans. Results: A surgeon can avoid CCS and manage the condition if familiar with the early signs of CCS. If CCS is identified, yttrium–aluminum–garnet laser capsulotomy should be considered. If moderate CCS occurs, it may be effectively treated with insertion of a capsular tension ring. If CCS is allowed to progress to advanced stages, an IOL exchange may be necessary. Conclusion: Surgeons should be familiar with the stages of CCS and subsequent interventions. The steps outlined in this article help to guide surgeons in the prevention and management of CCS with hinge-based accommodative IOLs in order to provide improved refractive outcomes for patients. © 2016 Page and Whitman.

Pandurangadu A, Tucker J, Bagan M and **Bahl A** (2016). "Patient satisfaction with nurse placed ultrasound guided peripheral IV." *Emergency Medicine (Los Angeles)* 6(325): 2.

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*Department of Emergency Medicine*

Pappas AJ, Knight SW, McLean KZ, **Bork S**, Kurz MC and **Sawyer KN** (2016). "Thrombus-in-transit: A case for a multidisciplinary hospital-based pulmonary embolism system of care." *Journal of Emergency Medicine*. ePub Ahead of Print.

[Full-Text](#)

*Department of Emergency Medicine*

Background: Venous thromboembolism, including pulmonary embolism (PE), is a common disease identified in the emergency department that carries significant morbidity and mortality. In its most severe form, PE is fulminant and characterized by cardiac arrest and death. Case Report: In the midst of risk-stratifying PE by using echocardiography to assess right ventricular function, thrombus-in-transit (free-floating clot in the right atrium or ventricle) may be seen. We present a case of a 49-year-old man diagnosed with an acute saddle PE who was incidentally found to have a thrombus-in-transit and patent foramen ovale and required open thrombectomy. Identification of these additional potentially life-threatening features was possible only due to our availability of risk-stratification resources, specifically bedside echocardiography. Why Should an Emergency Physician Be Aware of This?: Albeit rare, with a reported incidence estimated at 4%, the presence of thrombus-in-transit may change emergent clinical management. A multidisciplinary team of resources should be considered emergently as part of a hospital-based PE system of care. © 2016 Elsevier Inc.

Patel HJ, **Herbert MA**, Paone G, Heiser JC, **Shannon FL**, Theurer PF, Bell GF and Prager RL (2016). "The midterm impact of transcatheter aortic valve replacement on surgical aortic valve replacement in Michigan." [Annals of Thoracic Surgery](#). ePub Ahead of Print.

[Full-Text](#)

*Department of Family Medicine*

*Department of Surgery*

Background: We characterized the midterm impact of transcatheter aortic valve replacement (TAVR) on surgical aortic valve replacement (SAVR) volume, patient profiles, and outcomes in Michigan. Methods: We analyzed data obtained after SAVR (n = 15,288) and TAVR (n = 1,783) using the Michigan Society of Thoracic and Cardiovascular Surgery Quality Collaborative from 2006 to 2015. During this period, 17 of 33 hospitals developed TAVR programs. Results: Annual SAVR volume increased by 38.1% at TAVR hospitals and by 20.4% at non-TAVR hospitals, (p trend < 0.001). In TAVR hospitals, the Society of Thoracic Surgeons (STS) Predicted Risk of Mortality (PROM) decreased before ( $4.7\% \pm 5.1\%$ ) and after ( $3.5\% \pm 3.6\%$ ) initiation of TAVR (p < 0.001). Rates of 30-day mortality (pre-TAVR, 3.9% vs post-TAVR, 2.7%; p < 0.001) and renal failure (pre-TAVR, 5.2% vs post-TAVR, 3.3%; p < 0.001) but not stroke (pre-TAVR, 1.9% vs post-TAVR, 1.7%; p = 0.47) were lower after TAVR implementation. Length of stay decreased from 9.0 to 8.5 days (p < 0.001). When analyzing high-risk patients undergoing SAVR (ie, PROM >8%), neither mortality, stroke, nor renal failure was different (all p > 0.15). Despite a reduction in the STS-PROM, non-TAVR hospitals did not display changes in mortality, stroke, or renal failure for either the entire or the high-risk SAVR cohorts after initiation of TAVR in Michigan. Conclusions: TAVR implementation in Michigan has dramatically increased overall SAVR volume. This phenomenon has occurred with a concomitant decrease in preoperative risk profile and has improved early SAVR outcomes, particularly at TAVR hospitals, but surprisingly not in patients considered at high preoperative risk. As TAVR use increases, these issues may be further clarified and elucidated. © 2016 The Society of Thoracic Surgeons.

Perdoncin E, Seth M, **Dixon S**, Cannon L, Khandelwal A, Riba A, David S, Wohns D and Gurm H (2016). "The comparative efficacy of bivalirudin is markedly attenuated by use of radial access: Insights from Blue Cross Blue Shield of Michigan Cardiovascular Consortium." [European Heart Journal](#) 37(24): 1902-1909.

[Full-Text](#)

*Department of Internal Medicine*

Aim The purpose of our study was to evaluate the relative impact of bivalirudin on bleeding outcomes associated with trans-radial interventions (TRI) in real world practice. Methods and results Data for patients undergoing percutaneous coronary intervention (PCI) between January 2010 and March 2014 at the 47 hospitals participating in the Blue Cross Blue Shield of Michigan Cardiovascular Consortium (BMC2) were utilized. Propensity matching was used within cohorts defined by access site. The impact of bivalirudin use on in-hospital outcomes was evaluated with Fisher's exact tests. Among patients undergoing trans-femoral interventions (TFI), use of bivalirudin was associated with a reduction in bleeding compared with both glycoprotein IIb/IIIa inhibitors (GPI; 1.67 vs. 3.46%, absolute risk reduction (ARR) 1.79%, odds ratio, OR, 0.47, confidence interval, CI, 0.41-0.54, number needed to treat, NNT 56, P < 0.001) and heparin (1.26 vs. 1.76%, ARR 0.5%, OR 0.71, CI 0.61-0.82, NNT 197, P < 0.001). Among patients undergoing TRI, there was a more modest absolute reduction in bleeding with bivalirudin compared with GPI (0.79 vs. 1.41%, ARR 0.62%, OR

0.56, CI 0.34-0.90, NNT 161, P = 0.016) and no difference in bleeding compared with heparin (0.46 vs. 0.46%, OR 1, CI 0.54-1.84, P = 1). Conclusion Bivalirudin is markedly efficacious in reducing bleeding in patients undergoing TFI. The reduction in bleeding associated with bivalirudin use is minimal to absent in patients undergoing TRI. Given its lower cost and comparable outcomes, heparin should be the preferred anticoagulation strategy in those undergoing radial PCI. © The Author 2015.

Peter Campbell J, Ataer-Cansizoglu E, Bolon-Canedo V, Bozkurt A, Erdogmus D, Kalpathy-Cramer J, Patel SN, Reynolds JD, Horowitz J, Hutcheson K, Shapiro M, Repka MX, Ferrone P, **Drenser K**, Martinez-Castellanos MA, Ostmo S, Jonas K, Paul Chan RV, Chiang MF, Sonmez K, Coki O, Eccles CA, Sarna L, Berrocal A, Negron C, Cumming K, Osentoski T, Check T, Lee T, Kruger E, McGovern K, Simmons C, Murthy R, Galvis S, Rotter J, Chen I, Li X, Roll K, Salinas-Longoria S, Romero R and Arriola A (2016). "Expert diagnosis of plus disease in retinopathy of prematurity from computer-based image analysis." *JAMA Ophthalmology* 134(6): 651-657.

[Full-Text](#)

*Department of Ophthalmology*

**IMPORTANCE:** Published definitions of plus disease in retinopathy of prematurity (ROP) reference arterial tortuosity and venous dilation within the posterior pole based on a standard published photograph. One possible explanation for limited interexpert reliability for a diagnosis of plus disease is that experts deviate from the published definitions. **OBJECTIVE:** To identify vascular features used by experts for diagnosis of plus disease through quantitative image analysis. **DESIGN, SETTING, AND PARTICIPANTS:** A computer-based image analysis system (Imaging and Informatics in ROP [i-ROP]) was developed using a set of 77 digital fundus images, and the system was designed to classify images compared with a reference standard diagnosis (RSD). System performance was analyzed as a function of the field of view (circular crops with a radius of 1-6 disc diameters) and vessel subtype (arteries only, veins only, or all vessels). Routine ROP screening was conducted from June 29, 2011, to October 14, 2014, in neonatal intensive care units at 8 academic institutions, with a subset of 73 images independently classified by 11 ROP experts for validation. The RSD was compared with the majority diagnosis of experts. **MAIN RESULTS AND MEASURES:** The primary outcome measure was the percentage of accuracy of the i-ROP system classification of plus disease, with the RSD as a function of the field of view and vessel type. Secondary outcome measures included the accuracy of the 11 experts compared with the RSD. **RESULTS:** Accuracy of plus disease diagnosis by the i-ROP computer-based system was highest (95%; 95% CI, 94%-95%) when it incorporated vascular tortuosity from both arteries and veins and with the widest field of view (6-disc diameter radius). Accuracy was 90% or less when using only arterial tortuosity and 85% or less using a 2- to 3-disc diameter view similar to the standard published photograph. Diagnostic accuracy of the i-ROP system (95%) was comparable to that of 11 expert physicians (mean 87%, range 79%-99%). **CONCLUSIONS AND RELEVANCE:** Experts in ROP appear to consider findings from beyond the posterior retina when diagnosing plus disease and consider tortuosity of both arteries and veins, in contrast with published definitions. It is feasible for a computer-based image analysis system to perform comparably with ROP experts, using manually segmented images.

Platts-Mills TF, Nicholson RJ, Richmond NL, Patel KV, Simonsick EM, Domeier RM, **Swor RA**, Hendry PL, Peak DA, Rathlev NK, Jones JS, Lee DC, Weaver MA, Keefe FJ and McLean SA (2016). "Restricted activity and persistent pain following motor vehicle collision among older adults: A multicenter prospective cohort study." *BMC Geriatrics* 16: 1-11.

[Full-Text](#)

*Department of Emergency Medicine*

**Background:** Restricted physical activity commonly occurs following acute musculoskeletal pain in older adults and may influence long-term outcomes. We sought to examine the relationship between restricted physical activity after motor vehicle collision (MVC) and the development of persistent pain. **Methods:** We examined data from a prospective study of adults  $\geq 65$  years of age presenting to the emergency department (ED) after MVC without life-threatening injuries. Restricted physical activity 6 weeks after MVC was defined in three different ways: 1) by a  $\geq 25$  point decrease in Physical Activity Scale in the Elderly (PASE) score, 2) by the answer "yes" to the question, "during the past two weeks, have you stayed in bed for at least half a day?", and 3) by the answer "yes" to the question, "during the past two weeks, have you cut down on your usual activities as compared to before the accident?" We examined relationships between

each definition of restricted activity and pain severity, pain interference, and functional capacity at 6 months with adjustment for confounders. Results: Within the study sample (N = 164), adjusted average pain severity scores at 6 months did not differ between patients with and without restricted physical activity based on decreased PASE score (2.54 vs. 2.07,  $p = 0.32$ ). In contrast, clinically and statistically important differences in adjusted average pain severity at 6 months were observed for patients who reported spending half a day in bed vs. those who did not (3.56 vs. 1.91,  $p < 0.01$ ). In adjusted analyses, both decreased PASE score and cutting down on activity were associated with functional capacity at 6 months, but only decreased PASE score was associated with increased ADL difficulty at 6 months (0.70 vs. -0.01,  $p = 0.02$ ). Conclusions: Among older adults experiencing MVC, those reporting bed rest or reduced activity 6 weeks after the collision reported higher pain and pain interference scores at 6 months. More research is needed to determine if interventions to promote activity can improve outcomes after MVC in older adults.

Pomajzl RJ, **Baker EA**, **Baker KC**, Fleischer MM, Salisbury MR, Phillips DM and **Fortin PT** (2016). "Case series with histopathologic and radiographic analyses following failure of fresh osteochondral allografts of the talus." [Foot and Ankle International](#). ePub Ahead of Print.

[Full-Text](#)

*Department of Orthopedic Surgery*

**BACKGROUND:** Fresh osteochondral allografting of the talus is one treatment option for large chondral defects. Following positive early term results, failure rates of up to 35% have been reported. A retrieval study was performed to characterize failed talar allografts. **METHODS:** Failed fresh osteochondral allografts of the talus were retrieved on revision. Cases of deep infection were excluded. After tissue fixation, samples were decalcified, embedded, and stained with Safranin-O/Fast Green, osteocalcin, tumor necrosis factor alpha (TNF-alpha), CD4, CD8, and CD68. Slides were graded according to the modified Mankin scoring system or severity scale. Medical record review was performed. **RESULTS:** Eight allografts (7 patients) were retrieved from patients, following an average term of implantation of 31 months (range, 12-58). There were 3 types of allografts in this series (hemidome,  $n=5$ ; segmental,  $n=2$ ; bipolar,  $n=1$ ). Reasons for transplantation were post-traumatic arthritis or osteonecrosis; reasons for revision were graft failure/collapse, nonunion, progressive arthritis, and/or pain. Prior to revision, all grafts exhibited collapse and subchondral lucencies. At the graft host interface, Safranin-O staining demonstrated substantial loss of sulfated glycosaminoglycans, Osteocalcin immunostaining was nearly absent, CD68 (indicating osteoclast activity) was predominantly exhibited, and CD4+ helper T cells as well as CD8+ cytotoxic T cells and NK cells—cell types commonly implicated in allogeneic organ transplant rejection—were found in high concentrations. TNF-alpha was present throughout the graft. **CONCLUSION:** A histopathologic analysis of 8 retrieved, failed talar allografts was performed. Graft failure appeared to be primarily biologic, with an extensive loss of viable cartilaginous and osseous tissue at the graft-host interface. This study provides the first evidence of a potential CD4+ and CD8+ lymphocyte-mediated failure mechanism in fresh osteochondral allografts that were revised following collapse. **LEVEL OF EVIDENCE:** Level IV, case series.

Prombhul S, Tribuddharat C, **Laikijrungs P**, Aranya C, Bamrungsri N and Mekviwattanawong S (2016). "New variant of an imipenemase, IMP-32, in *Klebsiella pneumoniae* from a fatal case of a Thai patient." [Journal of Medical Microbiology](#) 65(6): 572-573.

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*OUIWB Medical Student Author*

Radhakrishna U, Albayrak S, **Alpay-Savasan Z**, Zeb A, Turkoglu O, Sobolewski P and **Bahado-Singh RO** (2016). "Genome-wide DNA methylation analysis and epigenetic variations associated with Congenital Aortic Valve Stenosis (AVS)." [PloS One](#) 11(5): 1-13.

[Full-Text](#)

*Department of Obstetrics and Gynecology*

Congenital heart defect (CHD) is the most common cause of death from congenital anomaly. Among several candidate epigenetic mechanisms, DNA methylation may play an important role in the etiology of CHDs. We conducted a genome-wide DNA methylation analysis using an Illumina Infinium 450k human methylation assay in a cohort of 24 newborns who had aortic valve stenosis (AVS), with gestational-age matched

controls. The study identified significantly-altered CpG methylation at 59 sites in 52 genes in AVS subjects as compared to controls (either hypermethylated or demethylated). Gene Ontology analysis identified biological processes and functions for these genes including positive regulation of receptor-mediated endocytosis. Consistent with prior clinical data, the molecular function categories as determined using DAVID identified low-density lipoprotein receptor binding, lipoprotein receptor binding and identical protein binding to be over-represented in the AVS group. A significant epigenetic change in the APOA5 and PCSK9 genes known to be involved in AVS was also observed. A large number CpG methylation sites individually demonstrated good to excellent diagnostic accuracy for the prediction of AVS status, thus raising possibility of molecular screening markers for this disorder. Using epigenetic analysis we were able to identify genes significantly involved in the pathogenesis of AVS. © 2016 Radhakrishna et al. This is an open access article distributed under the terms of the Creative Commons Attribution License, which permits unrestricted use, distribution, and reproduction in any medium, provided the original author and source are credited.

Rakhra S, Strauss JB, **Robertson J**, McGinn CJ, Kim T, Huang J, Blake A, Helenowski I, Hayes JP, Mulcahy M and Small W, Jr. (2016). "Hypofractionated conformal radiotherapy with concurrent full-dose gemcitabine versus standard fractionation radiotherapy with concurrent fluorouracil for unresectable pancreatic cancer: A multi-institution experience." *Journal of Gastrointestinal Cancer* 47(2): 196-201.

[Full-Text](#)

*Department of Radiation Oncology*

Purpose/Objective(s): The purpose of this study was to compare oncologic outcomes and toxicity profile of hypofractionated conformal radiotherapy (RT) with concurrent full-dose gemcitabine versus standard fractionation RT with concurrent 5-fluorouracil (5-FU) in the treatment of unresectable non-metastatic pancreatic cancer. Materials/Methods: Patients with unresectable non-metastatic adenocarcinoma of the pancreas treated at three institutions were included. All patients were treated with chemoradiotherapy (CRT) consisting of either hypofractionated RT to the gross disease concurrent with a full-dose gemcitabine-based regimen versus standard fractionation RT to the tumor and elective nodes concurrent with 5-FU. End points included rates of gastrointestinal (GI) toxicities, overall survival (OS), and distant metastasis free survival (DMFS). Results: From January 1999 to December 2009, 170 patients were identified (118 RT/gemcitabine, 52 RT/5-FU). There were no differences in demographic or clinical factors. Acute GI toxicities (grades <3 versus ≥3) were 82.2 and 17.8 %, respectively, for patients treated with RT/gemcitabine and 78.9 and 21.2 % for those treated with RT/5-FU (p = 0.67). Late GI toxicities (grades <3 versus ≥3) were 88.1 and 11.9 %, respectively, for RT/gemcitabine and 80.8 and 19.2 % for RT/5-FU (p = 0.23). OS for RT/gemcitabine and RT/5-FU were 52 versus 36 % at 1 year and 14 versus 6 % at 2 years favoring the RT/gemcitabine group (p = 0.02). DMFS at 1 and 2 years for RT/gemcitabine were 41 and 11 % versus 24 and 4 % for RT/5-FU (p = 0.02). Conclusions: RT/gemcitabine was equivalent in toxicity to RT/5-FU but was associated with superior OS and DMFS. When RT is used in the treatment of unresectable pancreatic cancer, hypofractionated conformal RT with concurrent full-dose gemcitabine may be the preferred approach. © 2016, Springer Science+Business Media New York.

Rao P, Robinson J, Yonekawa Y, Thomas BJ, **Drenser KA, Trese MT and Capone A, Jr.** (2016). "Wide-field imaging of nonexudative and exudative congenital x-linked retinoschisis." *Retina* 36(6): 1093-1100.

[Full-Text](#)

*Department of Ophthalmology*

Purpose: To describe wide-field imaging features of patients with congenital X-linked retinoschisis. Methods: This is a retrospective nonconsecutive series of 36 eyes from 18 patients with congenital X-linked retinoschisis from 2008 to 2014. Wide-field color fundus photographs, optical coherence tomography images, and wide-field fluorescein angiography images were reviewed. Patients were classified to have either exudative or nonexudative retinoschisis based on the presence or absence of lipid exudates. Results: Eleven eyes exhibited exudative retinoschisis (30%), whereas the remaining were nonexudative. Exudative disease occurred more commonly in older patients (14.4 vs. 4.0 years; P < 0.001). The most frequent location of exudation was the macula. Subretinal hemorrhage was present in 4 eyes (11%). Macular findings included an atypical foveal avascular zone in 7 eyes (19%) and submacular fibrosis or retinal folds in 6 eyes (17%). Peripheral characteristics included fibrosis or folds (11%), bridging vessels (8%), and vascular sheathing (8%).



Thirteen of the 22 eyes (59%) demonstrated leakage on fluorescein angiography. Conclusion: Exudation may be more common in congenital X-linked retinoschisis than previously recognized. The presence of exudates with concurrent angiographic leakage suggests that exudation may be due to chronic vascular permeability and not solely caused by intraschisis hemorrhage, which has been classically described.

Rayess N, Rahimy E, Storey P, Shah CP, **Wolfe JD**, Chen E, Decroos FC, Garg SJ and Hsu J (2016). "Postinjection endophthalmitis rates and characteristics following intravitreal bevacizumab, ranibizumab, and aflibercept." *American Journal of Ophthalmology* 165: 88-93.

[Full-Text](#)

*Department of Ophthalmology*

**PURPOSE:** To compare the incidence and clinical outcomes of endophthalmitis following intravitreal injections of bevacizumab, ranibizumab, and aflibercept. **DESIGN:** Multicenter, retrospective cohort study. **METHODS:** All included patients had received intravitreal injections of bevacizumab, ranibizumab, or aflibercept between January 1, 2009 and September 30, 2013 at 5 retina practices. Billing records were used to identify the total number of anti vascular endothelial growth factor (VEGF) injections administered. Patients who developed endophthalmitis were ascertained from endophthalmitis logs and billing records. Chart review of these patients was performed to confirm that the endophthalmitis was related to the antecedent anti-VEGF injection. Visual outcomes, causative organisms, and clinical course were also recorded. **RESULTS:** A total of 503 890 anti-VEGF injections were included, from which 183 cases of presumed endophthalmitis were identified. The rate of endophthalmitis for bevacizumab was 0.039% (60/153 812), which was similar to ranibizumab 0.035% (109/309 722; P = .522) and aflibercept 0.035% (14/40 356; P = .693). Similarly, there was no difference in the rates between ranibizumab and aflibercept (P = .960). The culture-positive rate of the vitreous/aqueous tap was 38% for both bevacizumab and ranibizumab and was 43% for aflibercept. Furthermore, visual acuity remained decreased at 3 months follow-up for bevacizumab (P = .005), ranibizumab (P < .001), and aflibercept (P = .07) compared to vision at causative injection. **CONCLUSIONS:** Endophthalmitis following intravitreal bevacizumab, ranibizumab, and aflibercept injection appears to occur at similar rates and have comparable visual outcomes. This study suggests that the choice of anti-VEGF agent should be primarily based on efficacy and patient response rather than concern for risk of infection. (C) 2016 Elsevier Inc. All rights reserved.

Richmond NL, Burks CE, Braz VA, **Swor RA**, Jones CW, Weaver MA and Platts-Mills TF (2016). "Modifiable risk factors for malnutrition among older adults receiving care in the emergency department." *Academic Emergency Medicine* 23: S167.

[Full-Text](#)

*Department of Emergency Medicine*

**Background:** Malnutrition affects an estimated 3 million older adults in the US and is associated with functional decline, decreased quality of life, and mortality. ED visits provide an important opportunity to identify malnourished older adults, but how best to intervene in these patients is not known. **Objectives:** The purpose of this study was to estimate the population attributable risk proportion for known risk factors for malnutrition among older adults presenting to US EDs. **Methods:** Screening and enrollment of cognitively intact patients aged 65 years and older who were not critically ill were completed using random time block sampling at 2 EDs in distinct regions of the US. Malnutrition was defined using the Mini Nutritional Assessment Short-Form. Risk factors were assessed using validated measures and included access to food, oral health, and depression symptoms. Population attributable risk proportions were calculated for each risk factor. **Results:** Among the 138 older ED patients who were eligible, 133 (96%) consented to participate. Of these patients, 16% (95%CI 10 to 22%) were malnourished. Malnutrition was more common among patients admitted to the hospital than patients who were discharged (22% vs. 8%, p<0.05). Malnutrition was present among 25% of those with limited access to food, 27% of those with poor oral health, and 29% of those with depression symptoms. The population attributable risk proportions for these factors were 10% (95%CI -4 to 33%), 33% (95%CI 6 to 59%), and 30% (95%CI 6 to 56%), respectively (Richmond Table). Among the 58 patients who stated another reason for not eating well, 40% attributed their eating problems to loss of appetite and 19% to a gastrointestinal problem. **Conclusion:** Poor oral health and depression are important contributors to the overall burden of malnutrition among older ED patients; addressing these problems in



malnourished older adults may improve health outcomes. (Table presented).

Roesch J, Stam B, Belderbos J, Peulen H, Flentje M, Giuliani M, Hope A, Werner-Wasik M, Hong Y and **Grills I** (2016). "99PD: Modelling of pulmonary function test changes after stereotactic body radiotherapy for stage I NSCLC." Journal of Thoracic Oncology 11(4 Suppl): S100.

[Full-Text](#)

*Department of Radiation Oncology*

**Rohde RS**, Wolf JM and Adams JE (2016). "Where are the women in orthopaedic surgery?" Clinical Orthopaedics and Related Research: 1-7. ePub Ahead of Print.

[Full-Text](#)

*Department of Orthopedic Surgery*

Background: Although women account for approximately half of the medical students in the United States, they represent only 13% of orthopaedic surgery residents and 4% of members of the American Academy of Orthopaedic Surgeons (AAOS). Furthermore, a smaller relative percentage of women pursue careers in orthopaedic surgery than in any other subspecialty. Formal investigations regarding the gender discrepancy in choice of orthopaedic surgery are lacking. Questions/purposes: (1) What reasons do women orthopaedic surgeons cite for why they chose this specialty? (2) What perceptions do women orthopaedic surgeons think might deter other women from pursuing this field? (3) What role does early exposure to orthopaedics and mentorship play in this choice? (4) What professional and personal choices do women in orthopaedics make, and how might this inform students who are choosing a career path? Methods: A 21-question survey was emailed to all active, candidate, and resident members of the Ruth Jackson Orthopaedic Society (RJOS, n = 556). RJOS is the oldest surgical women's organization incorporated in the United States. An independent orthopaedic specialty society, RJOS supports leadership training, mentorship, grant opportunities, and advocacy for its members and promotes sex-related musculoskeletal research. Although not all women in orthopaedic practice or training belong to RJOS, it is estimated that 42% of women AAOS fellows are RJOS members. Questions were formulated to determine demographics, practice patterns, and lifestyle choices of women who chose orthopaedic surgery as a specialty. Specifically, we evaluated the respondents' decisions about their careers and their opinions of why more women do not choose this field. For the purpose of this analysis, the influences and dissuaders were divided into three major categories: personal attributes, experience/exposure, and work/life considerations. Results: The most common reasons cited for having chosen orthopaedic surgery were enjoyment of manual tasks (165 of 232 [71%]), professional satisfaction (125 of 232 [54%]), and intellectual stimulation (123 of 232 [53%]). The most common reasons indicated for why women might not choose orthopaedics included perceived inability to have a good work/life balance (182 of 232 [78%]), perception that too much physical strength is required (171 of 232 [74%]), and lack of strong mentorship in medical school or earlier (161 of 232 [69%]). Respondents frequently (29 of 45 [64%]) commented that their role models, mentors, and early exposure to musculoskeletal medicine were influential, but far fewer (62 of 231 [27%]) acknowledged these in their top five influences than they did the more "internal" motivators. Conclusions: To our knowledge, this is the largest study of women orthopaedic surgeons regarding factors influencing their professional and personal choices. Our data suggest that the relatively few women currently practicing orthopaedics were attracted to the field because of their individual personal affinity for its nature despite the lack of role models and exposure. The latter factors may impact the continued paucity of women pursuing this field. Programs designed to improve mentorship and increase early exposure to orthopaedics and orthopaedic surgeons may increase personal interest in the field and will be important to attract a diverse group of trainees to our specialty in the future. © 2016 The Association of Bone and Joint Surgeons®

**Safian RD** (2016). "Saphenous vein bypass graft intervention and embolic protection devices: Time for reassessment (and revision of percutaneous coronary intervention guidelines)." Catheterization and Cardiovascular Interventions 88(1): 84-85.

[Full-Text](#)

*Department of Internal Medicine*

Sallis RE, Matuszak JM, Baggish AL, **Franklin BA**, Chodzko-Zajko W, Fletcher BJ, Gregory A, Joy E, Matheson G, McBride P, Puffer JC, Trilk J and Williams J (2016). "Call to action on making physical activity assessment and prescription a medical standard of care." Current Sports Medicine Reports 15(3): 207-214.

[Full-Text](#)

*Department of Internal Medicine*

The U.S. population is plagued by physical inactivity, lack of cardiorespiratory fitness, and sedentary lifestyles, all of which are strongly associated with the emerging epidemic of chronic disease. The time is right to incorporate physical activity assessment and promotion into health care in a manner that engages clinicians and patients. In April 2015, the American College of Sports Medicine and Kaiser Permanente convened a joint consensus meeting of subject matter experts from stakeholder organizations to discuss the development and implementation of a physical activity vital sign (PAVS) to be obtained and recorded at every medical visit for every patient. This statement represents a summary of the discussion, recommendations, and next steps developed during the consensus meeting. Foremost, it is a "call to action" for current and future clinicians and the health care community to implement a PAVS in daily practice with every patient. © 2016 by the American College of Sports Medicine.

**Sawyer KN**, Brown F, Christensen R, Damino C, Newman MM and Kurz MC (2016). "Surviving sudden cardiac arrest: A pilot qualitative survey study of survivors." Therapeutic Hypothermia and Temperature Management 6(2): 76-84.

[Request Form](#)

*Department of Emergency Medicine*

Research describing survivors of sudden cardiac arrest (SCA) has centered on quantifying functional ability, perceived quality of life, and neurocognitive assessment. Many gaps remain, however, regarding survivors' psychosocial perceptions of life in the aftermath of cardiac arrest. An important influence upon those perceptions is the presence of support and its role in a survivor's life. An Internet-based pilot survey study was conducted to gather data from SCA survivors and friends and/or family members (FFMs) representing their support system. The survey was distributed to members of the Sudden Cardiac Arrest Foundation (SCAF) via the Internet by SCAF leadership. Questions included both discrete multiple-choice and open-ended formats. Inductive thematic analyses were completed by three independent researchers trained in qualitative research methodology to identify primary themes consistent among study participants until thematic saturation was achieved. No statistical inferences were made. A total of 205 surveys were returned over the 5-month study period (July to November 2013); nine were received blank, leaving 196 surveys available for review. Major themes identified for survivors (N = 157) include the significance of and desire to share experiences with others; subculture identification (unique experience from those suffering a heart attack); and the need to seek a new normal, both personally and inter-personally. Major themes identified for FFMs (N = 39) include recognition of loved one's memory loss; a lack of information at discharge, including expectations after discharge; and concern for the patient experiencing another cardiac arrest. This pilot, qualitative survey study suggests several common themes important to survivors, and FFMs, of cardiac arrest. These themes may serve as a basis for future patient-centered focus groups and the development of patient-centered guidelines for patients and support persons of those surviving cardiac arrest.

**Schlachter DM**, Richani K and **Black EH** (2016). "Diode laser-assisted endocanalicular dacryocystorhinostomy: A prospective study." Ophthalmic Plastic and Reconstructive Surgery 32(3): 183-186.

[Full-Text](#)

*Department of Ophthalmology*

Purpose: To evaluate the efficacy of the diode laser in endocanalicular dacryocystorhinostomy. Methods: A prospective, noncomparative, interventional case series using the diode laser for endocanalicular dacryocystorhinostomy in patients with tearing and nasolacrimal duct obstruction. Outcome measures included subjective tearing complaints and objective patency of the nasolacrimal system. Success was defined as improvement of symptoms with patency of nasolacrimal drainage. Patients were followed for 12 months. Institutional review board approval was obtained. Results: Forty eyes (28 unilateral, 6 bilateral) underwent surgery. Five cases were excluded because of inadequate follow-up. Patients ranged in age from 27 to 88 years (66.7 ± 15.7). Seventy-seven percent were female and 23% were male. At 1 week, 88% had improvement in tearing, 12% had no change or worsening of symptoms, and all patients were patent on

irrigation. At 1 month, 86% had improvement, 14% had no change, and all patients were patent on irrigation. At 3 months, 83% had improvement and were patent on irrigation. Seventeen percent had no change or worsening with reflux and were considered failures. At 6 months, 77% had improvement and were patent on irrigation. Five additional patients had no change, reflux on exam and were failed surgeries. At 12 months, 74% had complete resolution and were patent. One additional patient failed. Nine surgeries in 35 cases were considered failures by 12 months. Conclusions: Subjective complaints of tearing correlated with patency of the nasolacrimal system after 3 months. A success rate of 74.3% (26 out of 35 cases) was observed by 12 months. © 2016 The American Society of Ophthalmic Plastic and Reconstructive Surgery, Inc.

Schneider M, Chen C, **Menoch M** and **Levasseur K** (2016). "Primary language and return visits in the pediatric emergency department." *Academic Emergency Medicine* 23: S103-S104.

[Full-Text](#)

*Department of Emergency Medicine*

Background: The inability to speak or read English is a well-recognized barrier to obtaining health care in the United States. This population is also at higher risk for return emergency department (ED) visits. Discharge instructions are an important part of an ED visit in that they provide instructions on the diagnosis and follow-up care, but these are only available in English and Spanish in our department. Although English and Spanish are the two most common languages spoken in the United States, discharge instructions limited to those two languages may not adequately address the needs of certain communities such as the metro Detroit area which serves a large Arabic and Chaldean population. Objectives: To evaluate our pediatric patient population language demographics in two metro Detroit-based hospital settings and compare the rate of 72-hour return visits for each primary language category. Methods: Retrospective chart review of pediatric ED visits from January 1, 2014 through June 30, 2015 in two academic hospital settings. Data extracted included demographics, primary language spoken, and 72-hour return visit rate. Analysis of proportion of 72-hour return visits was conducted to determine whether there was an association between primary language and 72-hour return to the hospital. Results: A total of 56,073 charts were reviewed. Mean age was 7 years and 53% were male. Of those, 97.5% (N=54,672) identified English as their primary language followed by Arabic with 1% (N=544), Chaldean 0.4% (N= 224) and Spanish 0.3% (N=163). Rate of 72 hour return for English or Spanish was 3.87% versus 7.92% for Arabic or Chaldean speakers. The risk difference for 72-hour return to the hospital was found to be statistically significant between patients with a primary language of Arabic or Chaldean vs. patients with a primary language of English or Spanish (estimated risk difference of -0.0405 with 95% CI: [-0.0647, -0.0163]). Conclusion: Arabic and Chaldean languages were more common primary languages than Spanish in our metro Detroit patients. The odds of these children returning within 72-hours were twice as high as those whose primary language was English or Spanish. This illustrates the need for discharge instructions in other languages that are prevalent in the community rather than the country.

**Schultz CC**, Shaffer S, **Fink-Bennett D** and Winokur K (2016). "Key performance indicators in the evaluation of the quality of radiation safety programs." *Health Physics* 111(2 Suppl 2): S155-S165.

[Full-Text](#)

*Department of Diagnostic Radiology and Molecular Imaging*

Beaumont is a multiple hospital health care system with a centralized radiation safety department. The health system operates under a broad scope Nuclear Regulatory Commission license but also maintains several other limited use NRC licenses in off-site facilities and clinics. The hospital-based program is expansive including diagnostic radiology and nuclear medicine (molecular imaging), interventional radiology, a comprehensive cardiovascular program, multiple forms of radiation therapy (low dose rate brachytherapy, high dose rate brachytherapy, external beam radiotherapy, and gamma knife), and the Research Institute (including basic bench top, human and animal). Each year, in the annual report, data is analyzed and then tracked and trended. While any summary report will, by nature, include items such as the number of pieces of equipment, inspections performed, staff monitored and educated and other similar parameters, not all include an objective review of the quality and effectiveness of the program. Through objective numerical data Beaumont adopted seven key performance indicators. The assertion made is that key performance indicators can be used to establish benchmarks for evaluation and comparison of the effectiveness and

quality of radiation safety programs. Based on over a decade of data collection, and adoption of key performance indicators, this paper demonstrates one way to establish objective benchmarking for radiation safety programs in the health care environment.

Shah AR, Abbey AM, Yonekawa Y, Khandan S, **Wolfe JD, Trese MT, Williams GA** and **Capone A, Jr.** (2016). "Widefield fluorescein angiography in patients without peripheral disease." *Retina* 36(6): 1087-1092.

[Full-Text](#)

*Department of Ophthalmology*

Purpose: Widefield photography and angiography provide access up to 200-degrees of the retinal periphery. The range of normal peripheral findings has not been characterized, yet is relevant to studies addressing putative peripheral retinal vascular pathology. Methods: This study was an observational retrospective cohort study. Adult patients with epiretinal membrane or choroidal nevi who underwent imaging with Optos 200 MA/200Tx were included. Dye transit times, peripheral arteriovenous shunting, presence of vessels crossing the horizontal raphe, right angle vessels, terminal networks, absence of capillary detail, ground glass hyperfluorescence, peripheral drusen, and microaneurysms were evaluated. Results: Fifty-eight eyes of 31 patients met inclusion criteria. Mean peripheral arterial filling time was  $8.65 \pm 2.54$  seconds (range 3-15 seconds). One or more peripheral anomalies were noted in all patients ( $P < 0.01$ ). The prevalences of findings were: arteriovenous shunting (0.00%), vessels crossing the horizontal raphe (44.83%), right angle vessels (70.69%), terminal networks (77.59%), absence of capillary detail (98.28%), ground glass hyperfluorescence (87.93%), drusen (34.48%), and microaneurysms (41.38%). Conclusion: There was a high prevalence of peripheral vascular anatomic variations in eyes expected to have normal peripheral retinal vasculature. These findings may provide a reference for future studies addressing putative pathologic peripheral angiographic findings.

Shah AR, **Xi M**, Abbey AM, Yonekawa Y, **Faia LJ, Hassan TS, Ruby AJ** and **Wolfe JD** (2016). "Short-term efficacy of intravitreal dexamethasone implant in vitrectomized eyes with recalcitrant diabetic macular edema and prior anti-VEGF therapy." *Journal of Ophthalmic and Vision Research* 11(2): 183-187.

[Full-Text](#)

*OUIWB Medical Student Author*

*Department of Ophthalmology*

Purpose: To determine the efficacy of an intravitreal dexamethasone implant (IDI) for diabetic macular edema (DME) in vitrectomized eyes. Methods: This interventional retrospective consecutive case series included vitrectomized eyes undergoing IDI placement for treatment of recalcitrant DME between June 2011 and June 2014. All patients had previously received anti-VEGF therapy (ranibizumab or bevacizumab). Primary endpoints were changes in visual acuity (VA) and central retinal thickness (CRT) from baseline values one month after device implantation. Secondary endpoints were VA and CRT changes at 3 months. Results: A total of 8 eyes of 8 patients met the inclusion criteria. One month after IDI placement, there was a significant ( $p = 0.01$ ) improvement in VA from  $0.79 \pm 0.52$  logMAR (20/123 Snellen equivalent) to  $0.64 \pm 0.55$  logMAR (20/88), meanwhile CRT improved from  $455.75 \pm 123.19$  to  $295.00 \pm 90.39$   $\mu\text{m}$  ( $p = 0.02$ ). These findings persisted at 3 months. Conclusion: In vitrectomized eyes previously treated with anti-VEGF agents for recalcitrant DME, implantation of the IDI appears to be efficacious in improving VA and CRT at 1-month with the observed benefits persisting for at least for 3 months. © 2016 Journal of Ophthalmic and Vision Research.

Sidiropoulos C, Rammo R, Merker B, Mahajan A, LeWitt P, Kaminski P, Womble M, Zec A, **Taylor D**, Wall J and Schwalb JM (2016). "Intraoperative MRI for deep brain stimulation lead placement in Parkinson's Disease: 1 year motor and neuropsychological outcomes." *Journal of Neurology* 263(6): 1226-1231.

[Full-Text](#)

*Department of Neurology*

Traditional deep brain stimulation requires intraoperative neurophysiological confirmation of electrode placement. Recently, purely image guided methods are being evaluated as to their clinical efficacy in comparison to surgery using microelectrode recordings. We used the ClearPoint® system to place electrodes in both the subthalamic nucleus and globus pallidus internus in patients with advanced

Parkinson's disease. Off medication UPDRS scores were assessed before and 1 year after surgery as well as pre- and 1 year post-operative neuropsychological outcomes. Targeting precision was also assessed. Patients implanted in the subthalamic nucleus improved by 46.2 % in their UPDRS scores post-operatively ( $p = 0.03$ ) whereas the globus pallidus group improved by 41 % ( $p = 0.06$ ). There were no significant adverse neuropsychological outcomes in either group of patients. Mean radial error for the STN group was  $1.2 \pm 0.7$  mm and for the GPi group  $0.8 \text{ mm} \pm 0.3$  mm. Image guided DBS using the ClearPoint® system has high targeting precision with robust clinical outcomes. Our data are in accord with recent studies using the same or similar technologies and provide a rationale for a large comparative study of image-guided versus microelectrode guided DBS. © 2016, Springer-Verlag Berlin Heidelberg.

Silva C, **Franklin BA**, Forman DE and Araujo CGS (2016). "Influence of age in estimating maximal oxygen uptake." *Journal of Geriatric Cardiology* 13(2): 126-131.

[Full-Text](#)

*Department of Internal Medicine*

**Objective** To assess the influence of age on the error of estimate (EE) of maximal oxygen uptake ( $\text{VO}(2)\text{max}$ ) using sex and population specific-equations in cycle ergometer exercise testing, since estimated  $\text{VO}(2)\text{max}$  is associated with a substantial EE, often exceeding 20%, possibly due to intrinsic variability of mechanical efficiency. **Methods** 1850 adults (68% men), aged 18 to 91 years, underwent maximal cycle ergometer cardiopulmonary exercise testing. Cardiorespiratory fitness (CRF) was assessed relative to sex and age [younger (18 to 35 years), middle-aged (36 to 60 years) and older (>60 years)].  $\text{VO}(2)\text{max}$  [ $\text{mL}(\text{kg}\cdot\text{min})^{-1}$ ] was directly measured by assessment of gas exchange and estimated using sex and population specific-equations. Measured and estimated values of  $\text{VO}(2)\text{max}$  and related EE were compared among the three age- and sex-specific groups. **Results** Directly measured  $\text{VO}(2)\text{max}$  of men and women were  $29.5 \pm 10.5$   $\text{mL}(\text{kg}\cdot\text{min})^{-1}$  and  $24.2 \pm 9.0$   $\text{mL}(\text{kg}\cdot\text{min})^{-1}$  ( $P < 0.01$ ). EE [ $\text{mL}(\text{kg}\cdot\text{min})^{-1}$ ] and percent errors (%E) for men and women had similar values,  $0.5 \pm 3.2$  and  $0.4 \pm 2.9$   $\text{mL}(\text{kg}\cdot\text{min})^{-1}$ , and  $-0.8 \pm 13.1\%$  and  $-1.7 \pm 15.4\%$  ( $P > 0.05$ ), respectively. EE and %E for each age-group were, respectively, for men: younger =  $1.9 \pm 4.1$   $\text{mL}(\text{kg}\cdot\text{min})^{-1}$  and  $3.8 \pm 10.5\%$ , middle-aged =  $0.6 \pm 3.1$   $\text{mL}(\text{kg}\cdot\text{min})^{-1}$  and  $0.4 \pm 10.3\%$ , older =  $-0.2 \pm 2.7$   $\text{mL}(\text{kg}\cdot\text{min})^{-1}$  and  $-4.2 \pm 16.6\%$  ( $P < 0.01$ ); and for women: younger =  $1.2 \pm 3.1$   $\text{mL}(\text{kg}\cdot\text{min})^{-1}$  and  $2.7 \pm 10.0\%$ , middle-aged =  $0.7 \pm 2.8$   $\text{mL}(\text{kg}\cdot\text{min})^{-1}$  and  $0.5 \pm 11.1\%$ , older =  $-0.8 \pm 2.3$   $\text{mL}(\text{kg}\cdot\text{min})^{-1}$  and  $-9.5 \pm 22.4\%$  ( $P < 0.01$ ). **Conclusion**  $\text{VO}(2)\text{max}$  were underestimated in younger age-groups and were overestimated in older age groups. Age significantly influences the magnitude of the EE of  $\text{VO}(2)\text{max}$  in both men and women and should be considered when CRF is estimated using population specific equations, rather than directly measured.

**Singer L, Brown E** and Lanni T, Jr. (2016). "Margins in breast conserving surgery: The financial cost & potential savings associated with the new margin guidelines." *Breast* 28: 1-4.

[Full-Text](#)

*OUWB Medical Student Author*

*Department of Surgery*

**Introduction:** In this study, we compare the indications for re-excision, the findings of additional tumor in the re-excision specimen as they relate to margin status, and costs associated with re-excision based on recent new consensus statements. **Materials and methods:** A retrospective analysis was performed on 462 patients with invasive breast carcinoma who underwent at least one lumpectomy between January 2011 and December 2013. Postoperative data was analyzed based on where additional disease was found, as it relates to the margin status of the initial lumpectomy and the additional direct costs associated with additional procedures. **Results:** Of the 462 patients sampled, 149 underwent a re-excision surgery (32.2%). Four patients underwent mastectomy as their second operation. In the 40 patients with additional disease found on re-excision, 36 (90.0%) of them had a positive margin on their initial lumpectomy. None of the four mastectomy patients had residual disease. The mean cost of the initial lumpectomy for all 462 patients was \$2118.01 plus an additional \$1801.92 for those who underwent re-excision. **Discussion:** A positive margin was most predictive of finding residual tumor on re-excision as would be expected. Using old criteria only 0.07% (4/61) of patients who had undergone re-excision with a 'clear' margin, had additional tumor found, at a total cost of \$106,354.11. Thus, the new consensus guidelines will lead to less overall cost, at no clinical risk

to patients while reducing a patient's surgical risk and essentially eliminating delays in adjuvant care. © 2016 Elsevier Ltd.

**Smythe MA**, Trujillo T and Fanikos J (2016). "Reversal agents for use with direct and indirect anticoagulants." American Journal of Health-System Pharmacy 73(10): S27-S48.

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*Department of Biomedical Sciences (BHS)*

Purpose. The properties of three oral anticoagulant-specific reversal agents are reviewed, and guidance is presented to assist pharmacists in planning, for the, agents' introduction to the market. Summary. Idarucizumab, which received Food and Drug Administration approval in October 2015, is a humanized monoclonal antibody fragment that immediately neutralizes the anticoagulant effect of dabigatran, as evidenced by. reduced unbound dabigatran concentrations and normalized coagulation tests. Preliminary Phase III trial results demonstrated a median maximum reversal of 100%, a median time to bleeding cessation of 11.4 hours, and normal intraoperative hemostasis in 92% of patients requiring anticoagulation reversal before an urgent procedure. Andexanet alfa is a factor Xa (FXa) decoy that binds to direct and indirect FXa inhibitors. In Phase III trials in healthy volunteers, andexanet alfa reduced anti-FXa activity by more than 90%, reduced the concentration of unbound direct FXa inhibitor, and inhibited thrombin generation. Ciraparantag is a reversal agent under development for reversal of anticoagulation with direct and indirect FXa inhibitors and certain factor IIa inhibitors; it exerts its effect through hydrogen bonding. Concerns for thromboembolic events directly related to administration of idarucizumab, andexanet alfa, or ciraparantag have not arisen. Pharmacists need to begin preparing for the introduction of these specific reversal agents through protocol development and provider education; in addition, pharmacy departments need to plan for procurement and storage. The specific reversal agents should be incorporated into antithrombotic stewardship or other clinical pharmacy programs for surveillance. Conclusion. As agents that provide rapid reversal of direct oral anticoagulant activity become available, advance planning will help hospitals to optimize their use.

Speyer CL, Nassar MA, Hachem AH, **Bukhsh MA**, Jafry WS, Khansa RM and Gorski DH (2016). "Riluzole mediates anti-tumor properties in breast cancer cells independent of metabotropic glutamate receptor-1." Breast Cancer Research and Treatment 157(2): 217-228.

[Full-Text](#)

*OUWB Medical Student Author*

Riluzole, the only drug approved by the FDA for treating amyotrophic lateral sclerosis, inhibits melanoma proliferation through its inhibitory effect on glutamatergic signaling. We demonstrated that riluzole also inhibits the growth of triple-negative breast cancer (TNBC) and described a role for metabotropic glutamate receptor-1 (GRM1) in regulating TNBC cell growth and progression. However, the role of GRM1 in mediating riluzole's effects in breast cancer has not been fully elucidated. In this study, we seek to determine how much of riluzole's action in breast cancer is mediated through GRM1. We investigated anti-tumor properties of riluzole in TNBC and ER+ cells using cell growth, invasion, and soft-agar assays and compared riluzole activity with GRM1 levels. Using Lentiviral vectors expressing GRM1 or shGRM1, these studies were repeated in cells expressing high or low GRM1 levels where the gene was either silenced or overexpressed. Riluzole inhibited proliferation, invasion, and colony formation in both TNBC and ER+ cells. There was a trend between GRM1 expression in TNBC cells and their response to riluzole in both cell proliferation and invasion assays. However, silencing and overexpression studies had no effect on cell sensitivity to riluzole. Our results clearly suggest a GRM1-independent mechanism through which riluzole mediates its effects on breast cancer cells. Understanding the mechanism by which riluzole mediates breast cancer progression will be useful in identifying new therapeutic targets for treating TNBC and in facilitating stratification of patients in clinical trials using riluzole in conjunction with conventional therapy.

Stanhope C, Liang J, Drake D and **Yan D** (2016). "TH-AB-201-12: Using machine log-files for treatment planning and delivery QA." Medical Physics 43(6): 3852.

[Full-Text](#)

*Department of Radiation Oncology*



**Swanberg SM** (2016). "MedEdPORTAL." Journal of the Medical Library Association 104(3): 250-252.

[Full-Text](#)

*Medical Library*

**Swanberg SM**, Dennison CC, Farrell A, Machel V, Marton C, O'Brien KK, Pannabecker V, Thuna M and Holyoke AN (2016). "Instructional methods used by health sciences librarians to teach evidence-based practice (EBP): A systematic review." Journal of the Medical Library Association 104(3): 197-208.

[Full-Text](#)

*Medical Library*

Background: Librarians often teach evidence-based practice (EBP) within health sciences curricula. It is not known what teaching methods are most effective. Methods: A systematic review of the literature was conducted searching CINAHL, EMBASE, ERIC, LISTA, PubMed, Scopus, and others. Searches were completed through December 2014. No limits were applied. Hand searching of Medical Library Association annual meeting abstracts from 2009– 2014 was also completed. Studies must be about EBP instruction by a librarian within undergraduate or graduate health sciences curricula and include skills assessment. Studies with no assessment, letters and comments, and veterinary education studies were excluded. Data extraction and critical appraisal were performed to determine the risk of bias of each study. Results: Twenty-seven studies were included for analysis. Studies occurred in the United States (20), Canada (3), the United Kingdom (1), and Italy (1), with 22 in medicine and 5 in allied health. Teaching methods included lecture (20), small group or one-on-one instruction (16), computer lab practice (15), and online learning (6). Assessments were quizzes or tests, pretests and posttests, peerreview, search strategy evaluations, clinical scenario assignments, or a hybrid. Due to large variability across studies, meta-analysis was not conducted. Discussion: Findings were weakly significant for positive change in search performance for most studies. Only one study compared teaching methods, and no one teaching method proved more effective. Future studies could conduct multisite interventions using randomized or quasi-randomized controlled trial study design and standardized assessment tools to measure outcomes. © 2016, Medical Library Association. All rights reserved.

Thapa R and **Wilson GD** (2016). "The importance of CD44 as a stem cell biomarker and therapeutic target in cancer." Stem Cells International 2016: Article ID 2087204.

[Full-Text](#)

*Department of Radiation Oncology*

CD44 is a cell surface HA-binding glycoprotein that is overexpressed to some extent by almost all tumors of epithelial origin and plays an important role in tumor initiation and metastasis. CD44 is a compelling marker for cancer stem cells of many solid malignancies. In addition, interaction of HA and CD44 promotes EGFR-mediated pathways, consequently leading to tumor cell growth, tumor cell migration, and chemotherapy resistance in solid cancers. Accumulating evidence indicates that major HA-CD44 signaling pathways involve a specific variant of CD44 isoforms; however, the particular variant almost certainly depends on the type of tumor cell and the stage of the cancer progression. Research to date suggests use of monoclonal antibodies against different CD44 variant isoforms and targeted inhibition of HA/CD44-mediated signaling combined with conventional radio/chemotherapy may be the most favorable therapeutic strategy for future treatments of advanced stage malignancies. Thus, this paper briefly focuses on the association of the major CD44 variant isoforms in cancer progression, the role of HA-CD44 interaction in oncogenic pathways, and strategies to target CD44-overexpressed tumor cells. © 2016 Ranjeeta Thapa and George D. Wilson.

**Thompson BJ, Barremkala M, Raof A**, Attardi SM, **Blenc AM, Hussein IH, Forbes W, Gould DJ** and **Venuti JM** (2016). "Use of an anatomy ebook to document and discuss anatomical variation." FASEB Journal 30(Supplement 1): 568.565.

[Full-Text](#)

*Department of Biomedical Sciences (OU)*

*Department of Pathology*

In the Gross Anatomy laboratory, students are introduced to the first person that has entrusted them with

the care of their body. The laboratory is also an excellent place to learn to appreciate anatomical diversity and the impact that pathological processes have on the body. At Oakland University William Beaumont School of Medicine (OUWB) we are striving to increase the ways students interact with donated cadavers and increase the communication of anatomical and pathological findings with their classmates. To further this effort, we implemented a cadaver assessment form for students to document physical findings, anatomical variations and pathological findings. Utilizing the student observations from these forms, we are building a laboratory photographic eBook record. For example, students have documented anatomical variations such as a third head of the biceps brachii, variations in the arterial branches of the aortic arch, hepatomegaly, splenomegaly and enlarged hearts. They have also found evidence of multiple surgical procedures and cancerous pathologies. At the end of the course, a team of pathologists will participate in a special session to discuss the pathologies found during the semester and their clinical correlates. Students will be surveyed at the end of the semester to evaluate how this project has impacted student communication of anatomical and pathological findings with their classmates.

Tomakowsky J, Carty JN, Lumley MA and **Peters KM** (2016). "The role of social constraints and catastrophizing in pelvic and urogenital pain." International Urogynecology Journal and Pelvic Floor Dysfunction 27(8): 1157-1162.

[Request Form](#)

*Department of Emergency Medicine*

Introduction and hypothesis: Pelvic and urogenital pain is complex and highly prevalent in women, and increased attention to psychosocial influences can guide more effective treatments. This study tested the hypothesis that social constraints (the perception that close others inhibit, discourage, or dissuade a person from disclosing one's feelings or talking about one's problems) would be associated with distress, pain, and problems with functioning, beyond the influence of the widely recognized risk factor of pain catastrophizing. Methods: A total of 122 women completed psychosocial and pain questionnaires during an initial evaluation at a multidisciplinary urology center. Correlational and multiple regression analyses examined pain catastrophizing and social constraints in association with general distress, general pain severity, urogenital pain, and pain interference with functioning. Results: In zero-order correlations, pain catastrophizing and social constraints were significantly associated with all pain measures ( $p < 0.05$ ) and distress. In regressions, both pain catastrophizing and social constraints were simultaneously independent predictors of general distress ( $\beta = 0.48$  and  $0.33$ ,  $p < 0.001$  respectively), general pain severity ( $\beta = 0.55$  and  $0.21$ ,  $p < 0.001$  and  $0.01$  respectively), and pain interference with functioning ( $\beta = 0.65$ ,  $p < 0.001$ , and  $\beta = 0.16$ ,  $p < 0.05$  respectively), and together explained a moderate portion of the variance in outcome variables. Pain catastrophizing (but not social constraints) also significantly predicted urogenital pain ( $\beta = 0.43$ ,  $p < 0.001$ ). Conclusions: Both pain catastrophizing and social constraints are important to the experience of pelvic and urogenital pain, and effective pain treatment should include attention to these psychological and social factors. © 2016 The International Urogynecological Association

Toussaint A, Richter A, Mantel F, Flickinger JC, **Grills IS**, Tyagi N, Sahgal A, Letourneau D, Sheehan JP, Schlesinger DJ, Gerszten PC and Guckenberger M (2016). "Variability in spine radiosurgery treatment planning - results of an international multi-institutional study." Radiation Oncology (London, England) 11(1): 57.

[Full-Text](#)

*Department of Radiation Oncology*

BACKGROUND: The aim of this study was to quantify the variability in spinal radiosurgery (SRS) planning practices between five international institutions, all member of the Elekta Spine Radiosurgery Research Consortium. METHODS: Four institutions provided one representative patient case each consisting of the medical history, CT and MR imaging. A step-wise planning approach was used where, after each planning step a consensus was generated that formed the basis for the next planning step. This allowed independent analysis of all planning steps of CT-MR image registration, GTV definition, CTV definition, PTV definition and SRS treatment planning. In addition, each institution generated one additional SRS plan for each case based on intra-institutional image registration and contouring, independent of consensus results. RESULTS: Averaged over the four cases, image registration variability ranged between translational 1.1 mm and 2.4 mm and rotational 1.1 degrees and 2.0 degrees in all three directions. GTV delineation variability was 1.5 mm in axial and 1.6 mm in longitudinal direction averaged for the four cases. CTV delineation variability was 0.8

mm in axial and 1.2 mm in longitudinal direction. CTV-to-PTV margins ranged between 0 mm and 2 mm according to institutional protocol. Delineation variability was 1 mm in axial directions for the spinal cord. Average PTV coverage for a single fraction 18 Gy prescription was 87 +/- 5 %; Dmin to the PTV was 7.5 +/- 1.8 Gy averaged over all cases and institutions. Average Dmax to the PRV\_SC (spinal cord + 1 mm) was 10.5 +/- 1.6 Gy and the average Paddick conformity index was 0.69 +/- 0.06. CONCLUSIONS: Results of this study reflect the variability in current practice of spine radiosurgery in large and highly experienced academic centers. Despite close methodical agreement in the daily workflow, clinically significant variability in all steps of the treatment planning process was demonstrated. This may translate into differences in patient clinical outcome and highlights the need for consensus and established delineation and planning criteria.

Trapani A, Jr., **Goncalves LF**, Trapani TF, Franco MJ, Galluzzo RN and Pires MM (2016). "Comparison between transdermal nitroglycerin and sildenafil citrate in intrauterine growth restriction: Effects on uterine, umbilical and fetal middle cerebral artery pulsatility indices." *Ultrasound in Obstetrics and Gynecology* 48(1): 61-65.

[Full-Text](#)

*Department of Obstetrics and Gynecology*

OBJECTIVES: To evaluate the effects of transdermal nitroglycerin (GTN) and sildenafil citrate on Doppler velocity waveforms of the uterine (UtA), umbilical (UA) and fetal middle cerebral (MCA) arteries in pregnancies with intrauterine growth restriction (IUGR). METHODS: This was a prospective study of 35 singleton pregnancies (gestational age, 24-31 weeks) with IUGR and abnormal UtA and UA Doppler waveforms. We compared maternal arterial blood pressure and Z-scores of the pulsatility index (PI) of UtA, UA and fetal MCA before and after application of a transdermal GTN patch (average dose, 0.4 mg/h), oral sildenafil citrate (50 mg) or placebo. Statistical analysis was performed by ANOVA for paired samples. RESULTS: There was a significant decrease in UtA-PI after application of GTN (21.0%) and sildenafil citrate (20.4%). A significant reduction in UA-PI was also observed for both GTN (19.1%) and sildenafil citrate (18.2%). There was no difference in UtA- and UA-PI when the GTN and sildenafil groups were compared. No changes in Doppler velocimetry were observed in the placebo group and no significant change in MCA-PI was observed in any group. Maternal arterial blood pressure decreased with administration of both GTN and sildenafil citrate in those with pre-eclampsia. CONCLUSION: The use of transdermal GTN or sildenafil citrate in pregnancies with IUGR is associated with a significant reduction in both UtA and UA Doppler PI, as well as maternal arterial blood pressure. Neither drug affected the MCA-PI. Copyright (c) 2015 ISUOG. Published by John Wiley & Sons Ltd.

Turkoglu O, Zeb A, Graham S, Szyperski T, Szender JB, Odunsi K and **Bahado-Singh R** (2016). "Metabolomics of biomarker discovery in ovarian cancer: A systematic review of the current literature." *Metabolomics* 12(4): 1-16.

[Full-Text](#)

*Department of Obstetrics and Gynecology*

Introduction: Metabolomics is the emerging member of "omics" sciences advancing the understanding, diagnosis and treatment of many cancers, including ovarian cancer (OC). Objectives: To systematically identify the metabolomic abnormalities in OC detection, and the dominant metabolic pathways associated with the observed alterations. Methods: An electronic literature search was performed, up to and including January 15th 2016, for studies evaluating the metabolomic profile of patients with OC compared to controls. QUADOMICS tool was used to assess the quality of the twenty-three studies included in this systematic review. Results: Biological samples utilized for metabolomic analysis include: serum/plasma (n = 13), urine (n = 4), cyst fluid (n = 3), tissue (n = 2) and ascitic fluid (n = 1). Metabolites related to cellular respiration, carbohydrate, lipid, protein and nucleotide metabolism were significantly altered in OC. Increased levels of tricarboxylic acid cycle intermediates and altered metabolites of the glycolytic pathway pointed to perturbations in cellular respiration. Alterations in lipid metabolism included enhanced fatty acid oxidation, abnormal levels of glycerolipids, sphingolipids and free fatty acids with common elevations of palmitate, oleate, and myristate. Increased levels of glutamine, glycine, cysteine and threonine were commonly reported while enhanced degradations of tryptophan, histidine and phenylalanine were found. N-acetylaspartate, a brain amino acid, was found elevated in primary and metastatic OC tissue and ovarian cyst fluid. Further, elevated levels of ketone bodies including 3-hydroxybutyrate were commonly reported. Increased levels of nucleotide metabolites and tocopherols were consistent through out the studies.

Conclusion: Metabolomics presents significant new opportunities for diagnostic biomarker development, elucidating previously unknown mechanisms of OC pathogenesis.

**Uhley V** and **Farr AC** (2016). "Integrating food insecurity assessment in medical school curriculum as an important health indicator." *FASEB Journal* 30(Supplement 1): 675.611.

[Full-Text](#)

*Department of Biomedical Sciences (OU)*

Food insecurity is associated with an increase in chronic disease risk and negative health outcomes. Gaining an understanding of how to assess for food insecurity is an important skill for health care professionals to integrate into their clinical practice. Medical students need to have the opportunity to learn how to integrate the assessment of food insecurity within the context of the doctor-patient relationship and clinical assessment. The implementation of the Affordable Care Act will increase the probability that more individuals at risk for food insecurity will enter the health care system, further emphasizing the need for this important assessment skill. To integrate the assessment of food insecurity into our medical school curriculum, we developed and implemented problem-based longitudinal clinical patient case scenarios and a lecture based presentation in partnership with our local Health department which identified community health programs that were designed to help address food insecurity into our second year Promotion and Maintenance of Health course. We present here an overview of this innovative curriculum. Medical students were required to review their assigned case scenario and to assess their patient's nutrition risks and identify community health resources that would help support their patient's nutrition and health needs. A review of our medical student's completed case responses indicated that this case-based approach was successful in allowing our student's the opportunity to integrate food insecurity into a clinical assessment and further they were able to incorporate community resources to help address the social determinants of the health of their assigned patients. We conclude that providing problem-based longitudinal clinical case scenarios is an effective way to integrate skill based food insecurity and associated social determinants of health assessment into the medical school curriculum.

Varghese T, Schultz WM, McCue AA, Lambert CT, Sandesara PB, Eapen DJ, Gordon NF, **Franklin BA** and Sperling LS (2016). "Physical activity in the prevention of coronary heart disease: Implications for the clinician." *Heart* 102(12): 904-909.

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*Department of Internal Medicine*

Cardiovascular disease (CVD) continues to be a leading cause of death worldwide. Because regular physical activity (PA) independently decreases the risk of coronary heart disease (CHD) while also having a positive, dose-related impact on other cardiovascular (CV) risk factors, it has increasingly become a focus of CHD prevention. Current guidelines recommend 30 min of moderate-intensity PA 5 days a week, but exercise regimens remain underused. PA adherence can be fostered with a multilevel approach that involves active individual participation, physician counselling and health coaching, community involvement, and policy change, with incorporation of cardiac rehabilitation for patients requiring secondary prevention. Viewing exercise quantity as a vital sign, prescribing PA like a medication, and using technology, such as smartphone applications, encourage a global shift in focus from CVD treatment to prevention. Community-wide, home-based and internet-based prevention initiatives may also offer a developing pool of resources that can be tapped into to promote education and PA compliance. This review summarises the underlying rationale, current guidelines for and recommendations to cultivate a comprehensive focus in the endorsement of PA in the primary and secondary prevention of CHD.

Veenstra MA and **Koffron AJ** (2016). "Minimally-invasive liver resection in pediatric patients: Initial experience and outcomes." *HPB* 18(6): 518-522.

[Full-Text](#)

*Department of Surgery*

Background Minimally Invasive Liver Resection (MILR) is an evolving procedure in the adult population for benign and malignant lesions, offering less morbidity while maintaining acceptable outcomes. However, there lacks a published MILR experience in the pediatric population besides case reports. This report

describes a pediatric MILR experience in terms of pathology, clinical specifics, and patient outcomes. **Methods** This is a retrospective review of 36 pediatric patients undergoing MILR for benign and malignant conditions. MILR was performed by pure laparoscopy, hand-assisted laparoscopy, and a hybrid laparoscopic assisted method. Data points reviewed include patient demographics, pathology, operative technique, complications, and recurrence. **Results** Patients with benign (15) and malignant (21) conditions underwent segmentectomy, sectionectomy, or hemihepatectomy by MILR. Thirty-one were completed with pure laparoscopy and 20 underwent hemihepatectomy. Operative time and blood loss correlated with magnitude of resection with five patients requiring a blood transfusion. Complications were minor and included a seroma, port infection, port dehiscence, line infection, and hypertrophic scar. At median follow-up of 12 months (range 6-36 months), there were no mortalities, re-operations, or recurrences. **Discussion** MILR can be performed in pediatric patients for benign and malignant conditions with good technical and oncologic outcomes and low morbidity. © 2016 International Hepato-Pancreato-Biliary Association Inc. Published by Elsevier Ltd. All rights reserved.

**Vercellone J** (2016). "Emergency medicine primary/secondary surveys for the trauma patient (Virtual OSCE) (iCollaborative)." MedEdPortal Resource ID 4300

[Full-Text](#)

*OUWB Medical Student Author*

Successful evaluation of critically ill patients within an Emergency Room requires speed, efficiency, and an examination methodology that ensures the proper diagnosis of life-threatening conditions. Primary and secondary surveys of trauma patients provide a structured and logical approach to assessing patient status and determining the next steps in patient care. Medical students are taught the process flow of trauma surveys during their emergency medicine clerkship to better prepare them for treating trauma patients during residency. This EM Virtual OSCE measures a student's ability to prepare for, observe, evaluate, and communicate a trauma using primary and secondary surveys. The OSCE measures a student's understanding of: required elements of a primary and secondary survey; lab work, imaging, and interventions that may be required during primary/secondary surveys depending on findings; differential diagnoses suggested of findings; and effective clinical communication. Delivered as a multimedia experience leveraging print, video and clinical images, the student observes the execution of primary and secondary surveys from the vantage point of an attending physician. The student is tasked with evaluating the performance of the physicians depicted in the video and documenting the errors and omissions that occurred. This virtual OSCE is designed as a stand-alone tool that can be taken within any Clinical Skills Center (CSC) with Internet access to a CAE LearningSpace. The module could also be recreated in an alternate online learning environment, or run as a live simulation, by leveraging the included scripts, images and evaluation criteria.

Vikram R, Beland MD, Blaufox MD, Moreno CC, Gore JL, Harvin HJ, Heilbrun ME, Liauw SL, Nguyen PL, Nikolaidis P, Preminger GM, Purysko AS, Raman SS, Taffel MT, Wang ZJ, **Weinfeld RM**, Remer EM and Lockhart ME (2016). "ACR Appropriateness Criteria Renal Cell Carcinoma Staging." *Journal of the American College of Radiology* 13(5): 518-525.

[Full-Text](#)

*Department of Diagnostic Radiology and Molecular Imaging*

Renal cell carcinoma accounts for 2%-3% of all visceral malignancies. Preoperative imaging can provide important staging and anatomic information to guide treatment decisions. Size of the primary tumor and degree of local invasion, such as involvement of perinephric fat or renal sinus fat, and tumor thrombus in renal veins and inferior vena cava are important detriments to local staging of primary tumor. Both kidneys are assessed for presence of other synchronous lesions. The ACR Appropriateness Criteria® are evidence-based guidelines for specific clinical conditions that are reviewed every three years by a multidisciplinary expert panel. The guideline development and review include an extensive analysis of current medical literature from peer-reviewed journals and application by the panel of a well-established consensus methodology (modified Delphi) to rate the appropriateness of imaging and treatment procedures. In those instances in which evidence is lacking or not definitive, expert opinion may be used to recommend imaging or treatment. © 2016 American College of Radiology.

Vilchez G, Hoyos LR, Maldonado MC, Lagos M, Kruger M and **Bahado-Singh R** (2016). "Risk of neonatal mortality according to gestational age after elective repeat cesarean delivery." *Archives of Gynecology and Obstetrics* 294(1): 77-81.

[Full-Text](#)

*Department of Obstetrics and Gynecology*

Purpose: Despite the well-known neonatal morbidity risks after elective cesarean deliveries performed before 39 weeks, there are scarce data regarding mortality risks. The objective of this study was to calculate the risk of neonatal mortality after elective repeat cesarean delivery (ERCD) by gestational age. Methods: The Linked Birth–Infant Death Data Files from the Vital Statistics Data of the Center for Disease Control and Prevention of the U.S. from 2004 to 2008 were analyzed. Only ERCD cases were included. Early death (<7 days), neonatal death (<28 days), and infant death (<1 year) were evaluated. A logistic regression model was used to calculate odds ratios. Cases delivered at 37–41 weeks were studied with 40 weeks as reference. Results: A total of 483,052 cases were included for analysis. The distribution of rates and odds ratios for infant, neonatal and early death was U-shaped with the nadir at 39 weeks. There was a statistically significant increase in early death at 37 compared to 40 weeks' gestation [OR (95 % CI = 1.929(1.172–3.176)]. No statistical increase was found in any of the other mortality risks. Conclusion: There is an increased risk in early death with ERCD performed at 37 weeks. Our study provides evidence of neonatal harm beyond the reported morbidity risks. © 2015, Springer-Verlag Berlin Heidelberg.

Vinogradskiy Y, Schubert L, Diot Q, Waxweiller T, Koo P, Castillo R, Castillo E, **Guerrero T**, Rusthoven C, Gaspar L, Kavanagh B and Miften M (2016). "Regional lung function profiles of stage I and III lung cancer patients: An evaluation for functional avoidance radiation therapy." *International Journal of Radiation Oncology Biology Physics* 95(4): 1273-1280.

[Full-Text](#)

*Department of Radiation Oncology*

Purpose The development of clinical trials is underway to use 4-dimensional computed tomography (4DCT) ventilation imaging to preferentially spare functional lung in patients undergoing radiation therapy. The purpose of this work was to generate data to aide with clinical trial design by retrospectively characterizing dosimetric and functional profiles for patients with different stages of lung cancer. Methods and Materials A total of 118 lung cancer patients (36% stage I and 64% stage III) from 2 institutions were used for the study. A 4DCT-ventilation map was calculated using the patient's 4DCT imaging, deformable image registration, and a density-change-based algorithm. To assess each patient's spatial ventilation profile both quantitative and qualitative metrics were developed, including an observer-based defect observation and metrics based on the ventilation in each lung third. For each patient we used the clinical doses to calculate functionally weighted mean lung doses and metrics that assessed the interplay between the spatial location of the dose and high-functioning lung. Results Both qualitative and quantitative metrics revealed a significant difference in functional profiles between the 2 stage groups ( $P < .01$ ). We determined that 65% of stage III and 28% of stage I patients had ventilation defects. Average functionally weighted mean lung dose was 19.6 Gy and 5.4 Gy for stage III and I patients, respectively, with both groups containing patients with large spatial overlap between dose and high-function regions. Conclusion Our 118-patient retrospective study found that 65% of stage III patients have regionally variant ventilation profiles that are suitable for functional avoidance. Our results suggest that regardless of disease stage, it is possible to have unique spatial interplay between dose and high-functional lung, highlighting the importance of evaluating the function of each patient and developing a personalized functional avoidance treatment approach. © 2016 Elsevier Inc.

**Waite KE, Herman MA** and Doyle PJ (2016). "Comparison of robotic versus laparoscopic transabdominal preperitoneal (TAPP) inguinal hernia repair." *Journal of Robotic Surgery*: 1-6. ePub Ahead of Print.

[Full-Text](#)

*OUWB Medical Student Author*

*Department of Surgery*

Despite growing popularity and potential advantages of robotics in general surgery, there is very little published data regarding robotic inguinal hernia repair. This study examines a single surgeon's early experience with robotic TAPP inguinal hernia repair compared with laparoscopic TAPP repair in terms of



feasibility and cost. We performed a retrospective review of 63 consecutive patients (24 laparoscopic and 39 robotic) who underwent inguinal hernia repair between December 2012–December 2014 at a single institution by a single surgeon. Data examined included gender, age, BMI, operative times, recovery room times, pain scale ratings, and cost. Patient groups were the same in terms of age and BMI. The mean operative time (77.5 vs 60.7 min,  $p = 0.001$ ) and room time (109.3 vs 93.0 min,  $p = 0.001$ ) were significantly longer for the robotic vs the laparoscopic patients. Recovery room time (109.1 vs 133.5 min,  $p = 0.026$ ) and average pain scores in recovery (2.5 vs 3.8,  $p = 0.02$ ) were significantly less for the robotic group. The average direct cost of the laparoscopic group was \$3216 compared with \$3479 for the robotic group. The average contribution margin for the laparoscopic group was \$2396 compared with \$2489 for the robotic group. Robotic TAPP inguinal hernia repair had longer operative times, but patients spent less time in recovery and noted less pain than patients who underwent laparoscopic TAPP inguinal hernia repair. The direct cost and contribution margin are nearly equivalent. These results should allow the continued investigation of this technique without concern over excess cost. © 2016 Springer-Verlag London

**Wasserman JA**, Aghababaei N and Nannini D (2016). "Culture, personality, and attitudes toward euthanasia: A comparative study of university students in Iran and the United States." *Omega-Journal of Death and Dying* 72(3): 247-270.

[Full-Text](#)

*Department of Biomedical Sciences (OU)*

This article reports cultural differences in the relationship between personality characteristics and euthanasia attitudes using samples from Iran and the United States. Survey data from university students were analyzed using multivariate regression. Results indicate that while attitudes toward euthanasia are significantly more positive among the U.S. sample, there is significantly greater variation among the Iranian sample. Honesty-Humility and Openness to Experience are predictive factors in both samples, where Agreeableness is only significant among the Iranian group. Additionally, Chow tests of structural features of the multivariate models show significant differences between the two samples. We conclude by discussing implications of these results for understanding cultural similarities and differences in attitudes toward euthanasia, including the practical implications of this work for patient care in an increasingly globalized world.

Welch RD, Mika VH, Ellis MM, Pearson C, Ayaz SI, **Swor RA** and Levy PD (2016). "The association of blood pressure changes during the first 24 hours post-acute ischemic stroke with 90-day functional outcomes." *Academic Emergency Medicine* 23: S24-S25.

[Full-Text](#)

*Department of Emergency Medicine*

Background: There is uncertainty regarding early blood pressure (BP) reduction and outcome in acute ischemic stroke (AIS) and the 2013 American Stroke Association guideline-based recommendation that BP only be lowered during the initial 24 hours when it exceeds 220/120 mm Hg rests largely on level C evidence. Objectives: The aim of this study was to evaluate the association of outcome with BP changes over the first 24 hours in patients with AIS. Methods: This secondary analysis of a multi-center prospective study (ALIAS; the Albumin in Acute Stroke Trial) included patients with AIS that presented to the emergency department within 5 hours of symptom onset. Subjects were randomized to receive either intravenous albumin (study drug) or saline. A favorable primary outcome was defined as a modified Rankin Scale of 0 or 1 or an NIH stroke scale (NIHSS) of 0 or 1 at 90 days. Vital signs were obtained every 6 hours (to day 7 or discharge). A general estimating equation (repeated measures) was fit to determine the association of blood pressure during the first 24 hours of hospitalization with patient outcome (adjusted for treatment, age, gender, baseline NIHSS, stroke classification and pulse). Results: 841 subjects were enrolled (4561 blood pressure measurements); 52.7% were male, mean age (SD) was 64.1 (12.9) years, 73.6% were white, 71.2% had a history of hypertension, baseline systolic BP was 156 (29) mm Hg, and 371 patients (44.1%) had a favorable primary outcome. Presenting vital signs were similar between groups but the median NIHSS was lower in those with a favorable outcome (Table). While BP curves appear divergent (Figure), the adjusted odds of a favorable outcome for each 5 mm Hg increase in systolic BP was 0.97 (95% CI: 0.95-1.00;  $p=0.051$ ) and for diastolic BP was 1.03 (0.98-1.08;  $p=0.24$ ). Conclusion: Blood pressure, during the first 24 hours post-AIS, was not associated with clinical outcome. Prospective controlled studies are needed to define

optimal vital sign targets in AIS patients. (Figure Presented).

**Wiater BP**, Moravek JE, Jr., **Kurdziel MD**, **Baker KC** and **Wiater JM** (2016). "Biomechanical evaluation of all-polyethylene pegged bony ingrowth glenoid fixation techniques on implant micromotion." [American Journal of Orthopedics \(Belle Mead, N.J.\)](#) 45(4): E211-E216.

[Full-Text](#)

*Department of Orthopedic Surgery*

*Department of Surgery*

Newer glenoid components that allow for hybrid cement fixation via traditional cementation of peripheral pegs and bony ingrowth into an interference-fit central peg introduce the possibility of long-term biological fixation. However, little biomechanical work has been done on the initial stability of these components and the various fixation options. We conducted a study in which all-polyethylene glenoid components with a centrally fluted peg were implanted in polyurethane blocks with interference-fit, hybrid cement, and fully cemented fixation (5 per fixation group). Biomechanical evaluation of glenoid loosening, according to ASTM Standard F-2028-12, subjected the glenoids to 50,000 cycles of rim loading, and glenoid component motion was recorded with 2 differential variable reluctance transducers fixed to each glenoid prosthesis. Fully cemented fixation exhibited significantly less mean distraction in comparison with interference-fit fixation ( $P < .001$ ) and hybrid cement fixation ( $P < .001$ ). Hybrid cement fixation exhibited significantly less distraction ( $P < .001$ ), more compression ( $P < .001$ ), and no significant difference in glenoid translation ( $P = .793$ ) in comparison with interference-fit fixation. Fully cemented fixation exhibited the most resistance to glenoid motion in comparison with hybrid cement fixation and interference-fit fixation. However, hybrid cement fixation and interference-fit fixation exhibited equivocal motion. Given these results, cementation of peripheral pegs may confer no additional initial stability over that provided by uncemented interference-fit fixation.

Wilkinson J, Kong XW, **Almany S**, Kozlowski J, Krol G, McNamara M, Kaatz S, Froehlich JB and Barnes GD (2016). "The predictive ability of various risk scores for bleeding in warfarin-treated VTE patients." [Vascular Medicine](#) 21(3): 307.

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*Department of Internal Medicine*

**Williams GA** (2016). "Down, but not out: How the AAO has responded to Medicare's 2016 retina fee cuts." [Retina Today](#) 2016(April): 16-21.

[Request Form](#)

*Department of Ophthalmology*

**Wilson GD** and **Marples B** (2016). "A new use for an old treatment: Radiation therapy and Alzheimer's disease." [Radiation Research](#) 185(5): 443-448.

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*Department of Radiation Oncology*

With the incidence of Alzheimer's disease anticipated to triple in the next few decades, it is critical to establish more successful novel treatments or preventive measures that reduce disease progression. Radiation therapy has not been previously used or considered as a potential treatment for AD pathologies and our observations provide intriguing data that merit further investigation. Although caution is warranted, overall the data support a beneficial effect of low-dose radiation treatment for AD pathologies in a widely used AD murine model. Radiation therapy is a well established and safe medical modality defined by decades of clinical application. Moreover, radiation therapy as a treatment approach for AD could be implemented quickly and inexpensively, given the prevalence of radiotherapy centers across the U.S. Additionally, the use of radiation therapy for AD is suitable to all patients with mild or severe AD symptoms.  
© 2016 by Radiation Research Society.

Yadav S, Ladkany R, Fulbright J, Dreyfuss H, Reeves A, Campian S, Thomas V and **Zakalik D** (2016). "Multi-gene panel testing for hereditary cancer risk." Cancer Research 76(Supplement 4): P2-09-06.

[Full-Text](#)

*Department of Internal Medicine*

Background: Multi-gene panels are widely available for assessing hereditary cancer risk in high risk individuals. Due to the use of these panels, many genetic mutations other than BRCA 1 or 2 can be detected which can potentially affect management. This study presents the results of multi-gene panel testing performed at Beaumont Health System. Methods: All patients who underwent multi-gene panel testing at Beaumont Health System between November 1, 2012 and January 15, 2015 were included in this study. This cohort consisted of patients who met criteria for genetic testing due to personal or family history. All patients received comprehensive pre and post-test genetic counseling. The panels ranged from 5 to 43 genes associated with risk for breast and other cancers. Results: 653 multi-gene panel tests were performed. The majority of these consisted of either a 5 gene high risk breast panel (25%), an 18 gene moderate to high risk breast panel (21%), or a 9 gene high risk breast and gynecologic panel (17%). 184 variants of undetermined significance (VUS) were identified with a pooled VUS rate of 28%. Among the commonly used panels, there was a positive correlation between VUS rate and the number of genes included in the panel ( $r = 0.86$ ,  $p = 0.01$ , Range 6% to 70%). A pathogenic mutation was identified in one or more genes in 65 (10%) panels for a total of 67 mutations. Of these, 17 mutations were in BRCA1 or BRCA2 gene. Fifty non-BRCA deleterious mutations were identified with the following frequencies: CHEK2(12), MUTYH(7 monoallelic, 1 biallelic), TP53(4), PTEN(4), ATM(4), MSH6(3), PALB2(3), MSH2(2), CDH1(2), APC(2), NF1(2), BARD1(2), MLH1(1) and PMS2(1). Of these non-BRCA mutations, 41(82%) had a significant impact on management. Conclusions: Our study demonstrates that multi-gene panel testing identifies several genes that can impact management and would likely not have been discovered by pedigree analysis alone. However, this added detection is associated with a higher VUS rate, especially using larger panels. Further research is needed to better define the role of multi-gene panel testing in high risk patients, with a focus on choosing appropriate genes, understanding the magnitude of cancer risk and delineating impact on management.

Yadav S, Sharma P and **Zakalik D** (2016). "Comparison of demographics, tumor characteristics, and survival between pancreatic adenocarcinomas and pancreatic neuroendocrine tumors: A population-based study." American Journal of Clinical Oncology: Cancer Clinical Trials. ePub Ahead of Print.

[Full-Text](#)

*Department of Internal Medicine*

OBJECTIVE:: The objective of this study is to compare the incidence, demographics, tumor characteristics, and survival between patients with pancreatic neuroendocrine tumors (PNETs) and pancreatic adenocarcinomas. MATERIALS AND METHODS:: Between 2004 and 2012, all cases of pancreatic adenocarcinomas and PNETs were extracted from the population-based cancer registries of the Surveillance Epidemiology and End Results program. To identify the cases, a combination of topographical and histology codes based on ICD-O-3 were used. Incidence, demographics, tumor characteristics, and survival was then compared between these 2 histologic subtypes of pancreatic cancer. RESULTS:: A total of 57,688 patients with pancreatic cancer were identified, of which 53,753 (93%) had pancreatic adenocarcinoma and 3935 (7%) had PNET. The overall age-adjusted incidence of PNETs between 2004 and 2012 was 0.52 per 100,000 per year, whereas that for pancreatic adenocarcinomas during the same period was 7.34 per 100,000 per year. PNETs had a significantly younger median age at diagnosis (61 vs. 69 y). A significant proportion of PNETs were diagnosed at stage I (20.5% vs. 6.0%) and were well differentiated (32.8% vs. 4.5%) compared with adenocarcinomas. Five-year cause-specific survival was 51.3% and 5.0% for PNETs and pancreatic adenocarcinomas, respectively. In multivariate analysis, pancreatic adenocarcinomas had a hazard ratio for death of 4.02 (95% confidence interval, 3.79-4.28) when compared with PNETs. CONCLUSIONS:: PNETs present with favorable features such as higher proportion of early-stage tumor, higher proportion of well differentiated tumors, and younger age at diagnosis. PNETs have a significantly better survival than pancreatic adenocarcinomas even after adjusting for age, sex, race, site, grade, and stage.

**Yan D, Chen S, Krauss D, Chen P and Wilson G** (2016). "SU-FJ-59: Assessment of dose response distribution in individual human tumor." Medical Physics 43(6): 3419.

[Full-Text](#)

*Department of Radiation Oncology*

Yehoshua A, **Chancellor M**, Vasavada S, Malone DC, Armstrong EP, Joshi M, Campbell K and Pulicharam R (2016). "Health resource utilization and cost for patients with incontinent overactive bladder treated with anticholinergics." Journal of Managed Care and Specialty Pharmacy 22(4): 406-413.

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*Department of Urology*

BACKGROUND: Overactive bladder (OAB) is a common medical condition with significant economic and humanistic burden. Inadequately managed OAB may exacerbate or result in comorbidities such as depression, falls, and urinary tract infections, which can further increase the burden to the health care system. Anticholinergics are often prescribed for management of OAB with urinary incontinence ("wet" OAB). However, research has shown that patient adherence and persistence to anticholinergic therapy is poor, with approximately 80% of patients ultimately failing their first prescribed anticholinergic medication within the first year. While there has been a fair amount of research on the economic burden of OAB, the real-world impact of initiating anticholinergic therapy in patients with wet OAB has not been well studied. OBJECTIVE: To compare falls/fractures, anxiety/depression, health care resource utilization, and health care costs between a cohort of patients with wet OAB who initiated anticholinergic therapy and a matched cohort of patients without OAB. METHODS: This study was a retrospective medical and pharmacy claims analysis. Cases were members of a primary care-based, multispecialty physician medical group located in California. Cases were eligible for inclusion if they were prescribed anticholinergic therapy between January 2008 and May 2012 based on pharmacy claims, had a diagnosis of OAB, and reported having  $\geq 1$  urinary incontinence episode per day. Wet OAB cases were matched to non-OAB controls in a 1:3 ratio based on sex, age, and observation time. Medical and pharmacy claims data were used to analyze patient comorbidities, as well as track health care resource utilization (HRU) and direct payer costs. RESULTS: After initiating anticholinergic therapy, wet OAB patients had a 46% higher adjusted risk of experiencing falls/fractures ( $P < 0.001$ ) and a 33% higher adjusted risk of experiencing depression/anxiety ( $P = 0.022$ ) than non-OAB patients. Wet OAB was significantly associated with increased HRU rates of hospital admissions, outpatient visits, prescriptions filled, and diagnostic tests performed. After adjustment for covariates, total health care cost was 33% higher for wet OAB patients than non-OAB patients, resulting in an increased cost of \$1,746 per member per year. CONCLUSIONS: The findings of this research suggest OAB patients who initiate anticholinergic therapy and still experience incontinence are at a greater risk for comorbidities such as falls/fractures and depression/anxiety, and use significantly more health care resources, than patients without OAB. Programs to improve patient monitoring and referrals, the appropriate use of alternative treatments within guidelines, and adherence to evidence-based practice parameters may improve clinical outcomes and decrease HRU for these patients. © 2016, Academy of Managed Care Pharmacy. All rights reserved.

Yonekawa Y and **Capone A, Jr.** (2016). "Re: Yonekawa et al.: Familial exudative vitreoretinopathy: Spectral-domain optical coherence tomography of the vitreoretinal interface, retina, and choroid (Ophthalmology 2015; 122: 2270-7) Reply." Ophthalmology 123(5): e36-e37.

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*Department of Ophthalmology*

Yonekawa Y, **Mammo DA**, Thomas BJ, **Wolfe JD** and **Hassan TS** (2016). "A comparison of intraoperative dexamethasone intravitreal implant and triamcinolone acetonide used during vitrectomy and epiretinal membrane peeling: A case control study." Ophthalmic Surgery Lasers & Imaging Retina 47(3): 232-237.

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*OUIWB Medical Student Author*

*Department of Ophthalmology*

BACKGROUND AND OBJECTIVE: Intravitreal corticosteroids may accelerate the normalization of macular morphology after vitrectomy and epiretinal membrane (ERM) peeling. The authors compared the visual and

anatomic outcomes of eyes undergoing this procedure with the intraoperative use of the dexamethasone intravitreal implant (DEX) (Ozurdex; Allergan, Irvine, CA) versus triamcinolone acetonide (IVTA) (Triesence; Alcon, Fort Worth, TX). PATIENTS AND METHODS: Interventional, retrospective, consecutive, case-control study. RESULTS: Fifty-five participants were included (DEX = 19; IVTA = 36). Best-corrected visual acuity (BCVA) improved at 1, 2, 3, and 6 months in both the DEX (P = .40, .45, .02, .08, respectively) and IVTA (P < .01, = .10, < .01, < .01) arms. Similarly, central macular thickness (CMT) improved at 1, 2, 3, and 6 months in both the DEX (P < .01, = .03, < .01, < .01) and IVTA (P < .01, < .01, < .01, < .01) arms. There were no statistical differences between DEX and IVTA regarding BCVA and CMT. CONCLUSION: Both intraoperative DEX and IVTA, used at the completion of vitrectomy and at membrane peeling for epiretinal membrane, were effective in improving visual and anatomic outcomes, though there was a trend toward greater significance with IVTA.

Yonekawa Y, Thomas BJ and **Capone A** (2016). "Ultra-wide-field autofluorescence in long-chain 3-hydroxyacyl-CoA dehydrogenase deficiency chorioretinopathy." *JAMA Ophthalmology* 134(4): e155033.

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*Department of Ophthalmology*

Yonekawa Y, Wu WC, Kusaka S, Robinson J, Tsujioka D, Kang KB, Shapiro MJ, Padhi TR, Jain L, Sears JE, Kuriyan AE, Berrocal AM, Quiram PA, Gerber AE, Paul Chan RV, Jonas KE, Wong SC, Patel CK, Abbey AM, Spencer R, Blair MP, Chang EY, Papakostas TD, Vavvas DG, Sisk RA, Ferrone PJ, Henderson RH, Olsen KR, Hartnett ME, Chau FY, Mukai S, Murray TG, Thomas BJ, **Meza PA, Drenser KA, Trese MT and Capone A** (2016). "Immediate sequential bilateral pediatric vitreoretinal surgery. An international multicenter study." *Ophthalmology*. ePub Ahead of Print.

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*Department of Anesthesiology*

*Department of Ophthalmology*

Purpose: To determine the feasibility and safety of bilateral simultaneous vitreoretinal surgery in pediatric patients. Design: International, multicenter, interventional, retrospective case series. Participants: Patients 17 years of age or younger from 24 centers worldwide who underwent immediate sequential bilateral vitreoretinal surgery (ISBVS)-defined as vitrectomy, scleral buckle, or lensectomy using the vitreous cutter-performed in both eyes sequentially during the same anesthesia session. Methods: Clinical history, surgical details and indications, time under anesthesia, and intraoperative and postoperative ophthalmic and systemic adverse events were reviewed. Main Outcome Measures: Ocular and systemic adverse events. Results: A total of 344 surgeries from 172 ISBVS procedures in 167 patients were included in the study. The mean age of the cohort was 1.3±2.6 years. Nonexclusive indications for ISBVS were rapidly progressive disease (74.6%), systemic morbidity placing the child at high anesthesia risk (76.0%), and residence remote from surgery location (30.2%). The most common diagnoses were retinopathy of prematurity (ROP; 72.7% [P < 0.01]; stage 3, 4.8%; stage 4A, 44.4%; stage 4B, 22.4%; stage 5, 26.4%), familial exudative vitreoretinopathy (7.0%), abusive head trauma (4.1%), persistent fetal vasculature (3.5%), congenital cataract (1.7%), posterior capsular opacification (1.7%), rhegmatogenous retinal detachment (1.7%), congenital X-linked retinoschisis (1.2%), Norrie disease (2.3%), and viral retinitis (1.2%). Mean surgical time was 143±59 minutes for both eyes. Higher ROP stage correlated with longer surgical time (P = 0.02). There were no reported intraoperative ocular complications. During the immediate postoperative period, 2 eyes from different patients demonstrated unilateral vitreous hemorrhage (0.6%). No cases of endophthalmitis, choroidal hemorrhage, or hypotony occurred. Mean total anesthesia time was 203±87 minutes. There were no cases of anesthesia-related death, malignant hyperthermia, anaphylaxis, or cardiac event. There was 1 case of reintubation (0.6%) and 1 case of prolonged oxygen desaturation (0.6%). Mean follow-up after surgery was 103 weeks, and anatomic success and globe salvage rates were 89.8% and 98.0%, respectively. Conclusions: This study found ISBVS to be a feasible and safe treatment paradigm for pediatric patients with bilateral vitreoretinal pathologic features when repeated general anesthesia is undesirable or impractical. © 2016 American Academy of Ophthalmology.

**Zhou J**, Ding X, Liang J, Zhang J, Wang Y and **Yan D** (2016). "SU-FT-191: 4D Dose reconstruction of Intensity Modulated Proton Therapy (IMPT) based on breathing Probability Density Function (PDF) from 4D cone beam projection images: A study for lung treatment." Medical Physics 43(6): 3505-3506.

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*Department of Radiation Oncology*

**Zhou J**, Wang Y, Ding X, Liang J, **Yan D**, **Marples B** and **Dilworth J** (2016). "SU-FT-382: Volumetric Modulated Arc Therapy (VMAT) beam angle optimization in Pulsed Partial Brain Irradiation (PPBI) for newly diagnosed glioblastoma." Medical Physics 43(6): 3551.

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*Department of Radiation Oncology*