

## OAKLAND UNIVERSITY WILLIAM BEAUMONT SCHOOL OF MEDICINE

### PUBLICATION LIST

January - March 2015

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**Abbas AE, Franey LM, Lester S, Raff G, Gallagher MJ, Hanzel G, Safian RD** and Pibarot P (2015). "The role of jet eccentricity in generating disproportionately elevated transaortic pressure gradients in patients with aortic stenosis." *Echocardiography* 32(2): 372-382.

[Full-Text](#)

*Department of Internal Medicine*

In patients with aortic stenosis (AS) and eccentric transaortic flow, greater pressure loss occurs as the jet collides with the aortic wall together with delayed and diminished pressure recovery. This leads to the elevated transaortic valve pressure gradients noted on both Doppler and cardiac catheterization. Such situations may present a diagnostic dilemma where traditional measures of stenosis severity indicate severe AS, while imaging modalities of the aortic valve geometric aortic valve area (GOA) suggest less than severe stenosis. In this study, we present a series of cases exemplifying this clinical dilemma and demonstrate how color M-mode, 2D and 3D transthoracic (TTE) and transesophageal (TEE) echocardiography, cardiac computed tomography angiography (CTA), and magnetic resonance imaging (MRI), may be used to resolve such discrepancies.

Abbey AM, Hussain RM, Shah AR, **Faia LJ, Wolfe JD** and **Williams GA** (2015). "Sutureless scleral fixation of intraocular lenses: outcomes of two approaches. The 2014 Yasuo Tano Memorial Lecture." *Graefes Archive for Clinical and Experimental Ophthalmology* 253(1): 1-5.

[Full-Text](#)

*Department of Ophthalmology*

We sought to assess the clinical outcomes and complications of two approaches to scleral fixation of intraocular lenses (IOLs): transconjunctival fixation through trocar cannulas and fixation using scleral tunnels created with a microvitrectomy (MVR) blade. This retrospective chart review was comprised of 23 eyes that received scleral fixation of a three-piece IOL with concurrent pars plana vitrectomy between June 2012 and June 2014. Scleral fixation was performed either by transconjunctival fixation through trocar cannulas (cannula fixation) or by the creation of scleral tunnels using an MVR blade (tunnel fixation). The preoperative and postoperative corrected distance visual acuities (CDVA), spherical equivalents (SE), and complications

were evaluated. 15 cannula fixations and 8 tunnel fixations were performed. Mean follow-up was 353 days (Range: 94 - 790 days). Fifteen IOLs were fixated 2 mm posterior to the limbus. Seven IOLs were fixated 1.5 mm posterior to the limbus, and one IOL was fixated 0.75 mm posterior to the limbus. Mean preoperative CDVA was logMAR 1.17 (Snellen 20/297), and mean postoperative CDVA was logMAR 0.37 (Snellen 20/47) ( $p < 0.0001$ ). At last follow-up, none of the IOLs have dislocated or subluxed and there has been no erosion of the subconjunctival haptics. Scleral fixation of IOLs using trocar cannulas or scleral tunnels is an effective surgical option for the treatment of aphakia or IOL dislocation. Both techniques result in significant visual improvement with minimal postoperative complications.

Aggarwal A, Smith JL, **Chinnaiyan KM, Mehta N, Boura J**, Khoury Abdulla R, **Lauter CB** and **Raff GL** (2015). "(beta)-Blocker premedication does not increase the frequency of allergic reactions from coronary CT angiography: Results from the Advanced Cardiovascular Imaging Consortium." Journal of Cardiovascular Computed Tomography. ePub Ahead of Print.

[Full-Text](#)

*Department of Internal Medicine*

*OUWB Medical Student Author*

*Department of Biomedical Sciences (BHS)*

Background: (beta)-Blockers are often used for heart rate control during coronary CT angiography (CTA). Increased frequency and severity of allergic reactions to radiocontrast media (RCM) have been reported with concomitant use of (beta)-blockers. Objectives: The objectives of this study were to determine whether there is a higher incidence of allergic reactions to low-osmolar nonionic RCM in patients undergoing coronary CTA with concomitant (beta)-blockers and to define the overall incidence and severity of allergic reactions in patients undergoing coronary CTA with and without a history of allergy to RCM. Methods: Patients undergoing coronary CTA at 47 institutions participating in the Advanced Cardiovascular Imaging Consortium registry were analyzed. The incidence and severity of allergic reactions were compared between those patients who did and those who did not receive (beta)-blockers, as well as in subgroups of patients with and without a history of prior allergy to RCM. Results: The incidence of allergic reaction in patients who received (beta)-blockers was 45 of 23,867 (0.19%) compared with those who did not receive (beta)-blockers, which was 9 of 5232 (0.17%;  $P = .84$ ; odds ratio = 1.1). Of the patients with history of allergy to RCM, 4 of 706 patients (0.6%) on (beta)-blockers experienced allergic reactions compared to 1 of 77 patients (1.3%) without (beta)-blockers ( $P = .40$ ; odds ratio = 0.43). Conclusions: (beta)-Blocker pretreatment had no effect on the frequency or severity of allergic reaction in patients undergoing coronary CTA, even in patients with a past history of allergy to RCM.

Ahmadi A, Leipsic J, Feuchtner G, Gransar H, Kalra D, Heo R, Achenbach S, Andreini D, Al-Mallah M, Berman DS, Budoff M, Cademartiri F, Callister TQ, Chang HJ, **Chinnaiyan K**, Chow B, Cury RC, Delago A, Gomez MJ, Hadamitzky M, Hausleiter J, Hindoyan N, Kaufmann PA, Kim YJ, Lin F, Maffei E, Pontone G, **Raff GL**, Shaw LJ, Villines TC, Dunning A and Min JK (2015). "Is metabolic syndrome predictive of prevalence, extent, and risk of coronary artery disease beyond its components? Results from the multinational Coronary CT Angiography Evaluation for Clinical Outcome: An International Multicenter Registry (CONFIRM)." PloS One 10(3): 1-9.

[Full-Text](#)

*Department of Internal Medicine*

Although metabolic syndrome is associated with increased risk of cardiovascular disease and events, its added prognostic value beyond its components remains unknown. This study compared the prevalence, severity of coronary artery disease (CAD), and prognosis of patients with metabolic syndrome to those with individual metabolic syndrome components. The study cohort consisted of 27125 consecutive individuals who underwent  $\geq 64$ -detector row coronary CT angiography (CCTA) at 12 centers from 2003 to 2009. Metabolic syndrome was defined as per NCEP/ATP III criteria. Metabolic syndrome patients ( $n=690$ ) were matched 1:1:1 to those with 1 component ( $n=690$ ) and 2 components ( $n=690$ ) of metabolic syndrome for age, sex, smoking status, and family history of premature CAD using propensity scoring. Major adverse cardiac events (MACE) were defined by a composite of myocardial infarction (MI), acute coronary syndrome, mortality and late target vessel revascularization. Patients with 1 component of metabolic syndrome

manifested lower rates of obstructive 1-, 2-, and 3-vessel/left main disease compared to metabolic syndrome patients (9.4% vs 13.8%, 2.6% vs 4.5%, and 1.0% vs 2.3%, respectively;  $p < 0.05$ ), while those with 2 components did not (10.5% vs 13.8%, 2.8% vs 4.5% and 1.3% vs 2.3%, respectively;  $p > 0.05$ ). At 2.5 years, metabolic syndrome patients experienced a higher rate of MACE compared to patients with 1 component (4.4% vs 1.6%;  $p = 0.002$ ), while no difference observed compared to individuals with 2 components (4.4% vs 3.2%  $p = 0.25$ ) of metabolic syndrome. In conclusion, Metabolic syndrome patients have significantly greater prevalence, severity, and prognosis of CAD compared to patients with 1 but not 2 components of metabolic syndrome.

Akrawinhawong K, Ricci J, Cannon L, **Dixon S**, Kupfer K, Stivers D, Alexander P, David S and McCullough PA (2015). "Subclinical and clinical contrast-induced acute kidney injury: Data from a novel blood marker for determining the risk of developing contrast-induced nephropathy (ENCINO), a prospective study." *Renal Failure* 37(2): 187-191.

[Request Form](#)

*Department of Internal Medicine*

Objective: Neutrophil gelatinase-associated lipocalin (NGAL) is produced in response to tubular injury. Contrast-induced acute kidney injury (CI-AKI) is associated with adverse outcomes in chronic kidney disease (CKD) patients. We sought to characterize blood NGAL level and the degree of kidney injury in CKD patients who underwent coronary angiography. Methods: This study was a prospective, blinded assessment of blood samples obtained from patients with estimated glomerular filtration rates (eGFRs) between 15 and 90 mL/min/1.73 m<sup>2</sup> undergoing elective coronary angiography with iodinated contrast. Blood NGAL and serum creatinine were measured at baseline, 1, 2, 4, 6, 12, 24 and 48 h after contrast administration. Results: A total of 63 subjects with a mean eGFR of 48.17 (plus or minus) 16.45 mL/min/1.73 m<sup>2</sup> were enrolled. There was a graded increase in baseline NGAL levels across worsening stages of CKD ( $p = 0.0001$ ). Post-procedure NGAL increased from baseline in each stage of CKD. Eight (12.7%) patients were diagnosed with CI-AKI by diagnostic criteria of 2012 KDIGO definition of CI-AKI, and seven (11.1%) patients developed subclinical CI-AKI defined by a twofold or greater rise in NGAL. There was no relationship between baseline eGFR and diabetes on the composite outcome of subclinical and clinical CI-AKI. Conclusions: Baseline and post-procedure NGAL are progressively elevated according to the baseline stage of CKD. Using a twofold rise in NGAL, 46.7% of composite CI-AKI is detected and complements the 53.3% of cases identified using KDIGO criteria. Traditional risk predictors were not independently associated with this composite outcome.

**Arndt DH**, Goodkin HP and Giza CC (2015). "Early posttraumatic seizures in the pediatric population." *Journal of Child Neurology*. ePub Ahead of Print.

[Full-Text](#)

*Department of Pediatrics*

Early posttraumatic seizure is a paramount clinical issue in pediatric traumatic brain injury patients as it is a common occurrence, yet an understudied entity at present. Recent literature recognizes several posttraumatic seizure subtypes based on time of presentation and the underlying pathophysiology: impact, immediate, delayed early, and late/posttraumatic epilepsy. Appropriate classification of pediatric posttraumatic seizure subtypes can be helpful for appropriate management and prognosis. This review will focus on early posttraumatic seizures, and the subtypes of early posttraumatic seizure. Incidence, risk factors, diagnosis, seizure semiology, status epilepticus, management, risk of recurrence, and prognosis were reviewed. The integration of continuous electroencephalographic (EEG) monitoring into pediatric traumatic brain injury management may hold the key to better characterizing and understanding pediatric early posttraumatic seizures. Topics for future research pertaining to pediatric early posttraumatic seizure are identified.

**Awad C**, Parikh R and Fardous Y (2015). "Pulmonary leucostasis in a patient with chronic lymphocytic leukaemia." BMJ Case Reports 2015.

[Request Form](#)

*OUIWB Medical Student Author*

A 71-year-old woman with no chronic medical problems presented to the emergency room with a 24-month history of chronic non-productive cough, malaise, increasing fatigue and weight loss. On physical examination, she had significant cervical and axillary lymphadenopathy with no organomegaly. She was diagnosed with chronic lymphocytic leukaemia (CLL) due to her lymphocyte count of 1789.4null109/L on admission. A few days after hospitalisation, she developed respiratory failure requiring intubation. A chest X-ray showed interstitial markings. The abnormally high number of mature lymphocytes could have caused leucostasis in the lungs of this patient with CLL.

**Bahado-Singh RO**, Ertl R, Mandal R, Bjorndahl TC, Syngelaki A, Han B, Dong E, Liu PB, **Alpay-Savasan Z**, Wishart DS and Nicolaides KH (2015). "Metabolomic prediction of fetal congenital heart defect in the first trimester." Obstetrical and Gynecological Survey 70(1): 9-11.

[Full-Text](#)

*Department of Obstetrics and Gynecology*

Baker D, Mangla J and **Fischer A** (2015). "Abdominal distension in an infant." Gastroenterology 148(1): e4-e5.

[Full-Text](#)

*Department of Surgery*

Banes-Berceli A, Polina A, Singhal S, Jammerino J, Fulton M, Geddes T, Thibodeau B, Wison G and **Hafron J** (2015). "Alterations in uromodulin and Microtubule Associated Protein (MAP)7 in human Renal Cell Carcinoma (RCC)." The FASEB Journal 29(1 Supplement): 629.626.

[Full-Text](#)

*Department of Urology*

There is urgent clinical need for better treatment options as RCC responds poorly to chemotherapy and currently has no early detection biomarkers available. We previously demonstrated increased activity of Janus Kinase (JAK2) pathway. We hypothesized that increased JAK2 activity resulted in increased levels of MAP7, linked to chemoresistance, and decreased levels of Uromodulin, a secreted protein linked to renal protection, measurable in the urine. We utilized samples from normal (n=14), benign (n=6), and histological Fuhrman grades: Grade 1 (n=3), Grade 2 (n=10), Grade 3 (n=14), and Grade 4 (n=3). We analyzed samples with Affymetrix human gene microarrays and Western Blot technology. The samples were all clear cell renal carcinomas verified by a pathologist. Altered gene and protein expression was detected by ANOVA taking into account histological stage. We found MAP7 mRNA to be highly expressed in the RCC samples compared to the controls and benign and it increased with severity of the cancer stage. Uromodulin mRNA levels were increased in the benign samples compared to control and were undetectable in all stages of the RCC samples. We saw corresponding changes in the protein levels of both MAP7 and Uromodulin. We also performed an ELISA to measure Uromodulin in the urine and found a significant decreases in stage 3 and 4 RCC samples compared to normal and benign. There were significant increases in Uromodulin in benign, stage 1 and 2 RCC samples compared to control. These data suggest that altered function of these protein may be involved in RCC. Zafarna Fund

Baqai J and **Crisan D** (2015). "Correlation of FLT3 mutations with expression of CD7 in acute myeloid leukemia." Applied Immunohistochemistry and Molecular Morphology 23(2): 104-108.

[Full-Text](#)

*Department of Pathology*

FLT3 mutations are common in acute myeloid leukemia (AML), particularly in cases with normal karyotype. Internal tandem duplication (ITD) and also point mutations affecting aspartic acid 835 (D835) are reported. A previous study demonstrated aberrant expression of CD7 on blasts in de novo AML cases with FLT3/ITD mutations. Our study goals are to expand the evaluation of this association to a larger group of patients; to

evaluate the association of aberrant CD7 expression in AMLs with D835 mutation, not previously done; to evaluate if aberrant CD7 expression may serve as a surrogate marker for predicting FLT3 mutational status; to evaluate if combined FLT3 with NPM1 mutational status has a better correlation with CD7 expression. The FLT3 mutational analysis was performed on DNA extracted from 149 previously diagnosed AML cases with cytogenetics and flow cytometry evaluation available. Of 149 patients, 28 were positive for FLT3; CD7 was positive in 13 of 20 ITD-positive cases, 5 of 6 D835-positive cases, and 1 of 2 ITD/D835-positive cases. The association of CD7 positivity and FLT3 positivity was found to be significant. However, CD7 expression has a low positive predictive value of 30% and a negative predictive value of 90%. Because of the low positive predictive value, CD7 expression cannot be used as a surrogate marker for FLT3 positivity; even though the negative predictive value is higher, some cases that are FLT3 positive may be missed if CD7 expression would be used for screening.

**Bartley J**, Killinger KA, **Boura JA**, **Gillera J**, Ehlert M, Gupta P, Wolfert C and **Peters KM** (2015). "The impact of prior back surgery on urologic diagnoses and neuromodulation outcomes." Neurourology and Urodynamics 34(S1): S27-S28.

[Full-Text](#)

*Department of Urology*

*Department of Biomedical Sciences (BHS)*

Introduction: The impact of spine surgery on bladder symptoms/ treatments is not well known. We evaluated patients with a history of back surgery to explore primary indication for neuromodulation and whether prior back surgery impacted treatment outcomes. Methods: Adults enrolled in our prospective observational neuromodulation study that had a lead placed at the sacral or pudendal nerve were evaluated. Those with comorbid neurological diagnosis were excluded. Medical records were reviewed for history/operative details, and outcomes were measured at three, six, 12 and 24 months with Interstitial Cystitis Symptom/Problem Indices (ICSI-PI), Overactive Bladder Questionnaire (OAB-q) symptom severity (SS)/health related quality of life (HRQOL), voiding diaries, and Global Response Assessments (GRA). Data were examined with Pearsons Chisquare, Fishers Exact, and Wilcoxon rank sum tests. Results: Of 405 patients (mean age 58.2 (plus or minus) 17 years; 86% female; 80% had a sacral lead placed), 64 (16%) had history of back surgery; 37 surgeries were lumbar. Back surgery patients were older than the no back surgery group (mean 65 (plus or minus) 14 vs. 57 (plus or minus) 17 years;  $p=0.001$ ) and a higher proportion had urge urinary incontinence (UUI) (65.6% vs. 45.8%;  $p=0.001$ ); generator implant rates were similar (92.2% vs. 91.2%;  $p=0.80$ ). For ICSI-PI composite scores, both groups improved but were only significantly different at 12 months, where scores were better in the back surgery group (mean 11.8 (plus or minus) 7.7 vs. 15.8 (plus or minus) 7.5,  $p=0.013$ ). OAB-q scores also improved in both groups; HRQOL was significantly better in the back surgery group at 12 months (median 85 vs. 71,  $p=0.041$ ). Average volume/void, voids/24 hours, urgency, and proportion of patients using catheters did not differ at any time point. The back surgery group had more incontinence episodes/day at preimplant (mean 5.6 (plus or minus) 4.9 vs. 4.0 (plus or minus) 5.4;  $p=0.007$ ) and in the two weeks following lead implant (3.3 (plus or minus) 4.0 vs. 2.1 (plus or minus) 3.2;  $p=0.004$ ). No other time points were significantly different. Most patients in both groups reported moderate/marked improvement in overall bladder symptoms at 3, 6, and 12 months and groups did not differ on the GRA at any time point. Conclusion: Overall, prior back surgery does not affect clinical outcomes of neuromodulation and the higher prevalence of UUI may reflect older age in the back surgery group compared to controls.

**Bartley JM**, **Sirls LT**, Killinger KA and **Boura JA** (2015). "Secondary surgery after vaginal prolapse repair with mesh is more common for stress incontinence and voiding dysfunction than for mesh problems or prolapse recurrence." International Urology and Nephrology 47(4): 609-615.

[Full-Text](#)

*Department of Urology*

*Department of Biomedical Sciences (BHS)*

OBJECTIVES: To explore the need for secondary surgical procedures after transvaginal prolapse repair with mesh. METHODS: Women that had prolapse repair (Prolift((R)) or Elevate((R))) were reviewed for reoperation and clinical/demographic data such as prior prolapse repair, prolapse grade, operative details, length of stay

(LOS) and time to reoperation. Pearson's Chi-square, Fisher's exact tests and Wilcoxon rank tests were used. RESULTS: 77/335 women (23 %) had 100 additional procedures. Median (range) time to reoperation was 51 (5-1168) days: four (1 %) had primary prolapse surgery at a different site, three (1 %) repeat prolapse repair from the same site, 23 (7 %) surgery for complications and 50 (15 %) had stress urinary incontinence (SUI)/sling-related procedures. When no reoperation versus reoperation groups were compared, mean LOS (1.8 vs. 2.0 days;  $p = 0.044$ ) and follow-up (228 vs. 354 days;  $p = 0.002$ ) were longer in the reoperations group; postoperative hemoglobin was lower (10.8 vs. 10.4;  $p = 0.031$ ). Patients with a prolapse reoperation were 10 years younger (67 vs. 57 years;  $p = 0.027$ ) than patients that either had a reoperation for other reasons or had no reoperations. Patients with concomitant sling and persistent SUI requiring repeat SUI surgery were older (mean 72 vs. 66 years;  $p = 0.038$ ), had prior prolapse repair (53 vs. 27 %;  $p = 0.017$ ) and had anterior compartment mesh (84 vs. 56 %;  $p = 0.037$ ); median operative times (78 vs. 104 min;  $p = 0.008$ ) and mean LOS were shorter (median 1.6 vs. 1.9 days;  $p = 0.045$ ). For patients without concomitant sling, no demographic or perioperative differences were found between those that did ( $n = 10$ ) and did not ( $n = 86$ ) develop de novo SUI that required reoperation. CONCLUSIONS: Most reoperations were for sling management and SUI; few were for mesh complications or prolapse recurrence.

Bayci A, Lovvorn HN and **Novotny N** (2015). "Primum non nocere – ethical concerns from procedural risks in the global health setting." *Annals of Global Health* 81(1): 16-17.

[Full-Text](#)

*Department of Surgery*

Bennani-Baiti B, **Yadav S**, Flynt L and Bennani-Baiti N (2015). "Value of positron emission tomography in diagnosing subcutaneous panniculitis-like T-cell lymphoma." *Journal of Clinical Oncology* 33(10): 1216-1217.

[Request Form](#)

*Department of Diagnostic Radiology and Molecular Imaging*

Bennett JT, Vasta V, Zhang M, Narayanan J, **Gerrits P** and Hahn SH (2015). "Molecular genetic testing of patients with monogenic diabetes and hyperinsulinism." *Molecular Genetics and Metabolism* 114(3): 451-458.

[Full-Text](#)

*Department of Pediatrics*

Genetic sequencing has become a critical part of the diagnosis of certain forms of pancreatic beta cell dysfunction. Despite great advances in the speed and cost of DNA sequencing, determining the pathogenicity of variants remains a challenge, and requires sharing of sequence and phenotypic data between laboratories. We reviewed all diabetes and hyperinsulinism-associated molecular testing done at the Seattle Children's Molecular Genetics Laboratory from 2009 to 2013. 331 probands were referred to us for molecular genetic sequencing for Neonatal Diabetes (NDM), Maturity-Onset Diabetes of the Young (MODY), or Congenital Hyperinsulinism (CHI) during this period. Reportable variants were identified in 115 (35%) patients with 91 variants in one of 6 genes: HNF1A, GCK, HNF4A, ABCC8, KCNJ11, or INS. In addition to identifying 23 novel variants, we identified unusual mechanisms of inheritance, including mosaic and digenic MODY presentations. Re-analysis of all reported variants using more recently available databases led to a change in variant interpretation from the original report in 30% of cases. These results represent a resource for molecular testing of monogenic forms of diabetes and hyperinsulinism, providing a mutation spectrum for these disorders in a large North American cohort. In addition, they highlight the importance of periodic review of molecular testing results.

Berger DA, **Gowans LK** and **Khandhar P** (2015). "A case of asymptomatic pediatric chronic Myelogenous Leukemia with Hyperleukocytosis: An entity without a treatment algorithm." *Clinical Pediatrics*. ePub Ahead of Print.

[Full-Text](#)

*Department of Pediatrics*

Berguer R and **Nowak P** (2015). "Treatment of venous pulsatile tinnitus in younger women." Annals of Vascular Surgery. ePub Ahead of Print.

[Full-Text](#)

*Department of Surgery*

Background: We present 7 cases of pulsatile tinnitus (PT) of venous origin in younger women seen over a period of 24 years and treated by Internal Jugular Bulb ligation. Methods: All patients had a pulsatile bruit in one side of the neck that disappeared when gentle pressure over the internal jugular vein (IJV) caused it to collapse as seen in a duplex scan. Their computed tomography showed a dominant venous system with a high jugular bulb on the side of the bruit. Results: The IJV was ligated under local anesthesia. Five patients in whom the ligation was done above the facial vein were cured. Two patients in whom the ligation was done below the facial vein experienced a decrease but not disappearance of the PT. Conclusions: Once other possible causes for PT have been discarded, ligation of the IJV above the facial vein cures this condition.

**Black EH**, Scruggs RT, Siddens JD, **Nesi FA** and **Gladstone GJ** (2015). "Upper blepharoplasty: pearls for the procedure," In Hartstein ME, Massry GG and Holds JB (ed). Pearls and Pitfalls in Cosmetic Oculoplastic Surgery: Springer New York. pp: 91-92.

[Full-Text](#)

*Department of Ophthalmology*

**Black EH**, Scruggs RT, Siddens JD, **Nesi FA** and **Gladstone GJ** (2015). "Upper eyelid blepharoplasty: the evaluation," In Hartstein ME, Massry GG and Holds JB (ed). Pearls and Pitfalls in Cosmetic Oculoplastic Surgery: Springer New York. pp: 51-53.

[Full-Text](#)

*Department of Ophthalmology*

Boils C, **Zhang P**, Gokden N, Grignon D, Gu X, Nasr S, Phillips C and Bonsib S (2015). "The distinctive eosinophilic cysts of tuberous sclerosis complex are derived from proximal tubules." Modern Pathology 28(Sup 2): 406A.

[Full-Text](#)

*Department of Pathology*

Boils C, **Zhang P**, Gokden N, Grignon D, Gu X, Nasr S, Phillips C and Bonsib S (2015). "The distinctive eosinophilic cysts of tuberous sclerosis complex are derived from proximal tubules." Laboratory Investigation 95: 406A.

[Full-Text](#)

*Department of Pathology*

Background: Tuberous sclerosis complex (TSC) is due to mutation of TSC1 or TSC2, genes whose protein products, hamartin and tuberin, inhibit the mammalian target of rapamycin (mTOR) pathway. TSC is associated with a variety of renal lesions, cysts and polycystic kidney disease (PKD), and neoplasms. The cysts may be lined by a flat attenuated or low cuboidal epithelium (F/C-cysts) or by distinctive epithelium composed of large eosinophilic cells (E-cysts) regarded as characteristic of TSC. This study examines the tubular segment origin of the eosinophilic cysts and presence of mTOR activation in cysts. Design: Nine cases of TSC were studied, 9 complete and 3 partial nephrectomies for a total of 12 specimens. Four cases contain E-cysts and angiomyolipomas. Five cases contained diffuse E-cysts and F/C-cysts of PKD. Cyst epithelium was analyzed using immunoperoxidase stains for CD10, cytokeratin 7 (CK7), kidney injury molecule-1 (KIM-1), p-mTOR and p-p70S6K (a downstream signal of mTOR activation). Results: The majority of E-cysts were CD10 positive and CK7 negative (Table 1), consistent with a proximal tubule (PT) phenotype. Conversely, the majority of F/C-cysts were CD10 negative and CK7 positive consistent with a distal tubule (DT)/collecting duct (CD) phenotype. KIM-1 staining showed that 50% of E-cysts and 31% of F/C-cysts were positive. Markers of mTOR activation show 1+ to 2+ staining in the F/C-cystic epithelial cytoplasm and nuclei, similar to expression of DT/CD. Conclusions: 1) The cyst lining in TSC is heterogeneous, ranging from flat or low cuboidal, to large eosinophilic cells. 2) Immunoperoxidase stains support PT differentiation of E-cysts and DT/CD differentiation of F/C-cysts. 3) Markers of mTOR activation are present along F/C-cyst walls, compatible with contribution of upregulated mTOR pathway in cyst proliferation. (Table Presented).

**Cappell MS** (2015). "Case report of working with an institutional review board to approve a study on a particularly sensitive topic in a particularly vulnerable population: Investigator negotiation and compromise may be the best." Gastroenterology Nursing 38(1): 62-63.

[Full-Text](#)

*Department of Internal Medicine*

**Cappell MS**, Mogrovejo E, Manickam P and **Batke M** (2015). "Endoclips to facilitate cannulation and sphincterotomy during ERCP in a patient with an ampulla within a large duodenal diverticulum: Case report and literature review." Digestive Diseases and Sciences 60(1): 168-173.

[Full-Text](#)

*Department of Internal Medicine*

**Cappell MS**, **Nojkov B** and **Amin M** (2015). "Proposed clinical and endoscopic predictors for diagnosis of gastrointestinal kaposi sarcoma." Southern Medical Journal 108(2): 135-138.

[Full-Text](#)

*Department of Internal Medicine*

*Department of Pathology*

Carpenter S, Pinkas D, Newton MD, **Kurdziel MD**, **Baker KC** and **Wiater JM** (2015). "Wear rates of retentive versus nonretentive reverse total shoulder arthroplasty liners in an invitro wear simulation." Journal of Shoulder and Elbow Surgery. ePub Ahead of Print.

[Full-Text](#)

*Department of Surgery*

*Department of Orthopedic Surgery*

Background: Although short-term outcomes of reverse total shoulder arthroplasty (rTSA) remain promising, the most commonly cited complication remains prosthetic instability. A retentive rTSA liner is commonly used to increase system constraint; however, no studies have evaluated the rate of polyethylene wear. Our hypothesis was that more constrained retentive liners would have higher wear rates than nonretentive liners. Methods: Six nonretentive and six retentive rTSA non-cross-linked polyethylene liners were subjected to 4.5 million cycles of alternating cycles of abduction-adduction and flexion-extension motion loading profiles. The rTSA liners were assessed for gravimetric wear loss, 3-dimensional volumetric loss by novel micro-computed tomography analysis, and particulate wear debris analysis. Results: Volumetric wear rates were significant at 7 specific time points (1.0, 2.0, 2.5, 3.25, 3.75, 4.0, and 4.5 million cycles) throughout testing between nonretentive and retentive liners; however, overall mean volumetric wear rate was not statistically significant (P=.076). Total volume loss between liner test groups was found to be significant starting after 3.5 million cycles of testing. Maximum and mean surface deviations were found to be larger for retentive liners vs. nonretentive liners by micro-computed tomography analysis across the entire articulation surface. Discussion and conclusion: Retentive liners undergo significantly greater volume loss and greater surface deviation compared with nonretentive liners, most notably at later time points representing extended implantation times. Additional stability afforded by retentive liners should be balanced against the potential for increased wear and potential for subsequent polyethylene wear-induced aseptic loosening.

**Chancellor MB** and Smith CP (2015). "Botulinum toxin in urology." Toxicon 93: S15.

[Full-Text](#)

*Department of Urology*

Onabotulinumtoxin A (onaBoNTA; Botox) received regulatory approval from the US Food and Drug Administration (FDA) for treatment of urinary incontinence (UI) due to neurogenic detrusor overactivity (NDO) in 2011. A total of 691 patients with spinal cord injury or multiple sclerosis who had an inadequate response to or were intolerant of one or more anticholinergic medications were enrolled in the 2 pivotal phase 3 studies. These patients were randomized to receive 200 units (U) of onaBoNTA (n=227), 300 U of onaBoNTA (n=223), or placebo (n=241). In both studies, significant improvement in the primary efficacy

variable of change from baseline in weekly frequency of UI episodes was achieved with 200 U of onaBoNTA compared with placebo. Improvement was seen after 2 weeks, and the average duration of response was approximately 10 months. Among patients who were not catheterized at baseline, catheterization for urinary retention (which is a temporary inability to fully empty the bladder, requiring clean intermittent catheterization) was initiated in 30.6% of patients following treatment with 200 U of onaBoNTA vs 6.7% of those on placebo. In an exciting new development, positive data in a phase 2 study of abobotulinumtoxinA (Dysport) in patients with NDO has been reported in 2014. OnaBoNTA also received FDA approval for treatment of idiopathic detrusor overactivity (IDO) in 2013. Phase 3 studies demonstrated the safety and efficacy of onaBoNTA in patients with overactive bladder (OAB) whose symptoms were not adequately managed with anticholinergic medications. OnaBoNTA reduced the daily frequency of urinary leakage episodes from baseline by approximately 50% or more by week 12 compared with placebo. The efficacy of onaBoNTA in reducing urinary leakage and other OAB symptoms lasted up to 6 months. The most common side effects reported with onaBoNTA treatment in clinical studies included urinary tract infection (18% vs 6% with placebo), dysuria (ie, painful or difficult urination; 9% vs 7% with placebo), and urinary retention (6% vs 0% with placebo). Urinary retention was more likely to develop in patients with diabetes mellitus treated with onaBoNTA.

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

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*Department of Diagnostic Radiology and Molecular Imaging*

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

Chehab M, **Dixit P**, Antypas E, Juncaj M, **Wong O** and **Bischoff M** (2015). "Endovenous laser ablation of perforating veins: Feasibility, safety, and occlusion rate using a 1,470-nm laser and bare-tip fiber." Journal of Vascular and Interventional Radiology. ePub Ahead of Print.

[Full-Text](#)

*Department of Diagnostic Radiology and Molecular Imaging*

Purpose: To describe technical feasibility and safety of perforating vein ablation with the use of a 1,470-nm laser and bare-tip fiber in the management of chronic venous insufficiency (CVI). Materials and Methods: A total of 171 perforating veins were ablated in 101 limbs of 87 patients (mean age, 54.4 y; 79% female). Outcomes included sonographic occlusion of ablated perforator, subjective changes of insufficiency symptoms, incidence of procedure-related side effects (pain, hyperpigmentation), and complications (burn, infection, deep vein thrombosis, paresthesia). Correlation between perforator closure and patient symptoms was assessed by Pearson (chi)<sup>2</sup> test. Factors influencing failure of perforator closure were analyzed by analysis of variance. Results: Forty-nine perforating veins had previous great saphenous vein (GSV) interruption, 25 had previous small saphenous vein (SSV) interruption, 88 had previous GSV and SSV interruption, and nine had competent saphenous systems. Ninety-one ablations were combined with microphlebectomy, 55 were combined with sclerotherapy, and 25 were performed alone. At 1 and 3 months' follow-up, 94% and 98% of ablated perforators were sonographically occluded, and 82% and 96% of patients noted complete symptom resolution, respectively. Complications included five cases of new-onset paresthesia and one case of nonocclusive deep vein thrombosis. Ablation failed in 10 perforators, and treatment failure showed significant correlations with higher clinical, etiology, anatomy, and physiology score (P = .002) and history of GSV/SSV interruption (P = .042). Conclusions: Three-month closure of perforating veins is achievable by using a 1,470-nm laser and bare-tip fiber and can be safely performed alone or in combination with microphlebectomy or sclerotherapy at all stages of CVI severity.

Chehab M, **Dixit PK**, Antypas E, Juncaj M, **Wong C** and **Bischoff M** (2015). "Efficacy, safety, and clinical outcomes of incompetent perforator vein ablation using 1470nm laser bare tip fiber." Journal of Vascular and Interventional Radiology 26(2): S143.

[Full-Text](#)

*Department of Diagnostic Radiology and Molecular Imaging*

Purpose: To describe the technique, efficacy, and safety of Endovenous Laser Ablation (EVLA) of incompetent perforator veins (IPV) using a bare tip fiber 1470nm laser alone or in combination with microphlebectomy or sclerotherapy in the management of chronic venous insufficiency (CVI) with a competent saphenous system or prior saphenous interruption. Materials and Methods: 171 IPV were ablated in 101 limbs in 87 patients. Outcomes included sonographic occlusion of IPV, subjective changes to patient symptomatology, procedure related side effects (pain, hyperpigmentation) and complications (burns, major bleeds, infections, deep vein thrombosis or paresthesias). Correlation of IPV ablation failure with clinical, perforator and treatment characteristics was assessed using univariate (ANOVA) analysis. Results: 123 IPV were seen in the setting of prior saphenous interruption (76 radiofrequency ablation, 38 surgical stripping, 10 EVLA, 3 sclerotherapy). 48 were seen in the setting of a competent saphenous system. 91 IPV ablations were combined with microphlebectomy, 25 with sclerotherapy and 55 IPV were ablated alone. At 1 and 3 months follow up, 92 and 98% of ablated IPV were sonographically occluded. 10 IPV failed ablation with statistically significant correlation with higher CEAP score ( $p=.002$ ) and history of prior GSV interruption ( $p=.042$ ). Clinically, 82% and 96% of patients noted complete resolution of insufficiency symptoms at 1 and 3 months respectively. Complications included 5 patients with new onset paresthesias and one nonocclusive DVT. No skin burns, major bleeds or infections or were encountered. Conclusion: EVLA of IPV is effective at achieving IPV closure at 3 months can be safely performed alone or in combination with microphlebectomy or sclerotherapy.

Chehab M, Hlubocky J, **Olariu E**, **Bloom D** and **Nandalur K** (2015). "Comprehensive magnetic resonance enterography of Crohn's disease in the pediatric population: Technique, interpretation, and management." Current Problems in Diagnostic Radiology 44(2): 193-206.

[Full-Text](#)

*Department of Diagnostic Radiology and Molecular Imaging*

Magnetic resonance enterography (MRE) plays a critical role in the management of Crohn's disease in the pediatric population. The ability to provide dynamic assessment of disease burden, complications, and therapeutic response without ionizing radiation makes it an ideal tool for younger patients requiring frequent follow-up. With a growing array of available treatment options, a sound understanding of MRE is critical in directing management aimed at curbing the physical and emotional morbidity associated with the lifelong condition. The goal of this article is to provide a practical overview of MRE in the pediatric population. This includes a review of our technique, approach to interpretation, pictorial collection of findings, and discussion of the role MRE plays in management.

Chehab M, **Savin MA**, **Campbell J**, Cash C, **Wong C** and **Schultz C** (2015). "Yttrium-90 infusion: Incidence and outcomes of delivery system occlusions." Journal of Vascular and Interventional Radiology 26(2): S110.

[Full-Text](#)

*Department of Diagnostic Radiology and Molecular Imaging*

Purpose: To evaluate the incidence, cause, and management of delivery system occlusions during Yttrium-90 (90Y) microsphere infusions and identify techniques to prevent occlusions. Materials and Methods: We retrospectively reviewed 886 consecutive radioembolization deliveries in 498 patients (mean age 65 years, 299 male) performed between June 2001 and July 2013 at a single academic tertiary care hospital. Procedural details about occlusion events were reviewed in detail. Statistical analysis assessed association between catheter occlusions and patient and procedural characteristics. Results: Eleven occlusions occurred during 886 90Y microsphere deliveries (1.2%). Five occlusions were associated with contained leakage of radioactive material and 1 with a spill. All but one patient completed their treatment the same day, five requiring repeat catheterization. One patient returned a week later to complete treatment. Significantly higher number of occlusions occurred with deliveries of resin (11/492; 2.2%) versus glass (0/394; 0%) microspheres ( $p=0.002$ ). Occlusions were more likely to occur within the proximal portion of the delivery

apparatus ( $p=0.002$ ). There was no significant relationship to any patient characteristics, and there was no improvement with operator experience. The most common cause of occlusion was resin microsphere delivery device failure. As a result, this delivery device has undergone design modifications. Conclusion: 90Y microsphere delivery device occlusion is uncommon, but does occur with resin microspheres. Understanding causes and how to troubleshoot can limit the incidence and detrimental effects and has led to design improvements.

Chennamsetty A, Ehlert MJ, **Peters KM** and Killinger KA (2015). "Advances in diagnosis and treatment of interstitial cystitis/painful bladder syndrome." Current Infectious Disease Reports 17(1): 1-10.

[Full-Text](#)

*Department of Urology*

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

Chennamsetty A, **Hafron J**, Edwards L, **Pew S**, **Poushanchi B**, **Hollander J**, Killinger KA, Coffey MP and **Peters KM** (2015). "Predictors of incisional hernia after robotic assisted radical prostatectomy." Advances in Urology 2015(Article ID 457305): 1-7.

[Full-Text](#)

*Department of Urology*

*OUWB Medical Student Author*

Introduction. To explore the long term incidence and predictors of incisional hernia in patients that had RARP. Methods. All patients who underwent RARP between 2003 and 2012 were mailed a survey reviewing hernia type, location, and repair. Results. Of 577 patients, 48 (8.3%) had a hernia at an incisional site (35 men had umbilical), diagnosed at (median) 1.2 years after RARP (mean follow-up of 5.05 years). No statistically significant differences were found in preoperative diabetes, smoking, pathological stage, age, intraoperative/postoperative complications, operative time, blood loss, BMI, and drain type between patients with and without incisional hernias. Incisional hernia patients had larger median prostate weight (45 versus 38 grams;  $P=0.001$ ) and a higher proportion had prior laparoscopic cholecystectomy (12.5% (6/48) versus 4.6% (22/480);  $P=0.033$ ). Overall, 4% (23/577) of patients underwent surgical repair of 24 incisional hernias, 22 umbilical and 2 other port site hernias. Conclusion. Incisional hernia is a known complication of RARP and may be associated with a larger prostate weight and history of prior laparoscopic cholecystectomy. There is concern about the underreporting of incisional hernia after RARP, as it is a complication often requiring surgical revision and is of significance for patient counseling before surgery. © 2015 Avinash Chennamsetty et al.

Chennamsetty A, Khourdaji I, **Goike J**, Killinger KA, Girdler B and **Peters KM** (2015). "Electrosurgical management of Hunner ulcers in a referral center's interstitial cystitis population." Urology 85(1): 74-78.

[Full-Text](#)

*OUWB Medical Student Author*

*Department of Urology*

OBJECTIVE: To characterize electrocautery (EC) as a valid treatment option in interstitial cystitis (IC) patients with Hunner ulcers (HUs). METHODS: From 1997 to 2013, a single urologist's IC population was retrospectively reviewed to identify HU patients as well as their demographics, operative characteristics, and response to a 2-page questionnaire evaluating parameters of their experience with EC. Descriptive statistics, Pearson chi-square test, Student t test, and Pearson coefficient were used. RESULTS: Two hundred fourteen EC procedures were performed in 76 patients (87% women; mean age, 66 +/- 1.67 years). Fifty-one patients (69%) who underwent multiple EC had mean initial bladder capacity of 438.62 +/- 27.90 mL and final bladder capacity of 422.40 +/- 30.10 mL. Mean number of EC procedures was 2.98 +/- 0.25 (range, 1-11). Mean time between sessions was 14.52 +/- 1.34 months (range, 1-121 months). Fifty-two patients (68%) completed our questionnaire, with 13.54 +/- 1.28 years of symptoms and 10.66 +/- 0.96 years since diagnosis. Ranking IC treatments, 37 patients (84%) reported EC most beneficial. On a 0-10 (none to worst possible) scale before

and after EC, frequency improved from 9.04 +/- 1.30 to 3.65 +/- 2.75 (P <.001), urgency from 8.40 +/- 2.38 to 3.28 +/- 2.71 (P <.001), and pain from 8.62 +/- 2.36 to 2.68 +/- 2.55 (P <.001). Overall, 89.6% of patients noted some degree of symptom improvement after EC; 56.3% of patients had marked improvement. A total of 98% of patients would undergo EC again. CONCLUSION: EC of HU is an effective and safe procedure with high patient satisfaction that does not diminish bladder capacity.

Cheung AY, Anderson B, **Stec L, Khandhar P** and **Williams GA** (2015). "Bilateral vaso-occlusive retinal vasculitis with h1n1 influenza a infection." *Retinal Cases and Brief Reports* 9(2): 138-141.

[Request Form](#)

*Department of Ophthalmology*

*Department of Pediatrics*

Purpose: The purpose of this study is to report a unique case of vaso-occlusive retinal vasculitis in the setting of H1N1 influenza A. Methods: This study includes ophthalmologic examination, fluorescein angiogram, optical coherence tomography, neuroimaging, cerebral spinal fluid analysis, serologies, chart review, and review of the relevant literature. Results: A 13-year-old Caucasian female presented with bilateral vision loss accompanied by mental status changes and flu symptoms. Fundus examination revealed bilateral disk edema, peripapillary and macular flame hemorrhages, macular edema, and cherry-red spots. Fluorescein angiogram revealed vaso-occlusive vasculitis resulting in poor perfusion of the maculae. There was also staining of the optic nerves bilaterally. Optical coherence tomography revealed bilateral macular edema with intraretinal and subretinal fluid. Conclusion: This is a unique case of H1N1 influenza A presenting with vaso-occlusive retinal vasculitis, encephalitis, and flu symptoms. The poor vision is not entirely accounted for by the macular disease. Given the accompanying disk edema, there is likely a similar vaso-occlusive process of the central nervous system that contributed to the bilateral light perception vision. Copyright © by Ophthalmic Communications Society, Inc.

Cho I, Chang HJ, Hartaigh BO, Shin S, Sung JM, Lin FY, Achenbach S, Heo R, Berman DS, Budoff MJ, Callister TQ, Al-Mallah MH, Cademartiri F, **Chinnaiyan K**, Chow BJW, Dunning AM, DeLago A, Villines TC, Hadamitzky M, Hausleiter J, Leipsic J, Shaw LJ, Kaufmann PA, Cury RC, Feuchtner G, Kim YJ, Maffei E, **Raff G**, Pontone G, Andreini D and Min JK (2015). "Incremental prognostic utility of coronary CT angiography for asymptomatic patients based upon extent and severity of coronary artery calcium: Results from the COronary CT Angiography EvaluatioN For Clinical Outcomes InteRnational Multicenter (CONFIRM) Study." *European Heart Journal* 36(8): 501-508.

[Full-Text](#)

*Department of Internal Medicine*

Aim Prior evidence observed no predictive utility of coronary CT angiography (CCTA) over the coronary artery calcium score (CACS) and the Framingham risk score (FRS), among asymptomatic individuals. Whether the prognostic value of CCTA differs for asymptomatic patients, when stratified by CACS severity, remains unknown. Methods and results From a 12-centre, 6-country observational registry, 3217 asymptomatic individuals without known coronary artery disease (CAD) underwent CACS and CCTA. Individuals were categorized by CACS as: 0-10, 11-100, 101-400, 401-1000, >1000. For CCTA analysis, the number of obstructive vessels - as defined by the per-patient presence of a (greater-than or equal to)50% luminal stenosis - was used to grade the extent and severity of CAD. The incremental prognostic value of CCTA over and above FRS was measured by the likelihood ratio (LR) (chi)<sup>2</sup>, C-statistic, and continuous net reclassification improvement (NRI) for prediction, discrimination, and reclassification of all-cause mortality and non-fatal myocardial infarction. During a median follow-up of 24 months (25th-75th percentile, 17-30 months), there were 58 composite end-points. The incremental value of CCTA over FRS was demonstrated in individuals with CACS >100 (LR(chi)<sup>2</sup>, 25.34; increment in C-statistic, 0.24; NRI, 0.62, all P < 0.001), but not among those with CACS (less-than or equal to)100 (all P > 0.05). For subgroups with CACS >100, the utility of CCTA for predicting the study end-point was evident among individuals whose CACS ranged from 101 to 400; the observed predictive benefit attenuated with increasing CACS. Conclusion Coronary CT angiography provides incremental prognostic utility for prediction of mortality and non-fatal myocardial infarction for asymptomatic individuals with moderately high CACS, but not for lower or higher CACS.

Chow BJ, Small G, Yam Y, Chen L, McPherson R, Achenbach S, Al-Mallah M, Berman DS, Budoff MJ, Cademartiri F, Callister TQ, Chang HJ, Cheng VY, **Chinnaiyan K**, Cury R, Delago A, Dunning A, Feuchtner G, Hadamitzky M, Hausleiter J, Karlsberg RP, Kaufmann PA, Kim YJ, Leipsic J, LaBounty T, Lin F, Maffei E, **Raff GL**, Shaw LJ, Villines TC and Min JK (2015). "Prognostic and therapeutic implications of statin and aspirin therapy in individuals with nonobstructive coronary artery disease: Results from the CONFIRM (Coronary CT Angiography Evaluation For Clinical Outcomes: An International Multicenter Registry) Registry." *Arteriosclerosis, Thrombosis, and Vascular Biology* 35(4): 981-989.

[Full-Text](#)

*Department of Internal Medicine*

**OBJECTIVE:** We sought to examine the risk of mortality associated with nonobstructive coronary artery disease (CAD) and to determine the impact of baseline statin and aspirin use on mortality. **APPROACH AND RESULTS:** Coronary computed tomographic angiography permits direct visualization of nonobstructive CAD. To date, the prognostic implications of nonobstructive CAD and the potential benefit of directing therapy based on nonobstructive CAD have not been carefully examined. A total of 27 125 consecutive patients who underwent computed tomographic angiography (12 enrolling centers and 6 countries) were prospectively entered into the COronary CT Angiography EvaluationN For Clinical Outcomes: An InteRnational Multicenter (CONFIRM) registry. Patients, without history of previous CAD or obstructive CAD, for whom baseline statin and aspirin use was available were analyzed. Each coronary segment was classified as normal or nonobstructive CAD (1%-49% stenosis). Patients were followed up for a median of 27.2 months for all-cause mortality. The study comprised 10 418 patients (5712 normal and 4706 with nonobstructive CAD). In multivariable analyses, patients with nonobstructive CAD had a 6% (95% confidence interval, 1%-12%) higher risk of mortality for each additional segment with nonobstructive plaque (P=0.021). Baseline statin use was associated with a reduced risk of mortality (hazard ratio, 0.44; 95% confidence interval, 0.28-0.68; P=0.0003), a benefit that was present for individuals with nonobstructive CAD (hazard ratio, 0.32; 95% confidence interval, 0.19-0.55; P<0.001) but not for those without plaque (hazard ratio, 0.66; 95% confidence interval, 0.30-1.43; P=0.287). When stratified by National Cholesterol Education Program/Adult Treatment Program III, no mortality benefit was observed in individuals without plaque. Aspirin use was not associated with mortality benefit, irrespective of the status of plaque. **CONCLUSIONS:** The presence and extent of nonobstructive CAD predicted mortality. Baseline statin therapy was associated with a significant reduction in mortality for individuals with nonobstructive CAD but not for individuals without CAD. **CLINICAL TRIAL REGISTRATION:** URL: <http://clinicaltrials.gov/>. Unique identifier NCT01443637.

Chow N, **Hwang KS**, Hurtz S, Green AE, Somme JH, Thompson PM, Elashoff DA, Jack CR, Weiner M and Apostolova LG (2015). "Comparing 3T and 1.5T MRI for mapping hippocampal atrophy in the Alzheimer's disease neuroimaging initiative." *American Journal of Neuroradiology* 36(4): 653-660.

[Request Form](#)

*OUWB Medical Student Author*

**BACKGROUND AND PURPOSE:** Prior MR imaging studies, primarily at 1.5T, established hippocampal atrophy as a biomarker for Alzheimer disease. 3T MR imaging offers a higher contrast and signal-to-noise ratio, yet distortions and intensity uniformity are harder to control. We applied our automated hippocampal segmentation technique to 1.5T and 3T MR imaging data, to determine whether hippocampal atrophy detection was enhanced at 3T. **MATERIALS AND METHODS:** We analyzed baseline MR imaging data from 166 subjects from the Alzheimer's Disease Neuroimaging Initiative-1 (37 with Alzheimer disease, 76 with mild cognitive impairment, and 53 healthy controls) scanned at 1.5T and 3T. Using multiple linear regression, we analyzed the effect of clinical diagnosis on hippocampal radial distance, while adjusting for sex. 3D statistical maps were adjusted for multiple comparisons by using permutation-based statistics at a threshold of P < .01. **RESULTS:** Bilaterally significant radial distance differences in the areas corresponding to the cornu ammonis 1, cornu ammonis 2, and subiculum were detected for Alzheimer disease versus healthy controls and mild cognitive impairment versus healthy controls at 1.5T and more profoundly at 3T. Comparison of Alzheimer disease with mild cognitive impairment did not reveal significant differences at either field strength. Subjects who converted from mild cognitive impairment to Alzheimer disease within 3 years of the baseline scan versus nonconverters showed significant differences in the area corresponding to cornu ammonis 1 of the right hippocampus at 3T but not at 1.5T. **CONCLUSIONS:** While hippocampal atrophy patterns in diagnostic

comparisons were similar at 1.5T and 3T, 3T showed a superior signal-to-noise ratio and detected atrophy with greater effect size compared with 1.5T.

Copelan A, Chehab M, **Dixit P** and **Cappell MS** (2015). "Safety and efficacy of angiographic occlusion of duodenal varices as an alternative to TIPS: Review of 32 cases." Annals of Hepatology 14(3): 369-379.

[Request Form](#)

*Department of Diagnostic Radiology and Molecular Imaging*

*Department of Internal Medicine*

Background/rationale of study. Analyze safety and efficacy of angiographic-occlusion-with-sclerotherapy/embolotherapy-without-transjugular-intrahepatic-portosystemic-shunt (TIPS) for duodenal varices. Although TIPS is considered the best intermediate-to-long term therapy after failed endoscopic therapy for bleeding varices, the options are not well-defined when TIPS is relatively contraindicated, with scant data on alternative therapies due to relative rarity of duodenal varices. Prior cases were identified by computerized literature search, supplemented by one illustrative case. Favorable clinical outcome after angiography defined as no rebleeding during follow-up, without major procedural complications. Results. Thirty-two cases of duodenal varices treated by angiographic-occlusion-with-sclerotherapy/embolotherapy-without-TIPS were analyzed. Patients averaged 59.5 (plus or minus) 12.2 years old (female = 59%). Patients presented with melena-16, hematemesis & melena-5, large varices-5, growing varices-2, ruptured varices-1, and other- 3. Twenty-nine patients had cirrhosis; etiologies included: alcoholism-11, hepatitis C-11, primary biliary cirrhosis- 3, hepatitis B-2, Budd-Chiari-1, and idiopathic-1. Three patients did not have cirrhosis, including hepatic metastases from rectal cancer-1, Wilsonnalls disease-1, and chronic liver dysfunction-1. Thirty-one patients underwent esophagogastroduodenoscopy before therapeutic angiography, including fifteen undergoing endoscopic variceal therapy. Therapeutic angiographic techniques included balloon-occludedretrograde- transvenous-obliteration (BRTO) with sclerotherapy and/or embolization-21, DBOE (double-balloon-occluded-embolotherapy)-5, and other-6. Twenty-eight patients (87.5%; 95%-confidence interval: 69-100%) had favorable clinical outcomes after therapeutic angiography. Three patients were therapeutic failures: rebleeding at 0, 5, or 10 days after therapy. One major complication (Enterobacter sepsis) and one minor complication occurred. Conclusions. This work suggests that angiographic-occlusion-withsclerotherapy/embolotherapy-without-TIPS is relatively effective (~90% hemostasis-rate), and relatively safe (3% major-complication-rate). This therapy may be a useful treatment option for duodenal varices when endoscopic therapy fails and TIPS is relatively contraindicated.

Copelan A, Remer EM, Sands M, **Nghiem H** and Kapoor B (2015). "Diagnosis and management of Budd Chiari Syndrome: An update." Cardiovascular and Interventional Radiology 38(1): 1-12.

[Full-Text](#)

*Department of Diagnostic Radiology and Molecular Imaging*

Imaging plays a crucial role in the early detection and assessment of the extent of disease in Budd Chiari syndrome (BCS). Early diagnosis and intervention to mitigate hepatic congestion is vital to restoring hepatic function and alleviating portal hypertension. Interventional radiology serves a key role in the management of these patients. The interventionist should be knowledgeable of the clinical presentation as well as key imaging findings, which often dictate the approach to treatment. This article concisely reviews the etiology, pathophysiology, and clinical presentation of BCS and provides a detailed description of imaging and treatment options, particularly interventional management.

Deneke T, Jais P, Scaglione M, Schmitt R, Biase LD, Christopoulos G, Schade A, Mügge A, Bansmann M, Nentwich K, Müller P, Roos M, Halbfass P, Natale A, Gaita F and **Haines D** (2015). "Silent cerebral events/lesions related to atrial fibrillation ablation: A clinical review." Journal of Cardiovascular Electrophysiology 26(4): 455-463.

[Full-Text](#)

*Department of Internal Medicine*

Silent Cerebral Events/Lesions Related to AF Ablation: Brain magnetic resonance imaging (MRI) has identified a high incidence of cerebral ischemia in asymptomatic patients after atrial fibrillation (AF) ablation (silent). Detection of cerebral ischemic events on MRI is based on acute hyperintense lesions on diffusion-weighted

imaging. In the literature, the incidence is related to specifications of MRI and depends on the definition applied. In comparative studies, silent cerebral events (SCE, diffusion-weighted MRI [DWI] positive only) appear to be approximately 3 times more common compared to using a definition of silent cerebral lesions (SCL; without fluid attenuated inverse recovery sequence [FLAIR] positivity). Whereas the FLAIR sequence may turn positive within days after the ischemic event, SCE definition is highly sensitive for early phases of ischemic brain damage. SCE/SCL appear to represent cerebral ischemic infarcts and determine the "embolic fingerprint" of a specific ablation technology and strategy used. The optimum time point for detecting SCE is early after AF ablation (24-72 hours), whereas detection of SCL can only be performed within the first 2-7 days (due to delay of FLAIR positivity). Different technology-, procedure-, and patient-related parameters have been identified to play a role in the multifactorial genesis of SCE/SCL. In recent years, evidence has been gathered that there may be differences of SCE/SCL rates depending upon the ablation technology used, but small patient numbers and a large number of potential confounders hamper all studies. As major findings of recent studies, mode of periprocedural and intraprocedural anticoagulation has been identified as a major predictor for incidences of SCE/SCL. Whereas procedural characteristics related to higher SCE/SCL-rates may be modified, unchangeable patient-related factors should be taken into account for future individualized risk assessment. Novel ablation devices introduced into the market should be tested for their potential embolic fingerprint and refinements of ablation procedures to reduce their embolic potential should be prompted. The knowledge of "best practice" in terms of low SCE/SCL rates has prompted changes in work-flow, which have been implemented into ablation procedures using novel ablation devices. So far, no study has linked SCE/SCL to neuropsychological decline and the low number of AF-ablation-associated events needs to be weighted against the multitude of preexisting asymptomatic MRI-detected brain lesions related to the course of AF itself. Future studies are needed to evaluate if more white matter hyperintensities due to AF may be prevented by AF ablation (producing only a small number of SCE/SCL). © 2015 Wiley Periodicals, Inc.

Deutsch L, Paternoster R, Putman K, Fales W and **Swor R** (2015). "Care for cardiac arrest on golf courses: Still not up to par?" *Prehospital Emergency Care* 19(1): 31-35.

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*Department of Emergency Medicine*

Methods. We performed a retrospective study of CA on Michigan golf courses from 2010 to 2012. Cases were identified from the Michigan EMS Information (MI-EMSIS) database. Cases with "golf" or "country club" were manually reviewed and location type was confirmed using Google Maps. We conducted a structured telephone survey capturing demographics, course preparedness, including CPR training and AED placement, and a description of events, including whether CPR was performed and if an AED was used. Our primary area of interest was the process of care. We also recorded return of spontaneous circulation (ROSC) as an outcome measure. EMS Utstein data were collected from MI-EMSIS. Descriptive data are presented. Results. During the study period, there were 14,666 CAs, of which 40 (0.18%) occurred on 39 golf courses (1 arrest/64 courses/year). Of these, 38 occurred between May and October, yielding a rate of 1 arrest/33.5 courses/golf season. Almost all (96.2%) patients were male, mean age 66.3 (range 45-85), 68% had VT/VF, and 7 arrested after EMS arrival. Mean interval from 9-1-1 call to EMS arrival at the patient was 9:45 minutes (range 3-20). Of all cases, 24 (72.3%) patients received CPR with 2 patients having CPR performed by course staff. Although AEDs were available at 9 (22.5%) courses, they were only placed on 2 patients prior to EMS arrival. Sustained ROSC was obtained in 12 (30.0%) patients. Only 7, (17.9%) courses required CPR/AED training of staff. Conclusion. When seasonally adjusted, the rate of cardiac arrest on Michigan golf courses is similar to that of other public locations. AED use was rare even when available. Preparedness for and response during a CA is suboptimal. Despite more than a decade of advocacy, response to golf course cardiac arrest is still not up to par. Introduction. Early CPR and use of automated external defibrillators (AEDs) have been shown to improve cardiac arrest (CA) outcomes. Placement of AEDs on golf courses has been advocated for more than a decade, with many trade golf publications calling for their use. Objective. To describe the incidence and treatment of CAs at Michigan golf courses and assess the response readiness of their staff.

**Diffenderfer LE, Shah P and Bahl A** (2015). "Abdominal aortic aneurysm screening for high-risk cardiac patients in the emergency department." Journal of Emergency Medicine, Trauma and Acute Care 2015(2): 1-6.

[Request Form](#)

*OUWB Medical Student Author*

*Department of Biomedical Sciences (BHS)*

*Department of Emergency Medicine*

Background: The prevalence of abdominal aortic aneurysm (AAA) is 1-2 percent in the general population, and is as high as 6 percent in groups with risk factors. Objectives: The aim of this study was to determine the prevalence of AAA amongst high-risk cardiac patients in the emergency department (ED). Methods: A prospective study was conducted to evaluate the prevalence of AAA in a high-risk population presenting to the ED. Inclusion criteria included male gender, Caucasian race, age over 50 years, history of smoking, and presentation to the ED with chest pain requiring admission. Patients enrolled in the study were screened for AAA by ultrasound (US) scan. Study subjects were excluded if there was inadequate imaging. Results: One hundred and nine patients were recruited into the study. Nineteen patients were excluded by the ED US Director secondary to inadequate imaging. Of the remaining 90 patients, eight patients were found to have AAA (n= 8; 8.9%; CI 3.9 - 16.8%). Of the eight patients with an AAA, four had diagnosed cardiovascular disease during their hospital admission. There was no statistically significant difference in secondary risk factors such as hypertension, diabetes, dyslipidemia or previous history of coronary artery disease between those with AAA and those without AAA. Conclusions: This study found that in a single ED, the prevalence of AAA in high-risk cardiac patients admitted to rule out acute coronary syndrome who could be adequately visualized with ultrasound was over 8 percent. With such a high prevalence, this population could be a potential screening group.

Divatia M, **Smith S**, Colecchia M, Aron M, Amin M, Shen S, Hansel D, Tamboli P, Paner G, De Peralta-Venturina M, Hernandez LH, Gown A and Amin M (2015). "Diagnostic utility of a comprehensive immunohistochemical (IHC) panel for testicular sex cord stromal tumors (TSCST): A study of 76 cases." Laboratory Investigation 95: 216A.

[Full-Text](#)

*Department of Emergency Medicine*

Background: TSCSTs exhibit a wide range of morphologic patterns which may be simulated by overlap with germ cell tumors, paratesticular neoplasms, and metastatic tumors. Several novel markers, including transcription factors involved in adrenal and gonadal development, Forkhead Box L2 (FOXL2), steroidogenic factor-1 (SF-1) and beta-catenin protein have been evaluated in ovarian SCSTs. These promising markers have not been studied in a large cohort of TSCSTs and in conjunction with traditionally used markers. Design: 76 SCSTs were evaluated by SF-1, Beta-catenin, FOXL2, inhibin, calretinin, cytokeratin (OSCAR), WT-1, synaptophysin, S-100, CD99 and Melan-A. Results: IHC profiles (%) are summarized in Table 1. Conclusions: SF-1 is the most sensitive marker amongst the common types of TSCSTs. Among traditional markers, inhibin, calretinin and Melan A offer overall similar sensitivity, although calretinin lacks specificity considering the tumors in the differential diagnosis at this site. A combination of SF-1, inhibin and Melan A or calretinin as a first line IHC panel provides maximum sensitivity identifying > 80% of TSCSTs. (Table Presented).

Divatia M, **Smith S**, Hes O, Epstein J, McKenney J, Salles PG, Rao P, Kunju LP, da Cunha IW, Schultz L, Colecchia M, Hirsch M, Comperat E, Zampini C, de Peralta-Venturina M, **Amin M, Zhang P**, McHugh J, Mehra R, Tomlins S and Amin M (2015). "Refining the diagnostic criteria and immunophenotype of Collecting Duct Carcinoma (CDC) in light of emerging entities." Modern Pathology 28: 216A-217A.

[Full-Text](#)

*Department of Emergency Medicine*

*Department of Pathology*

Divatia M, **Smith S**, Hes O, Epstein J, McKenney J, Salles PG, Rao P, Kunju LP, Da Cunha IW, Schultz L, Colecchia M, Hirsch M, Comperat E, Zampini C, De Peralta-Venturina M, **Amin M, Zhang P**, McHugh J, Mehra R, Tomlins S and Amin M (2015). "Refining the diagnostic criteria and immunophenotype of Collecting Duct Carcinoma (CDC) in light of emerging entities." Laboratory Investigation 95: 216A-217A.

[Full-Text](#)

*Department of Emergency Medicine*

*Department of Pathology*

Background: The recent ISUP classification for Renal Cell Carcinoma (RCC) requires a CDC to involve the collecting system; show predominant glandular formation with a desmoplastic stromal reaction; exhibit high-grade cytologic features; and show an infiltrative growth pattern. It is essential to rule out urothelial carcinoma, metastatic carcinoma, and other RCC subtypes simulating CDC, specifically renal medullary carcinoma (RMC) and tubulocystic carcinomas with dedifferentiated foci resembling CDC (TC-D). Additionally, recent studies suggest that fumarate hydratase (FH)-deficient RCCs are often classified as CDC. Design: 36 CDCs, 24 RMCs and 14 TC-Ds were analyzed by a panel of IHC markers. Results: Greater than 90% of all 3 tumor types were PAX8 and S100A1 (+). IHC profiles are summarized as (%) in Table 1. RMC was easily excluded by loss of INI1 or induction of OCT3/4, while TC-D subsets shared RCC, CAIX, and hKim1 with CDC. Intriguingly, similar to TC-D, 5 of 36 cases otherwise designated as CDC showed FH loss, prompting workup for HLRCC or FH-deficient carcinoma. Conclusions: 1. The vast majority of high-grade distal nephron-related adenocarcinomas express PAX8/S100A1, and are frequently RCC (-). 2. In the light of expanding morphologic spectrum of these tumors and promising new IHC markers, we suggest that the ISUP CDC diagnostic approach should be revised to recommend, in the appropriate clinical and morphologic contexts, exclusion of RMC [INI1 (-)/Oct 3/4 (+)] and FH deficient RCC [FH (-)] before definitive diagnosis of CDC. (Table Presented).

Doherty AN and **Khandhar PB** (2015). "Propofol-associated priapism in a pediatric patient." *Journal of Pharmacy Technology* 31(2): 91-93.

[Full-Text](#)

*Department of Pediatrics*

DomBourian M, Ezhuthachan A, **Kohn A, Berman B and Sykes E** (2015). "A 5-hour-old male neonate with cyanosis." *Laboratory Medicine* 46(1): 60-63.

[Full-Text](#)

*Department of Pediatrics*

*Department of Pathology*

Methemoglobin (MetHb) is a form of hemoglobin in which heme iron is oxidized and unable to bind oxygen; its normal basal production is counteracted by an efficient MetHb-reduction pathway. The causes of methemoglobinemia are classified as congenital or acquired. Shortly after his birth, the 5-hour-old male Caucasian neonate, whose case we present herein, developed central cyanosis that was unresponsive to supplemental oxygen. Oxygen saturation as determined via pulse oximetry was normal. In contrast, blood gas testing by multiwave CO-oximetry indicated decreased fractional oxyhemoglobin and an elevated MetHb fraction. The patient was subsequently diagnosed with a congenital cytochrome b5 reductase deficiency. This case emphasizes causes of methemoglobinemia and differences among analytical methods used to measure oxygen status when MetHb is present.

Dove-Medows E, Gupta P, Ehlert M, **Bartley J, Gilleran J, Tomakowsky J, Diaz M, Carrico D, Sirls LT and Peters KM** (2015). "Association of pelvic floor myofascial trigger points psychological distress and urologic dysfunction in women with pelvic pain." *Neurourology and Urodynamics* 34: S32-S33.

[Full-Text](#)

*Department of Urology*

Introduction: Myofascial trigger points of the pelvic floor can be present in women with pelvic pain and are an indication of pelvic floor hypertonicity. The aim of this study is to explore the relationship among trigger points, pelvic pain, urologic dysfunction, anxiety and depression. Methods: Retrospective chart review of patients presenting to a multidisciplinary women's urology center between July 2012 and December 2013. Women completed patient history questionnaires including the Overactive Bladder Questionnaire (OAB-q), Pelvic Floor Distress Inventory (PFDI), Generalized Anxiety Disorder-7 (GAD), and the Patient Health Questionnaire-8 (PHQ-8), which assesses depression. Women had a one-on-one interview and pelvic exam

with a clinician during which trigger points were identified. Women were categorized by the presence or absence of trigger points and if present, bilateral or unilateral trigger points were identified. Results: 324 out of 382 women had complete questionnaires and physical exams. 231 women reported that they had urogenital pain, dyspareunia or both. Of this group, 118/231 had trigger points while 113/231 did not. In patients with urogenital pain and trigger points, 51/107 had bilateral trigger points. Women with missing data were omitted from the analysis. Women with trigger points had more pelvic floor symptoms (Table 1). The number of trigger points was not associated with OAB6 ( $\rho=0.4$ ), OAB13 ( $\rho=0.02$ ) or PFDI ( $\rho=0.12$ ). Women with bilateral trigger points had more colorectal distress (CRADI) than patients with unilateral trigger points ( $p=0.035$ ). Women with trigger points did not have increased urinary or psychological symptoms compared to women without trigger points. Conclusion: Pelvic trigger points are associated with a higher level of pelvic symptom bother as measured by higher PFDI score in women with pain and/or dyspareunia. Women with trigger points do not have more urinary symptoms, depression, or anxiety. The presence of bilateral trigger points is associated with more colorectal symptom burden than unilateral trigger points. (Table Presented).

Ehlert M, Gupta P, Dove-Medows E, **Sirls LT**, Carrico D, Tomakowsky J, Diaz M, **Gillera J**, **Bartley J** and **Peters KM** (2015). "Relationship among pelvic floor tone, voiding complaints, and pelvic floor distress in women with urogenital pain." *Neurourology and Urodynamics* 34: S32.

[Full-Text](#)

*Department of Urology*

Introduction: Women presenting with urogenital pain often have lower urinary tract symptoms (LUTS). Pelvic floor dysfunction and hypertonicity is thought to contribute to these symptoms. Physical therapy and myofascial release are effective for both conditions, suggesting a common underlying pathophysiology. We aim to investigate the association among pelvic floor tone, LUTS, and pelvic organ distress. Methods: Retrospective review of consecutive new patients presenting to a multidisciplinary women's urology center reporting urogenital pain  $>0/10$  on a numeric rating scale. Analyzed variables include patient social and medical history, voiding and pelvic symptoms including Overactive Bladder Questionnaire (OABq), Pelvic Floor Distress Inventory (PFDI-20) and physical exam findings. Levator muscles were assessed vaginally by palpation and pain rated by the patient on 0-10 scale on both right and left sides. Association between mean distress measures and mean scores was assessed using the Pearson correlation coefficient. Results: 182 women had valid exam, OABq and PFDI-20 scores. 91/182 (50%) of women with reported urogenital pain had no tenderness on levator exam. There was a weak association with increasing mean levator scores and PFDI total score. A mean levator score (greater than or equal to 4) predicted a PFDI score  $>100$  with 60.4% sensitivity and 68.7% specificity. PFDI sub-domains of urinary, colorectal-anal and pelvic floor also increased with higher mean levator scores. Interestingly, urinary symptoms and health related quality of life (HRQOL) as measured by the OABq were significantly increased with higher levator scores ( $\rho=0.57$ ,  $p<0.01$  and  $0.47$ ,  $p<0.04$ , respectively) Figure 1. Conclusion: Half of women with urogenital pain do not have pelvic floor hypertonicity. Increasing pelvic floor tone leads to more pelvic floor distress. Increasing levator muscle tenderness is moderately associated with worsening LUTS and quality of life. (Figure Presented).

Ehlert M, Killinger KA, **Boura JA**, **Gillera J**, Gupta P, Wolfert C, **Bartley J** and **Peters KM** (2015). "The impact of baseline functional bladder capacity on neuromodulation outcomes." *Neurourology and Urodynamics* 34: S27.

[Full-Text](#)

*Department of Biomedical Sciences (BHS)*

*Department of Urology*

Introduction: Some have hypothesized that patients with lower functional bladder capacity (FBC) experience less improvement in symptoms after staged neuromodulation procedures. Therefore, we evaluated the impact of baseline FBC on generator implant rate and symptom changes. Methods: Adults enrolled in our prospective observational neuromodulation study were evaluated. Functional bladder capacity (FBC) was defined as average volume per void on three day voiding diary. Data were collected from medical records, and validated Interstitial Cystitis Symptom/Problem Indices (ICSI-PI) and Overactive Bladder Questionnaire (OABq) symptom severity and health related quality of life (HRQOL) domains, and examined with descriptive

statistics, Wilcoxon rank sum tests, logistic regression, and Spearman Correlation Coefficients. Results: Of 242 patients (mean age 59.1 (plus or minus) 16.8 years; 84% female), most had urinary urgency/frequency with or without urge incontinence (62%) and a sacral lead placed (81%); 19% had the lead placed at the pudendal nerve. Mean FBC at baseline was 156.5 (plus or minus) 96.6ml. 223/242 (92%) had (greater-than or equal to) 50% improvement in overall symptoms after lead placement with subsequent generator implant. Baseline FBC was similar between implanted/not implanted patients ( $p=0.25$ ), however implanted patients had a median 20.7% increase in FBC after lead placement compared to explanted patients whose FBC decreased by median 2.7% ( $p=0.005$ ). Logistic regression identified a strong relationship between percent change in FBC after lead placement and generator implant ( $p=0.0058$ ) but there was no relationship between baseline FBC (ml) and subsequent generator implant. At three months, a lower preimplant FBC weakly predicted a greater improvement in OAB-q HRQOL from baseline ( $p=0.035$ ;  $r=-0.23$ ). FBC (ml) at baseline, or percent change in FBC after lead placement, had no relationship with achieving at least 50% improvement in ICSIPI or OAB-q symptom severity scores at three months. Conclusion: Lower baseline FBC should not be a contraindication to neuromodulation since there was no impact on outcomes. Improved FBC after lead placement may have contributed to overall improvements in symptoms leading to generator implant. Improvement in FBC was equal to or greater than that seen in medical treatment trials for OAB.

Ehlert M, **Odom B, Cholyway R**, Killinger KA, Gupta P, **Boura J** and **Sirls LT** (2015). "Clinical and cost comparison of two trial of void methods: After outpatient mid urethral sling placement." Neurourology and Urodynamics 34: S95-S96.

[Full-Text](#)

*OUWB Medical Student Author*

*Department of Biomedical Sciences (BHS)*

*Department of Urology*

Introduction: Women with stress urinary incontinence (SUI) may undergo an outpatient mid urethral sling (MUS) placement to improve their SUI. One risk of this procedure is postoperative urinary retention. Prior to discharge, a trial of void (TOV) is performed by one of two methods: retrograde fill just prior to foley removal in the recovery room, or bladder instillation and removal of foley in the operating room (OR fill). Previous studies have shown higher rates of TOV success and greater patient satisfaction with retrograde instillation method. Our aim was to compare successful voids, time in recovery, and costs (recovery room and total) between these two methods. Methods: A retrospective chart review was performed on successive patients that underwent an outpatient MUS between January 2013 and April 2014 by 3 urologists. Women that had concomitant prolapse repair, hysterectomy, or other surgical procedure deemed to prolong recovery room stay, or bladder/urethral injury during MUS placement were excluded. Intraoperative, postoperative, and cost data were collected and analyzed with Fishers Exact and Wilcoxon rank sum tests. Results: 93 of 183 women (mean age 56.1 (plus or minus) 12 years; mean BMI 28.9 (plus or minus) 5.9) met inclusion criteria. 43 (46%) had a retrograde TOV with median fill amount of 250 cc, and 50 (54%) had an OR fill (median fill amount 200 cc); age and BMI were similar between groups. Most patients in the retrograde group (81%) and all patients in the OR fill group had a transobturator sling placed. Median operative time was longer in the retrograde group (22 vs. 15.5 minutes;  $p=0.003$ ). The retrograde fill cohort had a longer overall mean length of stay (5.55 (plus or minus) 1.5 vs. 4.96 (plus or minus) 1.5 hours;  $p=0.041$ ) and higher median indirect costs (\$1136 vs. \$1090;  $p = 0.043$ ). The retrograde fill and OR fill groups did not differ in TOV failure rate (6/43 vs. 4/50;  $p=0.50$ ), median recovery room costs (\$697 vs. \$627;  $p = 0.51$ ), median direct costs (\$2531 vs. \$2544;  $p = 0.69$ ), or median total costs (\$3661 vs. \$3584;  $p = 0.41$ ). No patient had urinary retention requiring catheter reinsertion after successful trial of void. Conclusion: Both TOV methods achieved similar clinical outcomes. The OR fill group had lower indirect costs, which may be attributable to shorter OR time and LOS.

Ehlert M, **Park J** and **Sirls LT** (2015). "Detailed cost analysis of robotic sacrocolpopexy compared to trans-vaginal mesh repair." Neurourology and Urodynamics 34: S37.

[Full-Text](#)

*OUWB Medical Student Author*

*Department of Urology*

Introduction: Containing healthcare costs is a primary goal of health care reform. Publications have focused on models and reimbursement tables to approximate the cost of treatments. Studies comparing the true costs of surgical pelvic organ prolapse repairs are lacking. We report an evaluation of the hospital realized cost difference between transvaginal mesh prolapse repair and robot-assisted sacrocolpopexy. Methods: Consecutive transvaginal mesh prolapse surgery and robot assisted sacrocolpopexy cases from Jan. 2012 to Dec. 2013 were evaluated. Patient clinical and operative data, including operative time, additional vaginal repairs, mid-urethral sling, and hysterectomy were recorded. The total institutional costs (direct and indirect) for each procedure were obtained and subcategorized by area (recovery room, operative cost, anesthesia, in-patient stay, labs, surgical supplies). Independent samples t test and Chi squared analysis were performed. Results: 120 women underwent trans-vaginal mesh repair, 106 underwent robotic sacrocolpopexy. BMI was similar between groups (28.1 vs. 27.5) as was mid-urethral sling placement (50% vs. 59%). Robotic patients were younger (61 vs. 67 yrs.,  $p < 0.001$ ) and more likely to undergo concomitant hysterectomy (58.5% vs. 26.7%). There were similar rates for additional compartment repairs. Amortized costs for robotic purchase and maintenance were included with all depreciated equipment and realized by all patients undergoing surgery at the institution. Overall mean robotic operative time was longer with and without hysterectomy (279 min vs. 174 min,  $p < 0.001$  and 201 min vs. 91 min,  $p < .001$ ). Average total costs were higher with robotic technique (\$9675.7 vs. \$6718.92,  $p < 0.001$ ), primarily driven by anesthesia (\$1141 vs. \$675,  $P < 0.001$ ) and operative (\$6883 vs. \$4487,  $p < 0.001$ ) costs. No differences for total costs were seen in laboratory fees, recovery room, or inpatient nursing. Robotic approach was also significantly more costly for those undergoing concomitant hysterectomy (\$12482 vs. \$9821,  $p < 0.001$ ), again driven by anesthesia and operative costs (\$3405 more combined). Conclusion: Trans-vaginal prolapse repair is less costly than robotic sacrocolpopexy, mainly due to lower anesthesia and intra-operative costs. Length of surgery and additional robotic supplies drive the majority of increased operative costs. Costs attributed to robot purchase and maintenance does not uniquely factor into the procedure costs.

Ehlert M, **Washington T**, Bajwa A, **Cholyway R**, Killinger KA, **Ellis B** and **Peters KM** (2015). "Lead position during pudendal neuromodulation: A radiographic assessment." *Neurourology and Urodynamics* 34: S28.

[Full-Text](#)

*OUWB Medical Student Author*

*Department of Diagnostic Radiology and Molecular Imaging*

*Department of Urology*

Introduction: Neuromodulation has been approved for the treatment of overactive bladder symptoms, urinary retention, and fecal incontinence. Placement of the lead at the pudendal nerve has shown efficacy for those who fail sacral neuromodulation. To date there has been no standardized location for optimal pudendal lead placement. We aim to categorize lead location in a large series of pudendal neuromodulation patients. Methods: Retrospective review of patient charts undergoing pudendal lead placement between 2004-2013 for sacral neuromodulation at our institution. All leads were placed with operative EMG monitoring. Intra-operative fluoroscopy images and pelvic plain film radiographs showing leads were examined. Posterior-anterior imaging measurements were taken from lead-tip to the pelvic sidewall, and pubic tuberosity, as well as lead angle from vertical. Additional corrections for image rotation and magnification were recorded. Lateral measurements from lead-tip to the sacrum posteriorly and cranially were taken. Group averages, standard deviations, and extremes were calculated. Results: 115/231 (49.7%) had images available for measurement. 67 had fluoroscopy images from the day of implant, and the remaining images were taken at a median of 6.5 months post-op. 74 leads were placed on the right, 41 on the left. There was considerable variation in lead placement, with distance from the pelvic sidewall varying from 0.25-5.65 cm (mean 2.7cm +/-1.03). Lead depth as measured from the pubic tubercle varied from -9.7 cm below to 5.1 cm cephalad (mean -1.6 cm +/-2.31). Most leads were angled toward to sidewall (mean 11.7 degrees +/- 10). Only 86 patients had images adequate for lateral measurements. Mean distances to the sacrum were 4.9cm +/-1.7 posteriorly and 9cm +/- 2.9 cephalad. Conclusion: Pudendal lead placement location for sacral Neuromodulation varies considerably. Without definite landmarks, intra-operative EMG monitoring confirming stimulation of the nerve is required. Correlation with lead voltages and outcomes is needed to assess for optimal positioning. (Figure Presented).

Ellis K, Marlin JW, **Taylor TA**, Fitting S, Hauser KF, Rice G and McRae M (2015). "The effects of human immunodeficiency virus infection on the expression of the drug efflux proteins P-glycoprotein and breast cancer resistance protein in a human intestine model." Journal of Pharmacy and Pharmacology 67(2): 178-188.

[Full-Text](#)

*Department of Biomedical Sciences (OU)*

OBJECTIVES: In human immunodeficiency virus (HIV) infection, decreased penetration of antiretroviral drugs is postulated to contribute to HIV persistence within lymphoid-rich regions of the gastrointestinal (GI) tract. However, mechanistic explanations for this phenomenon remain unclear. Specifically, investigations of HIV effects on drug efflux proteins within intestinal models are minimal. METHODS: Using an in-vitro co-culture model of the GI tract, the effects of HIV infection on drug efflux proteins, P-glycoprotein and breast cancer resistance protein (BCRP) were evaluated. The influence of the HIV-1 protein, Tat, and oxidative stress on P-glycoprotein and BCRP was also evaluated. KEY FINDINGS: P-glycoprotein expression demonstrated an HIV-induced upregulation in Caco-2 cells over time for cells grown in co-culture with resting lymphocytes. BCRP overall expression increased with HIV exposure in activated primary human lymphocytes co-cultured with Caco-2 cells. Tat treatment resulted in no significant alterations in P-glycoprotein (43% increase), BCRP expression, or oxidative stress. CONCLUSIONS: HIV exposure within an in-vitro intestinal model resulted in increases in P-glycoprotein and BCRP in a cell-specific manner. Additionally, observed changes were not mediated by Tat. Collectively, these results suggest that alterations in BCRP and P-glycoprotein may contribute, in part, to decreased antiretroviral concentrations within the gut-associated lymphoid tissue of the GI tract in HIV infection.

Fawole A, Abonour R, **Stender M**, Shatavi S, **Gaikazian S**, Anderson J and **Jaiyesimi I** (2015). "Is it time for preemptive drug treatment of asymptomatic (smoldering) multiple myeloma?" Leukemia and Lymphoma 56(1): 34-41.

[Request Form](#)

*Department of Internal Medicine*

Asymptomatic (smoldering) multiple myeloma is a heterogeneous plasma cell proliferative disorder with a variable rate of progression to active multiple myeloma or related disorders. Hypercalcemia, renal insufficiency, anemia, bone lesions or recurrent bacterial infections characterize active multiple myeloma. Some patients with asymptomatic myeloma develop active disease rapidly, and others can stay asymptomatic for many years. Those who are likely to progress within the first 2 years of diagnosis have been categorized as having high-risk disease. The availability of novel agents in the treatment of active multiple myeloma and our better understanding of the heterogeneity of asymptomatic multiple myeloma have spurred interest in the early treatment of these patients. We have reviewed the current proposed definitions of high-risk asymptomatic multiple myeloma, the concerns about future therapy in view of the transient nature, remissions and toxicities of the therapies, and the eventual relapses that characterize this incurable disease.

**Fletcher CH**, Dombourian MG and **Millward PA** (2015). "Platelet transfusion for patients with cancer." Cancer Control 22(1): 47-51.

[Request Form](#)

*Department of Pathology*

Background: Platelet transfusion is a critical and often necessary aspect of managing cancer. Low platelet counts frequently lead to bleeding complications; however, the drugs used to combat malignancy commonly lead to decreased production and destruction of the very cell whose function is essential to stop bleeding. The transfusion of allogeneic platelet products helps to promote hemostasis, but alloimmunization may make it difficult to manage other complications associated with cancer. Methods: The literature relating to platelet transfusion in patients with cancer was reviewed. Results: Platelet storage, dosing, transfusion indications, and transfusion response are essential topics for health care professionals to understand because many patients with cancer will require platelet transfusions during the course of treatment. The workup and differentiation of nonnullimmune-mediated compared with immune-mediated platelet refractoriness are vital because platelet management is different between types of refractoriness.

Conclusions: A combination of appropriate utilization of platelet inventory and laboratory testing coupled with communication between those caring for patients with cancer and those providing blood products is essential for effective patient care.

**Folberg R** (2015). "The eye," In Kumar V, Abbas AK and Aster JC (ed). Robbins and Cotran Pathologic Basis of Disease Philadelphia, PA: Saunders. pp: 1319-1343.

[Full-Text](#)

*Administration*

Fong A, Quant C, Chau C, Pan D and **Ogunyemi D** (2015). "Multiple sclerosis: Prevalence, sociodemographic features, and antenatal/peripartum outcomes." American Journal of Obstetrics and Gynecology 212(1): S76-S77.

[Full-Text](#)

*Department of Obstetrics and Gynecology*

OBJECTIVE: To describe the prevalence, sociodemographic features, and antenatal/peripartum outcomes of multiple sclerosis (MS) in pregnancy. STUDY DESIGN: A retrospective cohort study was performed using California discharge data. All deliveries from 2001-2009 were analyzed. Cases of MS as well as other obstetric morbidities were identified via ICD-9-CM code. Logistic regression was performed to adjust for potential confounders. RESULTS: 1,185 out of 4,424,049 deliveries were complicated by MS - a prevalence of 1 in 3,745 deliveries. MS prevalence increased with maternal age, from 0.2/10,000 in subjects age <19 to 6.9/10,000 in those age >40. Caucasians comprised 61.6% of all MS patients compared to 32.1% of the baseline population. MS subjects were older (32.0 vs. 27.6 years old) and more likely to have private insurance (77.1% vs. 49.1%). Women with MS were more likely to have preexisting medical conditions such as asthma (OR 2.3, 95% CI 1.7-3.1), chronic hypertension (OR 6.8, 95%CI 3.2-14.3), thyroid disease (OR 3.2, 95%CI 2.5-4.3), and cardiac disease (OR 2.3, 95%CI 1.5-3.7). In contrast, none of the following antepartum/ peripartum morbidities were found to be increased in patients with MS: gestational diabetes, preeclampsia/eclampsia, preterm rupture of membranes, fetal growth restriction, oligohydramnios, abruption, placenta previa, operative vaginal delivery, shoulder dystocia, chorioamnionitis, endometritis, or postpartum hemorrhage. Cesarean delivery (38.1% vs 28.9%, OR 1.4, 95% CI 1.3-1.6) and induction of labor (OR 1.4, 95% CI 1.2-1.6) were the only outcomes increased in MS patients. CONCLUSION: MS is a rare condition that is more likely to affect older Caucasian women of higher socioeconomic status. It is associated with several pre-existing medical conditions. MS does not appear to adversely affect pregnancy outcome, except for a small increase in cesarean delivery and need for induction. Our results suggest that pregnant patients with MS have a reasonable chance of experiencing an uneventful pregnancy. (Figure Presented).

Francis JH, Pang CE, Abramson DH, Milman T, **Folberg R**, Mrejen S and Freund KB (2015). "Swept-source optical coherence tomography features of choroidal nevi." American Journal of Ophthalmology 159(1): 169-176.

[Full-Text](#)

*Administration*

Purpose To investigate the morphologic characteristics of choroidal nevi using swept-source optical coherence tomography and compare this with enhanced-depth optical coherence tomography. Design Retrospective observational case series. Methods One choroidal nevus each from 30 eyes of 30 patients was included and received imaging with swept-source OCT (SS-OCT) and enhanced-depth imaging OCT (EDI-OCT). For SS-OCT, a scan acquisition protocol was used involving 12 mm horizontal and vertical scans in the posterior fundus. The main outcome measures were morphologic features of choroidal nevi obtained with SS-OCT imaging. These features were compared to images obtained with EDI-OCT. A 2-tailed Fisher exact test was the statistical method used. Results SS-OCT allowed for an appreciation of intralésional details: Of the 30 nevi imaged, intralésional vessels were apparent in 30 (100%), intralésional cavities in 6 (20%), intralésional granularity in 14 (47%), abnormal choriocapillaris in 25 (83%), and abnormal choriocapillaris confined to the tumor apex in 17 (58%). Distended bordering vessels were identified in 22 nevi (73%) and were significantly associated with the presence of previous or persistent subretinal fluid. Intrinsic hyperreflectivity with hyporeflexive shadowing was significantly ( $P = .05$ ) more apparent in 14 of 21 melanotic nevi (67%) compared with 2 of 9 amelanotic nevi (22%). Visualization of the complete

nevus-scleral interface was significantly ( $P = .02$ ) more apparent in 7 of 9 amelanotic nevi (78%) compared with 6 of 21 melanotic nevi (29%), and was not significantly related to tumor thickness (measured by ultrasound) or to tumor configuration. Tumor diameter (but not tumor height) was statistically significantly associated with secondary retinal changes ( $P = .05$ ) and configuration ( $P = .01$ ). EDI-OCT was equivalent at determining secondary retinal changes ( $P = .29$ ), the presence of distended bordering vessels ( $P = 1$ ), visualization of the nevus-scleral interface ( $P = .6$ ), and hyporeflective gradation at the nevus-scleral interface ( $P = .33$ ). However, in melanotic lesions, SS-OCT was significantly superior at visualizing intralesional vessels ( $P = .0002$ ), intralesional granularity ( $P = .0005$ ), and abnormal choriocapillaris ( $P = .0001$ ). Conclusion Imaging of choroidal nevi with SS-OCT enables visualization of intralesional details such as vessels (present in 100% of tumors imaged), cavities, and granularity. For melanotic lesions, SS-OCT is significantly better at depicting certain intralesional characteristics compared to EDI-OCT. Distended bordering vessels were recognized in over two thirds of the nevi imaged and were significantly associated with previous or persistent subretinal fluid. © 2015 Elsevier Inc. ALL RIGHTS RESERVED.

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

[Full-Text](#)

*Department of Pediatrics*

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

Gebhard C, Fuchs TA, Stehli J, Gransar H, Berman DS, Budoff MJ, Achenbach S, Al-Mallah M, Andreini D, Cademartiri F, Callister TQ, Chang HJ, **Chinnaiyan KM**, Chow BJ, Cury RC, Delago A, Gomez MJ, Hadamitzky M, Hausleiter J, Hindoyan N, Feuchtner G, Kim YJ, Leipsic J, Lin FY, Maffei E, Pontone G, Raff G, Shaw LJ, Villines TC, Dunning AM, Min JK and Kaufmann PA (2015). "Coronary dominance and prognosis in patients undergoing coronary computed tomographic angiography: results from the CONFIRM (COronary CT Angiography EvaluationN For Clinical Outcomes: An InteRnational Multicenter) registry." European Heart Journal Cardiovascular Imaging. ePub Ahead of Print.

[Full-Text](#)

*Department of Internal Medicine*

**AIMS:** Coronary computed tomographic angiography (CCTA) has become an important tool for non-invasive diagnosis of coronary artery disease (CAD). Coronary dominance can be assessed by CCTA; however, the predictive value of coronary dominance is controversially discussed. The aim of this study was to evaluate the prevalence and prognosis of coronary dominance in a large prospective, international multicentre cohort of patients undergoing CCTA. **METHODS AND RESULTS:** The study population consisted of 6382 patients with or without CAD (47% females, 53% males, mean age 56.9 +/- 12.3 years) who underwent CCTA and were followed over a period of 60 months. Right or left coronary dominance was determined. Right dominance was present in 91% (n = 5817) and left in 9% (n = 565) of the study population. At the end of

follow-up, outcome in patients with obstructive CAD (>50% luminal stenosis) and right dominance was similar compared with patients with left dominance [hazard ratio (HR) 0.46, 95% CI 0.16-1.32, P = 0.15]. Furthermore, no differences were observed for the type of coronary dominance in patients with non-obstructive CAD (HR 0.95, 95% CI 0.41-2.21, P = 0.8962) or normal coronary arteries (HR 1.04, 95% CI 0.68-1.59, P = 0.9). Subgroup analysis in patients with left main disease revealed an elevated hazard of the combined endpoint for left dominance (HR 6.45, 95% CI 1.66-25.0, P = 0.007), but not for right dominance. CONCLUSION: In our study population, survival after 5 years of follow-up did not differ significantly between patients with left or right coronary dominance. Thus, assessment of coronary vessel dominance by CCTA may not enhance risk stratification in patients with normal coronary arteries or obstructive CAD, but may add prognostic information for specific subpopulations.

Georgiadis AG, Siegal DS, Scher CE and **Zaltz I** (2015). "Can femoral rotation be localized and quantified using standard CT measures?" Clinical Orthopaedics and Related Research 473(4): 1309-1314.

[Full-Text](#)

*Department of Orthopedic Surgery*

The terms "femoral anteversion" and "femoral torsion" have often been used interchangeably in the orthopaedic literature, yet they represent distinct anatomical entities. Anteversion refers to anterior tilt of the femoral neck, whereas torsion describes rotation of the femoral shaft. Together, these and other transverse plane differences describe what may be considered rotational deformities of the femur. Assessment of femoral rotation is now routinely measured by multiple axial CT methods. The most widely used radiographic technique (in which only two CT-derived axes are made, one through the femoral neck and one at the distal femoral condyles) may not accurately quantify proximal femoral anatomy nor allow identification of the anatomic locus of rotation. (1) What CT methodology (a two-axis CT-derived technique, a three-axis technique adding an intertrochanteric axis-the "Kim method," or a volumetric three-dimensional reconstruction of the proximal femur) most accurately quantifies transverse plane femoral morphology; (2) localizes those deformities; and (3) is most reproducible across different observers? We constructed a high-definition femoral sawbones model in which osteotomies were performed at either the intertrochanteric region or femoral shaft. Transverse plane deformity was randomly introduced and CT-derived rotational profiles were constructed using three different CT methods. Accuracy and consistency of measurements of femoral rotation were calculated using p values and Fisher's exact test and intraclass correlation coefficients (ICCs). All three CT methodologies accurately quantified overall transverse plane rotation (mean differences 0.69A degrees A A +/- A 3.88A degrees, 0.69A degrees A A +/- A 3.88A degrees, and -1.09A degrees A A +/- A 4.44A degrees for the two-plane, Kim, and volumetric methods, respectively). However, use of a single neck and single distal femoral axis does not reliably identify the anatomic locus of rotation, whereas the Kim and volumetric methods do (p < 0.0001). All three methods were highly reproducible between observers (ICCs of 0.9569, 0.9569, and 0.9359 for the traditional two-plane, Kim, and volumetric methods, respectively). Only the Kim and volumetric methods can identify the anatomic location of transverse plane rotation and we recommend using one of the two techniques. Accurate anatomic localization of transverse plane rotation enables using precise anatomic terminology ("femoral torsion" versus "femoral [ante]version"). Current descriptions and treatment of femoral rotational deformities do not discriminate the location of rotation. The transverse plane femoral rotation requires a precise definition based on its anatomic location to maintain consistent communication between clinicians, because version of the neck and torsion of the shaft may have different treatment.

**Gilleran J**, Killinger K, **Boura J**, Ehlert M, Gupta P, Wolfert C, **Bartley J** and **Peters K** (2015). "Differences between voltage threshold for motor response during stage 1 neuromodulation implant." Neurourology and Urodynamics 34: S27.

[Full-Text](#)

*Department of Urology*

*Department of Biomedical Sciences (BHS)*

Introduction: Sacral neuromodulation is performed as a staged implant using motor responses to identify the S3 nerve root. The voltage required for motor response is presumably higher than sensory response

while awake but has yet to be quantified. The objective of this study was to examine differences in voltage required for motor response during lead placement and sensory response at first postoperative programming session. Methods: A retrospective review of data from a prospective, longitudinal database on neuromodulation patients since 2003 was performed. Only unilateral S3 lead implants were included. The threshold (in volts) for levator bellows and/or toe dorsiflexion was recorded during lead placement and before final deployment. Data were categorized by the number of electrodes (1-2, 3, or 4) eliciting motor response and compared using Kruskal-Wallis tests. The voltage threshold for sensory response at the first postoperative programming session was recorded and compared to the threshold for motor response. Results: Of 532 patients who underwent lead placement under sedation, 244 had complete data for motor response on all four electrodes. Motor response was identified in 25 (11%) with 1-2 electrodes, 48 (20%) on three electrodes, and 171 (70%) on four electrodes and. At implant, patients with <4 active electrodes required higher mean voltages per electrode (See table). Mean time to first postoperative session was 13 days (0- 48). Mean voltages for sensory threshold at first postoperative programming were significantly lower (See table). Conclusion: Ability to obtain response all four electrodes is associated with lower voltage thresholds. The voltage required to elicit a motor response at time of staged implant is higher than that for sensory response, regardless of whether or not one is able to use all four electrodes or Identifying motor response may be limited by patient body habitus, exposure of the inner buttock or perineum, or sedation, accounting for higher voltages. It remains to be seen if intraoperative electromyography could better predict the sensory response postoperatively. (Table Presented).

**Gilleran J, Killinger K, Boura J, Ehlert M, Gupta P, Wolfert C, Bartley J and Peters K** (2015). "Obtaining sacral motor reflexes on <4 electrodes at time of stage 1 tined lead placement does not affect clinical outcome." Neurourology and Urodynamics 34: S89-S90.

[Full-Text](#)

*Department of Urology*

*Department of Biomedical Sciences (BHS)*

Introduction: Sacral neuromodulation for management of refractory urgency, frequency, and urge urinary incontinence involves surgical placement of a lead at the S3 nerve root and confirming placement by obtaining motor response on a quadripolar tined lead at time of placement. It is not clear whether obtaining response on all four electrodes is required to achieve short term or long-term success. We evaluated motor response after lead placement and its affect on short term and long-term outcomes. Methods: A retrospective review of a prospective neuromodulation database was performed to identify patients with unilateral S3 lead placement who demonstrated motor response (bellows and or great toe flexion) on stimulation of 1-4 electrodes. These were categorized as 1-2 (n=25), 3 (n=48) and 4 active electrodes (n=171) 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 Pearsons Chi-square, Fishers Exact, Kruskal-Wallis or Wilcoxon rank tests. Results: Of 532 patients, 244 met inclusion criteria, categorized into 1-2 (n=25), 3 (n=48), and 4 active electrodes (n=171). Successful stage 1 with generator implant at Stage II was seen in 84.0, 89.6, and 90.1% respectively for the 1-2, 3, and 4 active electrodes groups. There were no significant differences between groups in terms of age, indications for neuromodulation, or stage 1 success. Overall reoperation rates, including revisions at 24 months did not differ (p=0.72 and p=0.50). Mean reprogramming sessions at 2 years were higher, but not significantly different, in patients that had only 1-2 active leads at implant (2.8) compared to 2.1 and 2.0 in the 3 and 4 active leads groups, (p=0.5). Mean composite (total) ICSI-PI scores at baseline were 23, 24, and 22 (p=0.11) for the 1-2 active electrodes, 3, and 4 active electrodes groups respectively, and composite scores improved in all groups over 2 years (p<0.0001 for all). Conclusion: Motor response on 4 electrodes is not necessary for successful Stage 1 trial. Although the goal is to maximize the number of active electrodes during lead placement, two-year outcomes did not differ between groups. Thus, obtaining at least one functional electrode is needed for clinical success.

Goldin D, George D, Chen C, Guimaraes M, **Campbell J** and **Savin MA** (2015). "Incomplete yttrium-90 infusion and high residual radioactivity during radioembolization." Journal of Vascular and Interventional Radiology 26(2): S111.

[Full-Text](#)

*Department of Diagnostic Radiology and Molecular Imaging*

Purpose: Investigate the factors causing infusion stoppage and high residual radioactivity during the administration of yttrium-90 (Y90) microspheres. Materials and Methods: Retrospective analysis between July 2009 to June 2014 was performed of all radioembolization procedures at a single-institution including 310 Y90 infusions performed in 178 subjects with 1-4 infusions per subject. Treatment plans, slow flow infusion stoppage, and high residual radioactivity ((greater-than or equal to)20% not administered) were collected. Due to strong within-subject correlation, statistical analysis was performed only on the first observation per subject. The 3 most common cancer types were included. Pearson chi-square and Fisher's exact chi-square tests were used. Results: Stoppage due to slow flow occurred in 36/310 infusions of which 89% had (greater-than or equal to)20% residual radioactivity. Residual radioactivity of (greater-than or equal to)20% occurred in 34/310 infusions of which 94% had infusion stopped due to slow flow. There were 147 subjects for statistical analysis with hepatocellular (44%), colorectal (41%), and neuroendocrine (15%) neoplasms. Treatment was performed with resin microspheres in 76 of 147 subjects (51.7%) and the remaining with glass microspheres. High residual radioactivity of (greater-than or equal to)20% in 12 subjects occurred in the presence of slow flow infusion stoppage ( $p < .0001$ ) and only resin treatments ( $p = .0005$ ). Infusion stoppage due to slow flow occurred in 16 subjects of the resin microsphere type ( $p < .0001$ ). Initial results prompted a secondary multivariate analysis on resin treatments to predict slow flow and residual radioactivity. Conclusion: High residual radioactivity was significantly associated with slow flow stoppage and resin treatment.

**Goldstein JA** (2015). "Lipid-laden plaques: Lesions "at-risk" for distal embolization during PCI." Catheterization and Cardiovascular Interventions 85(1): 51-52.

[Full-Text](#)

*Department of Internal Medicine*

**Goldstein JA** (2015). "Orthopedic afflictions in the interventional laboratory: Tales from the working wounded." Journal of the American College of Cardiology 65(8): 827-829.

[Full-Text](#)

*Department of Internal Medicine*

**Goldstein JA** and **Dixon SR** (2015). "In-stent neoatherosclerosis and distal embolization: Lesion architecture, composition, and PCI compression." Catheterization and Cardiovascular Interventions 85(4): 573-574.

[Full-Text](#)

*Department of Internal Medicine*

Gottschalk MB, Yoon ST, **Park DK**, Rhee JM and Mitchell PM (2015). "Surgical training using three-dimensional simulation in placement of cervical lateral mass screws: A blinded randomized control trial." Spine Journal 15(1): 168-175.

[Full-Text](#)

*Department of Orthopedic Surgery*

BACKGROUND CONTEXT: The skills and knowledge that residents have to master has increased, yet the amount of hours that the residents are allowed to work has been reduced. There is a strong need to improve training techniques to compensate for these changes. One approach is to use simulation-training methods to shorten the learning curve for surgeons in training. PURPOSE: To analyze the effect of surgical training using three-dimensional (3D) simulation on the placement of lateral mass screws in the cervical spine on either cadavers or sawbones. STUDY DESIGN: A blinded randomized control study. METHODS: Fifteen orthopedic residents, postgraduate year (PGY) 1 to 6, were asked to simulate Magerl lateral mass screw trajectories from C3-C7 on cadavers using a navigated drill guide, but with no feedback as to the actual trajectory within the bone (Baseline 1). This was repeated to determine baseline accuracy (Baseline 2). They

were then randomized into three groups: Group 1, control, did not receive any training, whereas Groups 2 and 3 received 3D navigational feedback as to the intended drill trajectory on sawbones and cadavers, respectively. All three groups then performed final simulated drilling (final test). All 3D images were deidentified and reviewed by a blinded single fellowship-trained orthopedic spine surgeon. Each image/screw was measured for the starting site, caudad/cephalad angle, and medial/lateral angle to determine trajectory accuracy. RESULTS: The aggregate mean difference from a perfect screw was compiled for each session for each group. A negative difference shows improvement, whereas a positive difference shows regression. The difference between final test and Baseline 1 in the control group was 2.4 degrees, suggesting regression. In contrast, the differences for groups sawbone and cadaver were -8.2 degrees and -7.2 degrees, respectively, suggesting improvement. When comparing the difference in aggregate sum angle for the sawbones and cadaver groups with the control group, the difference was statistically significant ( $p < .0001$ ). CONCLUSIONS: Training with 3D navigation significantly improved the ability of orthopedic residents to properly drill simulated lateral mass screws. As such, training with 3D navigation may be a useful adjunct in resident surgical education.

Gupta P, Ehlert M, Dove-Medows E, **Bartley J, Gilleran J**, Tomakowsky J, Diaz M, Carrico D, **Sirls LT** and **Peters KM** (2015). "Characteristics of women presenting with urogenital pain and dyspareunia in a multidisciplinary urology clinic." *Neurourology and Urodynamics* 34: S66.

[Full-Text](#)

*Department of Urology*

Introduction: Pelvic pain is a complex condition with several intervening psychosocial and medical factors. The objective of this study is to compare characteristics between women presenting with pelvic pain and those without at a multidisciplinary womens urology center. Methods: A retrospective review was performed between July 2012 and December 2013 of women evaluated in a womens urology center including intake questionnaires on medical history, symptoms, and urogenital pain, self reported on a 0-10 scale. Patients reported the severity of levator muscle pain with palpation during vaginal examination by the clinician (left and right on a 0-10 scale). Patients were divided into subgroups of urogenital pain or dyspareunia. Statistical significance of differences between groups was assessed by t-test or Chisquare test for continuous and categorical variables respectively. Results: 324/380 of patients had complete information and were included. 207/324 reported urogenital pain >0 and 112/ 324 reported dyspareunia. Within the urogenital pain group 77/207 (37%) did not have dyspareunia, which allowed for examination of characteristics of each group. Women with urogenital pain were younger, had a restricted-diet, used less alcohol, were less likely to smoke, and were more likely to have a history of abuse than patients without pain. (Table 1) Women with urogenital pain reported less pad use, more daytime voids, greater emotional distress, and used more pain medications than the control group. Dyspareunia patients were more interested in discussing sexual health and had less satisfaction with sexual status. Both urogenital pain and dyspareunia patients were more likely to have a history of multiple pelvic surgeries and bilateral levator muscle pain >0 on examination compared to the controls. Conclusion: Patients with urogenital pain are younger and at presentation already employ more behavioral modification techniques. Dyspareunia patients are more interested in their sexual health. Both groups have had multiple pelvic surgeries and have levator muscle tenderness on examination. Patients with levator muscle tenderness should be strongly considered for pelvic floor physical therapy. (Table Presented).

Gupta P, Ehlert M, Killinger KA, **Boura JA, Gilleran J**, Wolfert C, **Bartley J** and **Peters KM** (2015). "Body mass index impacts reoperation rates but not overall outcomes of neuromodulation." *Neurourology and Urodynamics* 34: S57-S58.

[Full-Text](#)

*Department of Biomedical Sciences (BHS)*

*Department of Urology*

Introduction: Optimal tined lead placement during staged neuromodulation procedures may be influenced by body habitus. The objective of this study was explore the impact of body mass index (BMI) on short and long term outcomes of neuromodulation. Methods: Adults enrolled in our prospective observational neuromodulation study were evaluated. Records were reviewed for history/operative details, complications

and reoperations. Patients were grouped into BMI <30 and BMI (greater-than or equal to)30. Voiding diaries were collected at baseline, between stages, and at three, six, 12 and 24-months. Interstitial Cystitis Symptom/Problem Indices (ICSI-PI) and Global Response Assessments (GRA) at baseline and three, six, 12 and 24months assessed symptoms. Data were examined with Pearsons Chisquare, Fishers Exact, and Wilcoxon rank sum tests. Results: 546 patients (mean age 57.9 (plus or minus) 17 years; 83 female; 65% with overactive bladder with/without urinary incontinence) were evaluated. When BMI <30 (n=337) and BMI (greater-than or equal to)30 (n=209) groups were compared, the BMI <30 group had a lower proportion of females (p=0.001) and urological diagnoses were significantly different (p<0.0001); fewer patients had urge incontinence (38.6% vs. 68.4%), and more primarily had interstitial cystitis (26.4% vs. 12.0%). The prevalence of fecal incontinence or pelvic pain as a primary diagnosis did not differ. Both groups had similar operative times, rates of conversion to stage II implantation, and complications. Those in the BMI <30 group had more reoperations and/or explants (30.3% vs. 22 %; p=0.035) at median 456 vs. 577 days (p=0.84). Those with BMI <30 had significantly fewer incontinence episodes/day at preimplant, between stages, and 3, 6, 12, and 24 months. In this group, incontinence episodes decreased from mean 3.7 (plus or minus) 5.5 to 2.4 (plus or minus) 3.7 at two years compared to 5.3 (plus or minus) 4.9 to 3.2 (plus or minus) 3.3 in the BMI (greater-than or equal to)30. GRA and ICSI-PI responses at each time point were similar in both groups; the majority were moderately/markedly improved on the GRA and ICSI-PI scores improved significantly over two years (p<0.0001 for both groups). Conclusion: Patients with lower BMI had significantly more reoperations and/or explants, perhaps due to lead or generator problems, and less urge incontinence. Other outcomes were similar between groups.

Gupta P, Ehlert M, **Payne J**, Killinger KA, **Boura JA**, **Fischer M** and **Sirls LT** (2015). "The impact of comorbid chronic pain syndromes on sexual activity and dyspareunia after pelvic organ prolapse repair." Neurourology and Urodynamics 34: S34.

[Full-Text](#)

*OUWB Medical Student Author*

*Department of Biomedical Sciences (BHS)*

*Department of Urology*

Introduction: Some have suggested that women with coexisting chronic pain syndromes (CPS) have increased risk of dyspareunia after pelvic organ prolapse repair (POP), particularly with transvaginal mesh. We compared sexual activity and dyspareunia in women with and without a comorbid chronic pain syndrome after POP repair via an abdominal or transvaginal approach. Methods: Women enrolled in our prospective, longitudinal prolapse database that had surgical repair for POP between 12/ 19/2008 through 6/4/2014 were evaluated. Medical records were reviewed, and sexual activity and dyspareunia were assessed with the Pelvic Organ Prolapse/Urinary Incontinence (PISQ-12) preoperatively, and at six months, one and two years postoperatively. Data were analyzed with Pearsons Chi square, Fishers Exact, Wilcoxon rank sum tests, and repeated mixed measure analyses. Results: Of 300women, 192 (mean age 62.1 (plus or minus) 10.5 years, 95.1% caucasian) met inclusion criteria; 69/192 underwent an abdominal repair and 123/192 underwent transvaginal repair of POP. 58/192 (30%) had a CPS; four had interstitial cystitis/ bladder pain syndrome, three had irritable bowel syndrome, two had fibromyalgia, nine had migraines and 42 had arthritis. Preoperatively, less patients with CPS were sexually active (21/ 56 vs. 72/134; p=0.041) but similar proportions in each group reported any dyspareunia. Similar proportions in the CPS vs. no CPS groups had transvaginal mesh placed (27/42 vs. 56/81; p=0.59). Postoperatively, the proportions of women in the CPS vs. no CPS groups that reported being sexually active at six months, and one and two years were not significantly different. The numbers of women providing data decreased over time. Women with CPS had increased incidence of dyspareunia at six months (13/18 vs. 19/55; p=0.032), one year (10/13 vs. 13/43; p=0.017), and two years (7/11 vs. 3/20; p=0.019) compared to women with no CPS. PISQ scores significantly improved in patients without CPS (p<0.0001). Conclusion: Women with comorbid chronic pain syndromes may be at increased risk for dyspareunia after POP repair. Further studies are needed in larger cohorts of patients.

Gupta P, Ehlert M, **Payne J**, Killinger KA, **Boura JA**, Price W, **Fischer M** and **Sirls LT** (2015). "Analysis of sexual function changes in women undergoing pelvic organ prolapse repair with abdominal or vaginal approaches." Neurourology and Urodynamics 34: S85-S86.

[Full-Text](#)

*OUWB Medical Student Author*

*Department of Biomedical Sciences (BHS)*

*Department of Urology*

Introduction: Discomfort with sexual intercourse contributes to sexual inactivity in women with pelvic organ prolapse (POP). We examined changes in sexual activity after abdominal and transvaginal POP repair.

Methods: Women enrolled in our prospective, longitudinal prolapse database that had abdominal (AR) or transvaginal repair (TVR) of POP between 12/19/2008 through 6/4/2014 were evaluated. Patients were assessed with the Pelvic Organ Prolapse/Urinary Incontinence Sexual Questionnaire (PISQ-12) and the Pelvic Floor Distress Inventory (PFDI-20) preoperatively, and postoperatively at six months and one and two years. Data were analyzed with Pearsons Chi square, Fishers Exact, Wilcoxon rank sum tests, and repeated measures. Results: 204 of 300 women met inclusion criteria: 74/204 had AR and 130/204 had TVR. The AR group were younger (60 vs. 64 yrs;  $p=0.019$ ), had higher-grade median anterior prolapse (3.1 vs. 2.6;  $p=0.006$ ), apical prolapse (3.1 vs. 2.1;  $p<0.0001$ ), and uterine prolapse (3.0 vs. 2.1;  $p=0.027$ ). Marital status, parity, menopausal status, and/or midurethral sling placement were similar between groups. In both groups approximately 50% of patients were sexually inactive prior to surgery. (Table 1) The most common reason for inactivity was due to discomfort for AR and no partner for TVR. At six months, one year, and two years the number of patients that were inactive due to discomfort decreased, however, the proportion of sexually inactive patients in each surgical group was not statistically different at any time point. PISQ scores improved similarly in both the AR and TVR groups over time ( $p<0.0001$ ), as did PFDI scores ( $p<0.0001$ ). The majority of women in the AR and TVR groups were satisfied/extremely satisfied with treatment at one year (77.5% and 64.8%) and two years (73.9% and 73.5%). Conclusion: Sexual function improved similarly in patients after abdominal and transvaginal POP surgery. (Table Presented).

Gupta P, Ehlert MJ, **Sirls LT** and **Peters KM** (2015). "Percutaneous tibial nerve stimulation and sacral neuromodulation: An update." Current Urology Reports 16(2): 4.

[Full-Text](#)

*Department of Urology*

Neuromodulation is an important treatment modality for a variety of pelvic floor disorders. Percutaneous tibial nerve stimulation (PTNS) and sacral neuromodulation (SNM) are currently the two approved methods for delivering this therapy. Percutaneous tibial nerve stimulation is a minimally invasive office-based procedure that has shown efficacy in the treatment of overactive bladder, fecal incontinence, and pelvic pain. It has the advantage of minimal side effects but is limited by the need for patients to make weekly office visits to receive the series of treatments. Sacral neuromodulation uses an implanted device that stimulates the S3 nerve root and can improve symptoms of overactive bladder, non-obstructive urinary retention, fecal incontinence, and pelvic pain. This paper will review the most recent literature regarding this topic and discuss their advantages and limitations and recent innovations in their use.

Gupta P, **Nault T**, Ehlert M, Dove-Medows E, Carrico D, **Bartley J**, **Gilleran J**, **Sirls LT**, **Seltzer M** and **Peters KM** (2015). "History of bullying and abuse are not associated with increased pelvic floor symptoms." Neurourology and Urodynamics 34: S63.

[Full-Text](#)

*OUWB Medical Student Author*

*Department of Urology*

*Department of Obstetrics and Gynecology*

Introduction: Bullying is an aggressive behavior that is widely prevalent in our society particularly during the school-age years. Studies of the impact of bullying show significant somatic adverse effects. We investigate associations of bullying and abuse with pelvic floor symptoms and urogenital pain in women presenting to a multidisciplinary womens urology center. Methods: Retrospective review of a prospective database of

patients presenting to a multidisciplinary womens urology center between July 2012 and December 2013. Women answered questions about bullying and abuse history, sexual health, rated their urogenital pain (on a 0-10 scale) and completed the Pelvic Floor Dysfunction Inventory (PFDI-20) and Overactive Bladder Questionnaire (OAB-q). Statistical analyses evaluated victims of bullying and/or abuse compared to those who were not victims with Chi squared and t-tests. Results: 380 patients were reviewed. 257 patients completed questions about bullying victimization, 94/257 (36.6%) reported they were victims of bullying. 376 answered questions on abuse victimization, 94/376 (25.0%) reported they were victims of abuse. Victims of bullying and abuse did not have higher PFDI-20 scores ( $p=0.865$ ,  $p=0.411$ ) or OAB-q scores ( $p=0.833$ ,  $p=0.881$ ) compared to women who were not bullied or abused. Neither victims of bullying nor victims of abuse reported increased overall, bladder, or pelvic pain compared to non-victims ( $p>0.05$ ). Conclusion: Bullying and abuse did not predict increased pelvic floor distress, OAB symptoms or increased urogenital pain. (Table Presented).

Gupta P, **Nault T**, Ehlert M, Dove-Medows E, Carrico D, **Bartley J**, **Gilleran J**, **Sirls LT**, **Seltzer M** and **Peters KM** (2015). "Impact of bullying and abuse on sexual health." *Neurourology and Urodynamics* 34: S63-S64.

[Full-Text](#)

*OUWB Medical Student Author*

*Department of Urology*

*Department of Obstetrics and Gynecology*

Introduction: As many as one in four women have been the victim of bullying, abuse or both. There is a lack of literature describing the impact of these experiences on womens sexual health. This study examines the relationship between bullying, abuse and sexual health. Methods: A retrospective chart review of 380 patients presenting to a multi disciplinary womens center between July 2012 and December 2013. Women completed patient history questionnaires about bullying, abuse, and sexuality followed by a one-on-one interview with a clinician. Patients who did not answer questions were excluded from the analysis. Results: 380 patients were identified. 376 women responded to questions about any exposure to bullying and abuse, of which 94/376 reported a history of abuse and 94/257 reported being a victim of bullying. Victims of bullying were more sexually active compared to those who were not bullied (70% vs. 55%,  $p=0.020$ ), Table 1. Victims of bullying reported more dyspareunia compared to women without a bullying history (72% vs. 57%  $p=0.031$ ). Women with a history of abuse (75% vs. 59%  $p=0.015$ ) and women with combined history of abuse and bullying (81% vs. 60%  $p=0.020$ ) had more dyspareunia than patients without a history of abuse or bullying. Victims of bullying were less satisfied with their sexual activity status compared to women without a bullying history (40% vs. 56%  $p=0.047$ ). Women with a history of abuse were also less satisfied with their sexual activity status (37% vs. 53%  $p=0.031$ ). Women with neither bullying nor abuse histories were more satisfied with their sexual status compared to those with a history of abuse and bullying (64% vs. 42%  $p=0.001$ ). Conclusion: Abuse and bullying victimization have an impact on female sexuality. Victims of bullying are more sexually active, have more dyspareunia, and are less satisfied with their sexual status compared to those who were not bullied. Women with a history of abuse also have dyspareunia and are less satisfied with their sexual status. (Table Presented).

**Hajj Hussein I**, **Barremkala M**, **Thompson B**, **Gould D**, **Hankin M**, **Forbes W**, **Blenc AM**, **Amin M** and **Venuti J** (2015). "Integrating histology, gross anatomy and histopathology in a case based approach to inflammatory bowel disease." *The FASEB Journal* 29(1 Supplement).

[Full-Text](#)

*Department of Biomedical Sciences (OU)*

*Department of Pathology*

At Oakland University William Beaumont School of Medicine (OUWB), integration has progressed beyond the basic concept of horizontal and vertical integration. We now emphasize student-directed learning, active learning, development of interpersonal skills, problem solving, and self-reflection. Inflammatory Bowel disease (IBD) has two major constituents: ulcerative colitis and Crohn's disease. It can involve any segment of the GI tract, as well as other systems that share clinical and pathological characteristics. As such, IBD serves as an excellent model for how we accomplish integration within our curriculum. We will use clinical scenarios

of IBD cases, with learning objectives defined by the students. Students will address comprehensively the anatomy, histology, histopathology, and pathophysiology in a manner that will provide a thorough understanding of the disease. Then, they will establish a final diagnosis. This approach will be facilitated by making available to the students a wide variety of resources. Students and instructors will grade these activities along with formal evaluations based on well-defined criteria. This student-directed strategy requires a major shift in the way educators think about medical school teaching. It is a successful integration approach whereby students themselves take initiative and responsibility for determining what is worthwhile to learn. In addition to horizontal integration and vertical integration, it offers several intangible benefits. Chief among those benefits is building a community of students with high level of skills and professionalism. As time goes on, new educational activities will be initiated that will promote student-directed learning, critical thinking and working collaboratively.

Hanna-Mitchell AT, Wolf-Johnston AS, Barrick SR, Kanai AJ, **Chancellor MB**, De Groat WC and Birder LA (2015). "Effect of botulinum toxin A on urothelial-release of ATP and expression of SNARE targets within the urothelium." Neurourology and Urodynamics 34(1): 79-84.

[Full-Text](#)

*Department of Urology*

Aims Botulinum neurotoxin serotype A (BoNT/A) has emerged as an effective treatment of urinary bladder overactivity. Intravesical lipotoxin (BoNT/A delivery using liposomes), which may target the urothelium, is effective in blocking acetic acid induced hyperactivity in animals. The objective of this study was to assess the possible site of toxin action within the urothelium. Methods We examined expression of the toxin receptor (SV2) and its cleavage targets (SNAP-25 and SNAP-23) within urothelium as well as effects of the toxin on mechanically evoked release of ATP from cultured rat urothelial cells. ATP release was measured using the luciferin-luciferase assay; we examined expression of SNAP-23 and -25 in urothelial cells and mucosa of rat and human bladders. Results BoNT/A (1.5 U; 1-3 hr) blocked hypotonic evoked release of urothelial ATP, without affecting morphology. The expression of protein targets for BoNT/A binding (SV2) was detected in human and rat bladder mucosa and catalytic action (SNAP-23, -25) in urothelial cells and mucosa (differed in intensity) from rat and human bladder. Incubation of cultured (rat) urothelial cells with BoNT/A decreased expression levels of both SNAP-23 (44%) and SNAP-25 (80%). Conclusions Our findings reveal that the bladder urothelium expresses the intracellular targets and the binding protein for cellular uptake of BoNT/A; and that the toxin is able to suppress the levels of these targets as well as hypotonic-evoked ATP release. These data raise the possibility that intravesical treatment with BoNT/A suppresses bladder reflex and sensory mechanisms by affecting a number of urothelial functions including release of transmitters. *Neurourol. Urodynam.* 34:79-84, 2015.

**Hawasli A**, Jacquish B, Almahmeed T, Vavra J, Roberts N, **Meguid A** and Szpunar S (2015). "Early effects of bougie size on sleeve gastrectomy outcome." American Journal of Surgery 209(3): 473-477.

[Full-Text](#)

*Department of Surgery*

Background When performing sleeve gastrectomy, a bougie (32 to 60 French) is used. We evaluated 2 different bougie sizes on early postoperative outcomes and long-term weight loss. Methods A 1-year prospective study was conducted on patients undergoing sleeve gastrectomy. In the first 6 months, patients had 32-French bougies (Group 1); in the second 6 months, they had 36-French bougies (Group 2). Results We evaluated 131 patients. No intraoperative complications or mortality occurred. Postoperatively, Group 1 (n = 72) had a longer hospital stay (1.6 (plus or minus).8 vs 1.3 (plus or minus).5 days, P =.04) and used more Ondansetron for nausea than Group 2 (n = 59) (6.7 (plus or minus) 8.0 vs 5.3 (plus or minus) 4.5 mg, P =.2, respectively). Ten (14%) patients in Group 1 returned to the emergency department compared with 5 (9%) in Group 2. One-year percent excess weight loss was similar (73.0 (plus or minus) 20.6% vs 71.1 (plus or minus) 20.9%, P =.73, respectively). Conclusions The smaller bougie resulted in a longer hospital stay, with tendency toward increased nausea, more emergency department visits, and readmissions. Long-term weight loss was not affected.

Heilbrun ME, Remer EM, Casalino DD, Beland MD, Bishoff JT, Blaufox MD, Coursey CA, Goldfarb S, Harvin HJ, Nikolaidis P, Preminger GM, Raman SS, Sahni A, Vikram R and **Weinfeld RM** (2015). "ACR appropriateness criteria indeterminate renal mass." Journal of the American College of Radiology 12(4): 333-341.

[Full-Text](#)

*Department of Diagnostic Radiology and Molecular Imaging*

Renal masses are increasingly detected in asymptomatic individuals as incidental findings. An indeterminate renal mass is one that cannot be diagnosed confidently as benign or malignant at the time it is discovered. CT, ultrasonography, and MRI of renal masses with fast-scan techniques and intravenous (IV) contrast are the mainstays of evaluation. Dual-energy CT, contrast-enhanced ultrasonography, PET/CT, and percutaneous biopsy are all technologies that are gaining traction in the characterization of the indeterminate renal mass. In cases in which IV contrast cannot be used, whether because of IV contrast allergy or renal insufficiency, renal mass classification with CT is markedly limited. In the absence of IV contrast, ultrasonography, MRI, and biopsy have some advantages. Owing to the low malignant and metastatic potential of small renal cell carcinomas ( $\leq 4$  cm in diameter), active surveillance is additionally emerging as a diagnostic strategy for patients who have high surgical risk or limited life expectancy. The ACR Appropriateness Criteria are evidence-based guidelines for specific clinical conditions that are reviewed every 3 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. © 2015 American College of Radiology.

Hohenwarter EJ, Stone J, O'Moore P, Smith SJ, Selby Jr J, Lewandowski RJ, Samuels S, Kiproff P, Trost D, **Handel J**, Gandras E, Madoff DC, Vlahos A and Rilling WS (2015). "Multicenter trial of the VenaTech convertible filter: A novel approach to IVC filtration." Journal of Vascular and Interventional Radiology 26(2): S5-S6.

[Full-Text](#)

*Department of Diagnostic Radiology and Molecular Imaging*

Purpose: Existing retrievable filter platforms have limited points of contact with the dynamic IVC wall which are stress points potentially leading to complications of penetration, fracture, and adjacent organ damage. The Convertible Filter is a new concept based on a durable permanent IVC filter design in which the filter is not retrieved but converted into an IVC stent configuration when the risk of VTE has passed. The primary objective is to demonstrate that the rate of successful filter conversion is no lower than the reported IVC filter retrieval success. The secondary objective is to estimate the 6-month major device-related adverse event rate in subjects with a converted filter. Materials and Methods: This is an IDE multi-center, prospective, single arm, historical controlled study with 12 sites enrolling a combined total of 148 patients. Patients were enrolled for standard indications for retrievable filter placement. When clinically indicated the filter was converted to an open configuration to discontinue filtration. Evaluation of safety and performance in 61 subjects in whom the filter has been implanted, converted and followed for 6 months with imaging has been completed to date. Results: All filter implants were successful. The technical success rate for filter conversion to date is 93% (77/83). The mean time from filter placement to filter conversion for the 83 subjects with conversion attempts is 121 days. No serious conversion-related events have been reported to date. The mean conversion procedure time was 30.9 minutes. In 82% of cases, ancillary devices were used to help convert the filter as allowed per protocol. To date, 61 patients whose filter was converted have completed at least 6 months of follow up with no delayed complications such as migration or penetration of the legs through the wall of the vena cava. Conclusion: Preliminary data suggests the VenaTech Convertible Filter is a safe and effective temporary filter with favorable conversion rates compared to reported IVC filter retrieval rates. Early results show decreased incidence of IVC wall perforation vs current retrievable filter designs and no serious adverse events at 6 months related to filter conversion.

Hung SY, Chancellor DD, **Chancellor MB** and Chuang YC (2015). "Role of liposome in treatment of overactive bladder and interstitial cystitis." Urological Science 26(1): 3-6.

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*Department of Urology*

Intravesical (local) therapy of agents has been effective in delaying or preventing recurrence of superficial bladder cancer. This route of drug administration has also shown tremendous promise in the treatment of interstitial cystitis/painful bladder syndrome (IC/PBS) and overactive bladder without systemic side effects. Liposomes are lipid vesicles composed of phospholipid bilayers surrounding an aqueous core. They can incorporate drug molecules, both hydrophilic and hydrophobic, and show greater uptake into cells via endocytosis. Intravesical liposomes have therapeutic effects on IC/PBS patients, mainly because of their ability to form a protective lipid film on the urothelial surface. Recent studies have shown the sustained efficacy and safety of intravesical instillation of botulinum toxin formulated with liposomes (lipo-BoNT) for the treatment of refractory overactive bladder. This review considers the current status of intravesical liposomes or liposomal mediated drug delivery for the treatment of IC/PBS and overactive bladder.

Jacobs BL, Daignault S, Lee CT, Hafez KS, Montgomery JS, Montie JE, Humrich JE, Hollenbeck BK, **Wood DP** and Weizer AZ (2015). "Prostate capsule sparing versus nerve sparing radical cystectomy for bladder cancer: Results of a randomized, controlled trial." Journal of Urology 193(1): 64-70.

[Full-Text](#)

*Department of Urology*

Purpose: Prostate capsule sparing and nerve sparing cystectomies are alternative procedures for bladder cancer that may decrease morbidity while achieving cancer control. However, to our knowledge the comparative effectiveness of these approaches has not been established. We evaluated functional and oncologic outcomes in patients undergoing these procedures. Materials and Methods: We performed a single institution trial in patients with bladder cancer in whom transurethral prostatic urethral biopsy and transrectal prostate biopsy were negative. Men were randomized to prostate capsule sparing or nerve sparing cystectomy with neobladder creation and stratified by Sexual Health Inventory for Men score (greater than 21 vs 21 or less). Our primary end point was 12-month overall urinary function as measured by Bladder Cancer Index. Secondary end points included sexual function, cancer control and complications. Results: A total of 40 patients were enrolled in the study with 20 patients in each arm. Urinary function at 12 months decreased by 13 and 28 points in the prostate capsule and nerve sparing groups, respectively ( $p = 0.10$ ). Sexual function followed a similar pattern ( $p = 0.06$ ). There was no difference in recurrence-free, metastasis-free or overall survival (each  $p > 0.05$ ). The rate of incidentally detected prostate cancer was similar ( $p = 0.15$ ). Conclusions: Our study provides a randomized comparison of prostate capsule sparing and nerve sparing cystectomy techniques. We found no difference in functional or oncologic outcomes between the 2 approaches, although our study was underpowered due to a lack of patient accrual.

Jawad MS, Shah C, Wilkinson JB, Wallace M, Mitchell CK, Wobb J, **Gustafson GS, Brabbins DS, Grills IS** and **Chen PY** (2015). "Seven-year outcomes following accelerated partial breast irradiation stratified by ASTRO consensus groupings." American Journal of Clinical Oncology. ePub Ahead of Print.

[Full-Text](#)

*Department of Radiation Oncology*

OBJECTIVES: Limited long-term data exist regarding outcomes for patients treated with accelerated partial breast irradiation (APBI), particularly, when stratified by American Society for Radiation Oncology (ASTRO) Consensus Statement (CS) risk groups. The purpose of this analysis is to present 5- and 7-year outcomes following APBI based on CS groupings. MATERIALS AND METHODS: A total of 690 patients with early-stage breast cancer underwent APBI from 1993 to 2012, receiving interstitial brachytherapy ( $n=195$ ), balloon-based brachytherapy ( $n=290$ ), or 3-dimensional conformal radiotherapy ( $n=205$ ) at a single institution. Patients were stratified into suitable, cautionary, and unsuitable groups with 5-year outcomes analyzed. Seven-year outcomes were analyzed for a subset with follow-up of  $\geq 2$  years ( $n=625$ ). RESULTS: Median follow-up was 6.7 years (range, 0.1 to 20.1 y). Patients assigned to cautionary and unsuitable categories were more likely to have high-grade tumors (21% to 25% vs. 9%,  $P=0.001$ ), receive chemotherapy (15% to 38% vs. 6%,  $P<0.001$ ),

and have close/positive margins (9% to 11% vs. 0%,  $P < 0.001$ ). There was no difference in ipsilateral breast tumor recurrence at 5 or 7 years: 2.2%, 1.2%, 2.8% at 5 years ( $P = 0.57$ ), and 2.2%, 1.9%, 4.6% at 7 years ( $P = 0.58$ ) in the suitable, cautionary, and unsuitable groups, respectively. As compared with the suitable group, increased rates of distant metastases were noted for the unsuitable and cautionary groups at 5 years ( $P = 0.04$ ). CONCLUSIONS: No differences in rates of ipsilateral breast tumor recurrence were seen at 5 or 7 years when stratified by ASTRO CS groupings. Modest increases in distant recurrence were noted in the cautionary and unsuitable groups. These findings suggest that the ASTRO CS groupings stratify more for systemic recurrence and may not appropriately select patients for whole versus partial breast irradiation.

**Jung D, Kavanagh M, Lucia V, Joyce B and Afonso N** (2015). "Novice health care students learn intimate partner violence communication skills through standardized patient encounters (Peer Reviewed)." MedEdPortal Publication No. 9977

[Full-Text](#)

*Department of Emergency Medicine  
Clinical Skills Training and Simulation Center  
Department of Biomedical Sciences (OU)*

Intimate Partner Violence (IPV) is a prevalent public health problem, however many physicians feel inadequately prepared to identify or treat affected patients. Education of health care students on IPV will become even more important, since new guidelines issued under authority of Affordable Care Act will require IPV screening and counseling to be one of eight new preventive health services that patients should receive. This resource will give novice health care students Intimate Partner Violence (IPV) communication tools and practice, through use of two standardized patient cases.

**Kamel-ElSayed SA, Tiede-Lewis L, Lu Y, Veno PA and Dallas SL** (2015). "Novel approaches for two and three dimensional multiplexed imaging of osteocytes." Bone. ePub Ahead of Print.

[Full-Text](#)

*Department of Biomedical Sciences (OU)*

Although osteocytes have historically been viewed as quiescent cells, it is now clear that they are highly active cells in bone and play key regulatory roles in diverse skeletal functions, including mechanotransduction, phosphate homeostasis and regulation of osteoblast and osteoclast activity. Three dimensional imaging of embedded osteocytes and their dendritic connections within intact bone specimens can be quite challenging and many of the currently available methods are actually imaging the lacunocanalicular network rather than the osteocytes themselves. With the explosion of interest in the field of osteocyte biology, there is an increased need for reliable ways to image these cells in live and fixed bone specimens. Here we report the development of reproducible methods for 2D and 3D imaging of osteocytes in situ using multiplexed imaging approaches in which the osteocyte cell membrane, nucleus, cytoskeleton and extracellular matrix can be imaged simultaneously in various combinations. We also present a new transgenic mouse line expressing a membrane targeted-GFP variant selectively in osteocytes as a novel tool for in situ imaging of osteocytes and their dendrites in fixed or living bone specimens. These methods have been multiplexed with a novel method for labeling of the lacunocanalicular network using fixable dextran, which enables aspects of the osteocyte cell structure and lacunocanalicular system to be simultaneously imaged. The application of these comprehensive approaches for imaging of osteocytes in situ should advance research into osteocyte biology and function in health and disease.

Kang SJ, Mintz GS, Pu J, Sum ST, Madden SP, Burke AP, Xu K, **Goldstein JA**, Stone GW, Muller JE, Virmani R and Maehara A (2015). "Combined IVUS and NIRS detection of fibroatheromas: Histopathological validation in human coronary arteries." JACC: Cardiovascular Imaging 8(2): 184-194.

[Full-Text](#)

*Department of Internal Medicine*

Objectives This study assessed grayscale intravascular ultrasound (IVUS) and near-infrared spectroscopy (NIRS) detection of a histological fibroatheroma (FA). Background NIRS-detected, lipid-rich plaques (LRPs)

and IVUS-detected attenuated plaques are considered to be vulnerable. Methods IVUS-attenuated plaque and NIRS-LRP (yellow or tan block chemogram) were compared with histopathology in 1,943 sections of 103 coronary arteries from 56 autopsied hearts. Results IVUS-superficial attenuation and NIRS-LRP showed a similar high specificity of approximately 95%, whereas IVUS-superficial attenuation alone had a poor sensitivity (vs. NIRS-LRP) in detecting FAs (36% vs. 47%;  $p = 0.001$ ). Compared with FA sections with superficial attenuation, FA sections without superficial attenuation had a smaller plaque burden (57.1% vs. 67.7%), a larger arc of calcium (79.7(degrees) vs. 16.8(degrees)), and a lower prevalence of a (greater-than or equal to)20% histological necrotic core (28% vs. 50%) or late FA (14% vs. 37%; all  $p < 0.05$ ). Compared with FA sections with NIRS-LRP, FA sections without NIRS-LRP showed a smaller plaque burden (58.0% vs. 63.3%) and a lower prevalence of a (greater-than or equal to)20% necrotic core (27% vs. 46%). Conversely, non-FAs with NIRS-LRP (vs. non-FAs without LRP) showed a larger plaque burden (55.1% vs. 46.3%), a greater prevalence of a (greater-than or equal to)20% histological lipid pool (34% vs. 5%), and mostly pathological intimal thickening (50%) or fibrocalcific plaque (33%). When sections showed either IVUS attenuation or NIRS-LRP, the sensitivity for predicting a FA was significantly higher compared with IVUS attenuation alone (63% vs. 36%;  $p < 0.001$ ) or NIRS-LRP alone (63% vs. 47%;  $p < 0.001$ ). When sections showed both IVUS attenuation and NIRS-LRP, the positive predictive value improved compared with IVUS attenuation alone (84% vs. 66%;  $p < 0.001$ ) or NIRS-LRP alone (84% vs. 65%;  $p < 0.001$ ). Conclusions NIRS-LRP was more accurate than IVUS for predicting plaque containing a necrotic core or a large lipid pool, and the combination was more accurate than either alone.

Kashani AH, Cheung AY, Robinson J and **Williams GA** (2015). "Longitudinal optical density analysis of subretinal fluid after surgical repair of rhegmatogenous retinal detachment." *Retina* 35(1): 149-156.

[Full-Text](#)

*Department of Ophthalmology*

Purpose: To investigate optical coherence tomography-derived reflectivity and optical density (OD) characteristics of persistent subretinal fluid (SRF) in eyes after surgical repair of macula-off rhegmatogenous retinal detachment. Method: Retrospective case series of nine eyes with macula-off rhegmatogenous retinal detachment that underwent surgical repair with either scleral buckling or vitrectomy with or without scleral buckling. Major inclusion criteria included 1) availability of high-quality optical coherence tomography scans at 2 or more time points, and 2) sufficient SRF for optical coherence tomography sampling without including tissue edges. Demographic, clinical, and optical coherence tomography imaging data were collected on all eyes. Optical density and SRF height measurements were obtained using a manual image segmentation method with ImageJ. Optical density measurements were standardized by conversion to optical density ratios to facilitate comparison between different visits and eyes. Correlations were assessed for significance through both univariate and multivariate regression analyses. Results: Optical density ratio measurements increased with time after surgery, and this was statistically significant ( $P = 0.001$ ,  $R = 0.331$ ). Subretinal fluid height measurements decreased in all eyes. There was a significant correlation between optical density ratios and log of SRF height ( $P$  (less-than or equal to) 0.001,  $R = 0.485$ ). In multivariate analysis, neither optical density ratios nor SRF height was a statistically significant predictor of visual acuity. Conclusion: Changes in optical density ratios of the residual SRF after retinal detachment repair may be representative of changes in the SRF composition over time. This is in agreement with previous biochemical studies and may serve as a noninvasive method of assessing SRF content in vivo.

Kassir MA, Al-faham Z, **Abel N** and **Balon HR** (2015). "Lumbosacral transitional vertebra diagnosed with 99mTc-methylene diphosphonate SPECT/CT." *Journal of Nuclear Medicine Technology*. ePub Ahead of Print.

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*Department of Diagnostic Radiology and Molecular Imaging*

Lumbosacral Transitional Vertebra (LSTV) is a congenital anomaly of the lumbosacral junction. The association between back pain and LSTV is controversial, however, in our patient the symptoms localized to a hemi-sacralized left transverse process of L5. LSTV should be included in the differential diagnosis in young patients with lower back pain and scintigraphic

Kazanji N, **Davila F**, Manickam P, Wang Y and **Bossory L** (2015). "A case of invasive cytomegalovirus duodenitis in an immunosuppressed patient 15 months after renal transplantation." *Infection*. ePub Ahead of Print.

[Full-Text](#)

*Department of Internal Medicine*  
*OUWB Medical Student Author*

Kennedy AS, Ball D, Cohen SJ, Cohn M, Coldwell DM, Drooz A, Ehrenwald E, Kanani S, Rose SC, Nutting CW, Moeslein FM, **Savin MA**, Schirm S, Putnam SG, Sharma NK and Wang EA (2015). "Multicenter evaluation of the safety and efficacy of radioembolization in patients with unresectable colorectal liver metastases selected as candidates for 90Y resin microspheres." *Journal of Gastrointestinal Oncology* 6(2): 134-142.

[Full-Text](#)

*Department of Diagnostic Radiology and Molecular Imaging*

Background: Metastatic colorectal cancer liver metastases Outcomes after RadioEmbolization (MORE) was an investigator-initiated case-control study to assess the experience of 11 US centers who treated liverdominant metastases from colorectal cancer (mCRC) using radioembolization [selective internal radiation therapy (SIRT)] with yttrium-90-(90Y)-labeled resin microspheres. Methods: Data from 606 consecutive patients who received radioembolization between July 2002 and December 2011 were collected by an independent research organization. Adverse events (AEs) and survival were compared across lines of treatment using Fisher's exact test and Kaplan-Meier estimates, respectively. Results: Patients received a median of 2 (range, 0-6) lines of prior chemotherapy; 35.1% had limited extrahepatic metastases. Median tumor-to-liver ratio and -activity administered at first procedure were 15% and 1.17 GBq, respectively. Hospital stay was < 24 hours in 97.8% cases. Common grade =3 AEs over 184 days follow-up were: abdominal pain (6.1%), fatigue (5.5%), hyperbilirubinemia (5.4%), ascites (3.6%) and gastrointestinal ulceration (1.7%). There was no statistical difference in AEs across treatment lines (P>0.05). Median survivals [95% confidence interval (CI)] following radioembolization as a 2nd-line, 3rd-line, or 4thplus line were 13.0 (range, 10.5-14.6), 9.0 (range, 7.8-11.0), and 8.1 (range, 6.4-9.3) months, respectively; and significantly prolonged in patients with ECOG 0 vs. =1 (P=0.009). Statistically significant independent variables for survival at radioembolization were: disease stage [extrahepatic metastases, extent of liver involvement (tumor-to-treated-liver ratio)], liver function (uncontrolled ascites, albumin, alkaline phosphatase, aspartate transaminase), leukocytes, and prior chemotherapy. Conclusions: Radioembolization appears to have a favorable risk/benefit profile, even among mCRC patients who had received (greater-than or equal to)3 prior lines of chemotherapy.

Kenton K, Stoddard AM, Zyczynski H, Albo M, Rickey L, Norton P, Wai C, Kraus SR, **Sirls LT**, Kusek JW, Litman HJ, Chang RP and Richter HE (2015). "5-Year longitudinal followup after retropubic and transobturator mid urethral slings." *Journal of Urology* 193(1): 203-210.

[Full-Text](#)

*Department of Urology*

Purpose: Few studies have characterized longer-term outcomes after retropubic and transobturator mid urethral slings. Materials and Methods: Women completing 2-year participation in a randomized equivalence trial who had not undergone surgical re-treatment for stress urinary incontinence were invited to participate in a 5-year observational cohort. The primary outcome, treatment success, was defined as no re-treatment or self-reported stress incontinence symptoms. Secondary outcomes included urinary symptoms and quality of life, satisfaction, sexual function and adverse events. Results: Of 597 women 404 (68%) from the original trial enrolled in the study. Five years after surgical treatment success was 7.9% greater in women assigned to the retropubic sling compared to the transobturator sling (51.3% vs 43.4%, 95% CI = 1.4, 17.2), not meeting prespecified criteria for equivalence. Satisfaction decreased during 5 years but remained high and similar between arms (retropubic sling 79% vs transobturator sling 85%, p = 0.15). Urinary symptoms and quality of life worsened with time (p < 0.001), and women with a retropubic sling reported greater urinary urgency (p = 0.001), more negative impact on quality of life (p = 0.02) and worse sexual function (p = 0.001). There was no difference in the proportion of women experiencing at least 1 adverse event (p = 0.17). Seven new mesh erosions were noted (retropubic sling 3, transobturator sling 4). Conclusions: Treatment success decreased during 5 years for retropubic and transobturator slings, and did not meet the prespecified criteria for

equivalence with retropubic demonstrating a slight benefit. However, satisfaction remained high in both arms. Women undergoing a transobturator sling procedure reported more sustained improvement in urinary symptoms and sexual function. New mesh erosions occurred in both arms over time, although at a similarly low rate.

**Kowalenko T**, Carius ML, Korte RC, Miller MC and Reisdorff EJ (2015). "Emergency department quality improvement activity: An inventory from the American Board of Emergency Medicine Maintenance of Certification Program." Academic Emergency Medicine 22(3): 367-372.

[Full-Text](#)

*Department of Emergency Medicine*

**Objectives** The American Board of Emergency Medicine (ABEM) Maintenance of Certification (MOC) program requires every ABEM-certified physician to attest to participating in a quality improvement (QI) activity every 5 years. Understanding the type and frequency of these QI activities could inform the emergency medicine community about the variety of QI activities in which emergency physicians (EPs) are involved. These QI activities could provide ideas for the development of additional quality measures. **Methods** This was a retrospective descriptive study of self-reported QI activity attestations from the ABEM MOC program during 2013. Attestations were provided by ABEM-certified EPs using the ABEM MOC website. The type, number, and cumulative frequency of activities are reported. **Results** ABEM received 9,380 attestations for QI activities in 91 different categories. The three most commonly reported activities were acute myocardial infarction-percutaneous coronary intervention within 90 minutes of arrival (includes door-to-balloon time), door-to-doctor times, and throughput time measures. These three activities comprised 36.4% of attestations. More than half (54.4%) of the attestations were captured by the five most frequently attested activities, 67.1% by the top seven categories, and 89.9% by the top 21 categories. Of these 21 categories, 10 involved clinical protocols, nine were time-centered measures, and two were patient-centered activities. **Conclusions** This report demonstrates that diverse QI activities occur in emergency departments (EDs) across the United States. The majority of reported projects are nested in a few categories, following recognized areas of emphasis in emergency care, particularly in areas using time-sensitive metrics.

Krishnamurthy U, Neelavalli J, Mody S, Yeo L, Jella PK, Saleem S, Korzeniewski SJ, Cabrera MD, Ehterami S, **Bahado-Singh RO**, Katkuri Y, Haacke EM, Hernandez-Andrade E, Hassan SS and Romero R (2015). "MR imaging of the fetal brain at 1.5T and 3.0T field strengths: Comparing specific absorption rate (SAR) and image quality." Journal of Perinatal Medicine 43(2): 209-220.

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*Department of Obstetrics and Gynecology*

**Objectives:** Our two objectives were to evaluate the feasibility of fetal brain magnetic resonance imaging (MRI) using a fast spin echo sequence at 3.0T field strength with low radio frequency (rf) energy deposition (as measured by specific absorption rate: SAR) and to compare image quality, tissue contrast and conspicuity between 1.5T and 3.0T MRI. **Methods:** T2 weighted images of the fetal brain at 1.5T were compared to similar data obtained in the same fetus using a modified sequence at 3.0T. Quantitative whole-body SAR and normalized image signal to noise ratio (SNR), a nominal scoring scheme based evaluation of diagnostic image quality, and tissue contrast and conspicuity for specific anatomical structures in the brain were compared between 1.5T and 3.0T. **Results:** Twelve pregnant women underwent both 1.5T and 3.0T MRI examinations. The image SNR was significantly higher ( $P=0.03$ ) and whole-body SAR was significantly lower ( $P<0.0001$ ) for images obtained at 3.0T compared to 1.5T. All cases at both field strengths were scored as having diagnostic image quality. Images from 3.0T MRI (compared to 1.5T) were equal (57%; 21/37) or superior (35%; 13/37) for tissue contrast and equal (61%; 20/33) or superior (33%, 11/33) for conspicuity. **Conclusions:** It is possible to obtain fetal brain images with higher resolution and better SNR at 3.0T with simultaneous reduction in SAR compared to 1.5T. Images of the fetal brain obtained at 3.0T demonstrated superior tissue contrast and conspicuity compared to 1.5T.

**LaBan MM** (2015). "Publication primacy, "first and/or only the most recent!." [American Journal of Physical Medicine & Rehabilitation / Association of Academic Physiatrists](#) 94(1): e12.

[Full-Text](#)

*Department of Physical Medicine and Rehabilitation*

**LaBan MM**, Ferris JA and **Grant LB** (2015). "Insertional tears of the gluteus minimus on the greater trochanter." [American Journal of Physical Medicine and Rehabilitation](#) 94(4): e34.

[Full-Text](#)

*Department of Physical Medicine and Rehabilitation*

**LaBan MM** and **Taylor RS** (2015). "Ernie." [American Journal of Physical Medicine and Rehabilitation](#) 94(3): 244-245.

[Full-Text](#)

*Department of Physical Medicine and Rehabilitation*

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

[Full-Text](#)

*Department of Physical Medicine and Rehabilitation*

Larkin B, van Holsbeeck M, Koueiter D and **Zaltz I** (2015). "What is the impingement-free range of motion of the asymptomatic hip in young adult males?" [Clinical Orthopaedics and Related Research](#) 473(4): 1284-1288.

[Full-Text](#)

*Department of Orthopedic Surgery*

Background: Femoroacetabular impingement is a recognized cause of chondrolabral injury. Although surgical treatment for impingement seeks to improve range of motion, there are very little normative data on dynamic impingement-free hip range of motion (ROM) in asymptomatic people. Hip ultrasound demonstrates labral anatomy and femoral morphology and, when used dynamically, can assist in measuring range of motion. Questions/purposes: The purposes of this study were (1) to measure impingement-free hip ROM until labral deflection is observed; and (2) to measure the maximum degree of sagittal plane hip flexion when further flexion is limited by structural femoroacetabular abutment. Methods: Forty asymptomatic adult male volunteers (80 hips) between the ages of 21 and 35 years underwent bilateral static and dynamic hip ultrasound examination. Femoral morphology was characterized and midsagittal flexion passive ROM was measured at two points: (1) at the initiation of labral deformation; and (2) at maximum flexion when the femur impinged on the acetabular rim. The mean age of the subjects was  $28 \pm 3$  years and the mean body mass index was  $25 \pm 4$  kg/m<sup>2</sup>. Results: Mean impingement-free hip passive flexion measured from full extension to initial labral deflection was  $68^\circ \pm 17^\circ$  (95% confidence interval [CI], 65–72). Mean maximum midsagittal passive flexion, measured at the time of bony impingement, was  $96^\circ \pm 6^\circ$  (95% CI, 95–98). Conclusions: Using dynamic ultrasound, we found that passive ROM in the asymptomatic hip was much less than the motion reported in previous studies. Measuring ROM using ultrasound is more accurate because it allows anatomic confirmation of terminal hip motion. Clinical Significance: Surgical procedures used to treat femoroacetabular impingement are designed to restore or increase hip ROM and their results should be evaluated in light of precise normative data. This study suggests that normal passive impingement-free femoroacetabular flexion in the young adult male is approximately 95°. © 2014, The Association of Bone and Joint Surgeons®.

**Lauter CB**, Levine ZT, Eilender LM, Ernstoff RM and **Schechter SH** (2015). "Hypogammaglobulinemia in patients on natalizumab therapy." [Journal of Allergy and Clinical Immunology](#) 135(2): AB93.

[Full-Text](#)

*Department of Internal Medicine*

*Department of Neurology*

RATIONALE: The risk for development of progressive multifocal leukoencephalopathy (PML) in multiple sclerosis (MS) patients is increased with duration of natalizumab therapy, the presence of JC virus antibodies

and a history of prior immunosuppression. Hypogammaglobulinemia has not been described in such patients. METHODS: The records of patients on long duration of natalizumab therapy for MS and found to have hypogammaglobulinemia were reviewed. Two were referred because of infections and one because of fluctuating JC virus titers. Hypogammaglobulinemia was noted in all. RESULTS: Three woman ages 62, 61 and 52 years, were on long-term therapy: 59, 60, 60 months of natalizumab, respectively for relapsingremitting MS. All had recent weakly positive JC virus titers. One had no infections, borderline low IgG, low IgG2 and a small MGUS. The second had significant decreases in IgG, IgM and IgA, recurrent bouts of mucopurulent bronchitis and bronchiectasis. The third had a severe CAP and low IgM. CD19 B-cells were increased in the MGUS patient. Two of the three had suboptimal responses to vaccines; the third had low baseline pneumococcal antibodies. Natalizumab was stopped in one patient. The literature states that flow cytometry is normal and the response to vaccinations is intact in patients on natalizumab. Data on immunoglobulin levels in such patients was not found. CONCLUSIONS: Hypogammaglobulinemia may be a risk for the development of PML in such patients. It is not clear if JC virus antibody monitoring is reliable in patients with low immunoglobulins. The prevalence of hypogammaglobulinemia in MS patients on natalizumab needs to be defined.

**Le J, Chaiyasate K, Donev K and Fahim DK** (2015). "A rare case of giant cell tumor involving the clivus resected through le Fort I Osteotomy and median maxillotomy." Surgical Neurology International 6(1): 1-8.

[Full-Text](#)

*OUWB Medical Student Author*

*Department of Surgery*

*Department of Pathology*

*Department of Neurosurgery*

Background: Giant cell tumors (GCTs) are bone tumors that seldom involve the skull. Skull GCTs preferentially occur in the sphenoid and temporal bones with few reported cases involving the clivus. Due to the rarity and complex location, surgical management is not well established for clival GCTs. Case Description: A 49-year-old male presented with headaches and blurred vision in the right eye for 2 weeks. Computed tomography (CT) with contrast revealed a sellar mass eroding through the sphenoid sinuses with compression of optic chiasm. Biopsy was consistent with GCT. Patient underwent tumor resection by Le Fort I Osteotomy and median maxillotomy for an extended transsphenoidal approach. Upon discharge, patient showed no neurological deficits and intact cranial nerves. Conclusion: This case contributes to the limited amount of skull-based GCT cases worldwide. Additionally, the extended transoral approach can be performed safely in the context of a GCT within the clivus with acceptable morbidity and cosmesis.

Levanovich PE, **Diokno A**, Hasenau DL, Lajiness M, Pruchnic R and **Chancellor MB** (2015). "Intradetrusor injection of adult muscle-derived cells for the treatment of underactive bladder: Pilot study." International Urology and Nephrology 47(3): 465-467.

[Full-Text](#)

*Department of Urology*

We conducted the first-regenerative medicine cellular therapy for underactive bladder (UAB) in an FDA-approved, compassionate-use IND trial to evaluate treatment safety and potential clinical efficacy of autologous muscle-derived stem cells (AMDC) on a patient with UAB. No study-related adverse events or side effects were reported. In the 1-year follow-up period, the subject denied any gross hematuria, urgency, frequency or infection. A reduction in maximum cystometric capacity from 844 to 663 mL was observed, and the patient was able to void small amounts but continues to require self-catheterization 1 year after AMDC injection. Intradetrusor injection of AMDC is safe, minimally invasive and a promising treatment option for the UAB.

Lewis LM, Graffeo C, Crosley P, Klausner HA, **Clark CL**, Frank A, Miner J, Iarrobino R and Chyung Y (2015). "Ecallantide for the acute treatment of Angiotensin-converting enzyme inhibitor-induced angioedema: A multicenter, randomized, controlled trial." *Annals of Emergency Medicine* 65(2): 204-213.

[Full-Text](#)

*Department of Emergency Medicine*

**STUDY OBJECTIVE:** We compare the safety and efficacy of ecallantide with placebo in subjects undergoing assessment for acute angiotensin-converting enzyme inhibitor-induced angioedema (ACEIA) in an emergency department (ED). **METHODS:** This was a multicenter, phase 2, double-blind study with subjects randomized to receive a single subcutaneous dose of ecallantide (10, 30, or 60 mg) or placebo plus physician-directed conventional therapy. The primary endpoint was defined as meeting predetermined discharge eligibility criteria within 6 hours of study drug administration. Discharge criteria included improvement of edema, stable vital signs, absence of stridor, absence of dyspnea or use of accessory muscles during respiration, absence of drooling, and ability to drink without difficulty. **RESULTS:** An interim analysis showed that a high percentage of subjects met the primary endpoint, and the study was halted. Overall, 79 subjects were randomized and 76 had data for analysis. Most had mild (45%) or moderate (42%) ACEIA. The discharge eligibility endpoint was met by 72% of the placebo group and 85%, 89%, and 89% of the ecallantide 10-, 30-, and 60-mg groups, respectively. This difference in meeting discharge eligibility endpoint criteria between treatment groups was not statistically significant. The incidence of treatment-emergent adverse events was similar between placebo and active-treatment groups. **CONCLUSION:** The addition of ecallantide to standard therapy does not appear to improve angioedema compared with placebo in ED patients with ACEIA. Our data suggest that most ED patients presenting with mild to moderate ACEIA are likely to meet our discharge eligibility criteria within 6 hours of treatment, regardless of intervention. Further studies to assess the utility of ecallantide in patients with more severe angioedema may be useful. No new safety signals related to ecallantide administration were identified.

Liu H, Medeiros LJ, Weisenburger D, Clemens M, Hunt K, Chai S, **Amin M**, Vadlamani I, Sohani A, Ferry J, Morgan EA, Parkash V, Bhagat G, Yang LJ, Thomazy V, Kanagal-Shamanna R, Vasef M, Herman C, Oyarzo M, Narbaitz M, Piccolini J, Lamar W, Porter W, Hughes C, Baptista M, Tritz D, Zhang D, Khoury J, Young K and Miranda R (2015). "Breast Implant-Associated Anaplastic Large Cell Lymphoma (BI-ALCL): A comprehensive histopathological evaluation of 40 cases with a proposal for a pathologic staging system." *Modern Pathology* 28: 360A.

[Full-Text](#)

*Department of Pathology*

Liu H, Medeiros LJ, Weisenburger D, Clemens M, Hunt K, Chai S, **Amin M**, Vadlamani I, Sohani A, Ferry J, Morgan EA, Parkash V, Bhagat G, Yang LJ, Thomazy V, Kanagal-Shamanna R, Vasef M, Herman C, Oyarzo M, Narbaitz M, Piccolini J, Lamar W, Porter W, Hughes IC, Baptista M, Tritz D, Zhang D, Khoury J, Young K and Miranda R (2015). "Breast Implant-Associated Anaplastic Large Cell Lymphoma (BI-ALCL): A comprehensive histopathological evaluation of 40 cases with a proposal for a pathologic staging system." *Laboratory Investigation* 95: 360A.

[Full-Text](#)

*Department of Pathology*

**Background:** BI-ALCL is a newly recognized neoplasm arising around breast implants. Approximately 90 cases have been reported in the literature. The spectrum of pathologic findings and their potential prognostic value have not been delineated. We previously suggested that cases presenting with a mass correlate with an adverse prognosis, but the concept of a mass has not been defined at the histologic level. Therefore, we evaluated the pathologic features of BI-ALCL to determine their prognostic value. **Design:** We reviewed the clinicopathologic features of all patients with BI-ALCL published in the literature from 1997 to September 2014, as well as all unpublished cases at our institutions. The proposed pathologic staging was defined as: T1, lymphoma cells lining the fibrous capsule; T2, lymphoma cells superficially infiltrating the capsule; T3, sheets of lymphoma cells within the capsule; and T4, lymphoma cells outside the capsule. Overall survival (OS) and progression-free survival (PFS) were calculated for all patients with available follow up, and then correlated with the proposed pathologic staging system. **Results:** We identified 115 patients with BI-ALCL, including 91 reported in the literature and 24 unpublished cases. Clinically, 34/98 (35%) presented

with a mass and 65% without a mass. Diagnostic slides were available in 40 patients, and the pathologic stage was T1 in 13 (33%) patients, T2 in 12 (30%), T3 in 5 (13%) and T4 in 10 (25%) patients. The mean PFS was longer for patients with T1 tumors (144 months) than for those patients with T4 tumors (80 months) ( $P=0.003$ ); no significant difference in PFS was found for patients with T2 or T3 tumor stage as compared with T4 tumors. The mean OS for 90 patients was 137 months; no significant difference in OS was found among all groups. Conclusions: We propose a pathologic staging system for BI-ALCL and show its prognostic value for predicting PFS of affected patients. The proposed staging system appears to reflect tumor progression, and may be useful for patient management if validated in a larger study.

**Loftus S** (2015). "Embodiment in the practice and education of health professionals," In Green B and Hopwood N (ed). The Body in Professional Practice, Learning and Education. 11. London: Springer. pp: 139-156.

[Full-Text](#)

*Department of Biomedical Sciences (OU)*

Madder RD, **Abbas AE** and **Safian RD** (2015). "First-in-man use of intravascular near-infrared spectroscopy in the carotid arteries to characterize atherosclerotic plaque prior to carotid stenting." JACC: Cardiovascular Interventions 8(2): e29-e31.

[Full-Text](#)

*Department of Internal Medicine*

**Maerz T, Kurdziel MD, Davidson AA, Baker KC, Anderson K** and Matthew HWT (2015). "Biomechanical characterization of a model of noninvasive, traumatic anterior cruciate ligament injury in the rat." Annals of Biomedical Engineering. ePub Ahead of Print.

[Full-Text](#)

*Department of Surgery*

*Department of Orthopedic Surgery*

The onset of post-traumatic osteoarthritis (PTOA) remains prevalent following traumatic joint injury such as anterior cruciate ligament (ACL) rupture, and animal models are important for studying the pathomechanisms of PTOA. Noninvasive ACL injury using the tibial compression model in the rat has not been characterized, and it may represent a more clinically relevant model than the common surgical ACL transection model. This study employed four loading profiles to induce ACL injury, in which motion capture analysis was performed, followed by quantitative joint laxity testing. High-speed, high-displacement loading repeatedly induces complete ACL injury, which causes significant increases in anterior-posterior and varus laxity. No loading protocol induced valgus laxity. Tibial internal rotation and anterior subluxation occurs up to the point of ACL failure, after which the tibia rotates externally as it subluxes over the femoral condyles. High displacement was more determinative of ACL injury compared to high speed. Low-speed protocols induced ACL avulsion from the femoral footprint whereas high-speed protocols caused either midsubstance rupture, avulsion, or a combination injury of avulsion and midsubstance rupture. This repeatable, noninvasive ACL injury protocol can be utilized in studies assessing PTOA or ACL reconstruction in the rat.

**Maisels MJ** (2015). "Managing the jaundiced newborn: A persistent challenge." CMAJ: Canadian Medical Association Journal 187(5): 335-343.

[Full-Text](#)

*Department of Pediatrics*

**Maisels MJ** (2015). "Transcutaneous bilirubin measurement: Does it work in the real world?" Pediatrics 135(2): 364-366.

[Full-Text](#)

*Department of Pediatrics*

Mangona VS, **Aneese AM**, Marina O, Hymas RV, **Ionascu D**, **Robertson JM**, **Gallardo LJ** and **Grills IS** (2015). "Toxicity after central versus peripheral lung stereotactic body radiation therapy: A propensity score matched-pair analysis." [International Journal of Radiation Oncology Biology Physics](#) 91(1): 124-132.

[Full-Text](#)

*OUWB Medical Student Author*

*Department of Radiation Oncology*

*Department of Diagnostic Radiology and Molecular Imaging*

Purpose: To compare toxicity after stereotactic body radiation therapy (SBRT) for "central" tumors - within 2 cm of the proximal bronchial tree or with planning tumor volume (PTV) touching mediastinum - versus noncentral ("peripheral") lung tumors. Methods and Materials: From November 2005 to January 2011, 229 tumors (110 central, 119 peripheral; T1-3N0M0 non-small-cell lung cancer and limited lung metastases) in 196 consecutive patients followed prospectively at a single institution received moderate-dose SBRT (48-60 Gy in 4-5 fractions [biologic effective dose=100-132 Gy, (alpha)/(beta)=10]) using 4-dimensional planning, online image-guided radiation therapy, and institutional dose constraints. Clinical adverse events (AEs) were graded prospectively at clinical and radiographic follow-up using Common Terminology Criteria for Adverse Events version 3.0. Pulmonary function test (PFT) decline was graded as 2 (25%-49.9% decline), 3 (50.0%-74.9% decline), or 4 ((greater-than or equal to)75.0% decline). Central/peripheral location was assessed retrospectively on planning CT scans. Groups were compared after propensity score matching. Characteristics were compared with (chi)<sup>2</sup> and 2-tailed t tests, adverse events with (chi)<sup>2</sup> test-for-trend, and cumulative incidence using competing risks analysis (Gray's test). Results: With 79 central and 79 peripheral tumors matched, no differences in AEs were observed after 17 months median follow-up. Two-year cumulative incidences of grade (greater-than or equal to)2 pain, musculoskeletal, pulmonary, and skin AEs were 14%, 5%, 6%, and 10% (central) versus 19%, 10%, 10%, and 3% (peripheral), respectively (P=.31, .38, .70, and .09). Grade (greater-than or equal to)2 cardiovascular, gastrointestinal, and central nervous system AEs were rare (<1%). Two-year incidences of grade (greater-than or equal to)2 clinical AEs (28% vs 25%, P=.79), grade (greater-than or equal to)2 PFT decline (36%vs 34%, P=.94), grade (greater-than or equal to)3 clinical AEs (3% vs 7%, P=.48), and grade (greater-than or equal to)3 PFT decline (0 vs 10%, P=.11) were similar for central versus peripheral tumors, respectively. Pooled 2-year incidences of grades 4 and 5 AEs were <1% and 0%, respectively, in both the prematched and matched groups. Conclusion: Moderate-dose SBRT with these techniques yields a similarly safe toxicity profile for both central and peripheral lung tumors.

Marco CA and **Kowalenko T** (2015). "Emergency medicine residents' perspectives on patient safety and duty hours." [American Journal of Emergency Medicine](#) 33(3): 459-460.

[Full-Text](#)

*Department of Emergency Medicine*

**Mi M** (2015). "Expanding librarian roles through a librarian initiated and facilitated faculty learning community." [Journal of Library Administration](#) 55(1): 24-40.

[Request Form](#)

*Medical Library*

The role of libraries is changing to focus more on users rather than the collection of information. Community building and connecting people with shared interests represents a social role for libraries in the information age. Their role adds a new dimension to the traditional domains for libraries. Developing and implementing an integrated medical curriculum became the primary focus of basic sciences faculty at a new medical school. Scholarly teaching and connecting teaching with educational research presented a great challenge for the faculty. In response to the learning, teaching, and developmental needs of faculty members, a librarian established a faculty learning community as an approach to supporting faculty development and growth as teaching scholars and scholars of educational research. The article provides a case to illustrate how a librarian spanned boundaries and took up the responsibilities of establishing a faculty learning community and developing a year-long program in light of different developmental needs of faculty members at the new medical school. It also describes the process of developing the faculty learning community program, its components, and the many roles that the librarian took in implementing the

program.

**Misra L** (2015). "Approach to diarrhea," In Masters PA (ed). IM Essentials: A Medical Knowledge Self-Assessment Program (MKSAP) for Students Philadelphia: American College of Physicians. pp: 104-108.

[Request Form](#)

*Administration*

Miyazato M, Kitta T, Kaiho Y, Oshiro T, Saito S, **Chancellor MB**, de Groat WC and Yoshimura N (2015). "Effects of duloxetine, a norepinephrine and serotonin reuptake inhibitor, on the urethral continence reflex and bladder activity in rats with cerebral infarction." Journal of Urology. ePub Ahead of Print.

[Full-Text](#)

*Department of Urology*

PURPOSE: We investigated the effect of duloxetine, a norepinephrine and serotonin reuptake inhibitor, on the sneeze induced continence reflex as well as bladder function in rats with cerebral infarction (CI).

MATERIALS AND METHODS: Under urethane anesthesia, the effect of duloxetine (1 mg/kg i.v.) on the amplitude of urethral responses during sneezing (A-URS) as well as urethral baseline pressure (UBP) at the mid-urethra was evaluated in normal female adult rats and CI rats. Tilt leak point pressure (tilt LPP) was also measured. In normal and CI rats, continuous cystometry was evaluated before and after duloxetine injection. RESULTS: In CI rats, UBP was 43% lower compared with normal rats, but A-URS did not differ in two groups. Duloxetine increased A-URS and UBP by 31% and 21%, respectively, in normal rats, but did not affect either in CI rats. Also, in CI rats, LPP was 29% lower compared with normal rats. Duloxetine increased LPP in normal rats, but not in CI rats. CI reduced intercontraction intervals without affecting the amplitude of bladder contractions compared with normal rats. Duloxetine prolonged intercontraction intervals in CI rats, but not in normal rats. CONCLUSIONS: These results suggest that CI induces not only bladder overactivity, but also SUI, which may account for mixed incontinence in CI patients. After CI, duloxetine reduced bladder overactivity, but failed to enhance the active urethral closure mechanisms during sneezing, suggesting that disorganization of the brain network after CI might influence the effect of duloxetine on lower urinary tract function.

Mogrovejo E, Manickam P, **Jury RP** and **Cappell MS** (2015). "Anomalous accessory hepatic duct draining into the cystic duct in asymptomatic patient: MRCP and ERCP findings." Gastrointestinal Endoscopy. ePub Ahead of Print.

[Full-Text](#)

*Department of Surgery*

*Department of Internal Medicine*

Nakanishi R, Berman DS, Budoff MJ, Gransar H, Achenbach S, Al-Mallah M, Andreini D, Cademartiri F, Callister TQ, Chang HJ, Cheng VY, **Chinnaiyan K**, Chow BJ, Cury R, Delago A, Hadamitzky M, Hausleiter J, Feuchtner G, Kim YJ, Kaufmann PA, Leipsic J, Lin FY, Maffei E, Pontone G, **Raff G**, Shaw LJ, Villines TC, Dunning A and Min JK (2015).

"Current but not past smoking increases the risk of cardiac events: Insights from coronary computed tomographic angiography." European Heart Journal. ePub Ahead of Print.

[Full-Text](#)

*Department of Internal Medicine*

AIMS: We evaluated coronary artery disease (CAD) extent, severity, and major adverse cardiac events (MACEs) in never, past, and current smokers undergoing coronary CT angiography (CCTA). METHODS AND RESULTS: We evaluated 9456 patients (57.1 +/- 12.3 years, 55.5% male) without known CAD (1588 current smokers; 2183 past smokers who quit >=3 months before CCTA; and 5685 never smokers). By risk-adjusted Cox proportional-hazards models, we related smoking status to MACE (all-cause death or non-fatal myocardial infarction). We further performed 1:1:1 propensity matching for 1000 in each group evaluate event risk among individuals with similar age, gender, CAD risk factors, and symptom presentation. During a mean follow-up of 2.8 +/- 1.9 years, 297 MACE occurred. Compared with never smokers, current and past smokers had greater atherosclerotic burden including extent of plaque defined as segments with any plaque (2.1 +/- 2.8 vs. 2.6 +/- 3.2 vs. 3.1 +/- 3.3, P < 0.0001) and prevalence of obstructive CAD [1-vessel disease

(VD): 10.6% vs. 14.9% vs. 15.2%,  $P < 0.001$ ; 2-VD: 4.4% vs. 6.1% vs. 6.2%,  $P = 0.001$ ; 3-VD: 3.1% vs. 5.2% vs. 4.3%,  $P < 0.001$ . Compared with never smokers, current smokers experienced higher MACE risk [hazard ratio (HR) 1.9, 95% confidence interval (CI) 1.4-2.6,  $P < 0.001$ ], while past smokers did not (HR 1.2, 95% CI 0.8-1.6,  $P = 0.35$ ). Among matched individuals, current smokers had higher MACE risk (HR 2.6, 95% CI 1.6-4.2,  $P < 0.001$ ), while past smokers did not (HR 1.3, 95% CI 0.7-2.4,  $P = 0.39$ ). Similar findings were observed for risk of all-cause death. CONCLUSION: Among patients without known CAD undergoing CCTA, current and past smokers had increased burden of atherosclerosis compared with never smokers; however, risk of MACE was heightened only in current smokers.

Neupane S, Kommuri NVA and **Hauser AM** (2015). "Caught in the middle: Thrombus-in-transit through patent foramen ovale." *Cor et Vasa* 57(1): e59-e60.

[Full-Text](#)

*Department of Internal Medicine*

Nichols Hess A, LaPorte-Fiori R and **Engwall K** (2015). "Preserving patron privacy in the 21st century academic library." *The Journal of Academic Librarianship* 41(1): 105-114.

[Full-Text](#)

*Medical Library*

How do libraries reconcile increasing access to information and encouraging the use of 21st century technology systems and tools while also preserving patrons' privacy? This question is challenging for all libraries to address, but academic libraries must grapple with it while also considering other complex issues: not only do these libraries need to comply with the ALA's Library Bill of Rights and supporting documents, but they must also adhere to federal-, state-, and institution-level policies regarding student privacy and information security. This article presents how one university's libraries worked to both develop a public statement on patron privacy and identify behind-the-scenes issues with the collection, storage, and disposal of library patrons' private information. The strategies used herein may be helpful to other academic libraries as they consider patron privacy in the 21st century.

Noroozian M, **Stein LF**, Gaetke-Udager K and Helvie MA (2015). "Long-term clinical outcomes in women with breast pain in the absence of additional clinical findings: Mammography remains indicated." *Breast Cancer Research and Treatment* 149(2): 417-424.

[Full-Text](#)

*Department of Diagnostic Radiology and Molecular Imaging*

The purpose of the study was to determine the long-term clinical outcomes of women with breast pain in the absence of additional symptoms or signs (isolated breast pain), and the utility of mammography in their work-up. IRB approved, HIPAA compliant study retrospectively reviewed 1,386 patients referred for breast imaging with ICD-9 code for breast pain between 1/1/2006 and 12/31/2007. Of these, 617 consecutive women (mean age, 49 years) with isolated breast pain, mammogram, and follow-up (mean, 51 months) constituted the study group. Clinical data, mammographic and sonographic BI-RADS assessments, and geographic relationship between the site of cancer and pain were evaluated. The frequency of malignancies and of specific benign outcomes, both at and subsequent to the time of presentation, was determined. Breast cancer and specific benign outcomes were diagnosed in the painful breast of 11/617 (1.8 %) and 63/617 (10.2 %) women, respectively. Majority of the cancers (9/11, 81.8 %) were diagnosed subsequent (5–52 months) to initial imaging evaluation, whereas the majority of benign outcomes (52/63, 82.5 %) were diagnosed at initial presentation. Diagnostic mammography at initial presentation had a negative predictive value of 99.8 % (95 % CI 99.1 %, 100 %), specificity of 98.5 % (95 % CI 97.2 %, 99.3 %), and sensitivity of 66.7 % (95 % CI 11.6 %, 94.5 %). Three cancers were subsequently diagnosed in the contralateral (non-painful) breast. Eleven of 14 (78.6 %) cancers were in the symptomatic breast, of which 9 (81.8 %) geographically corresponded to the same area of focal pain. Thus, infrequently, breast cancer may clinically present as or be preceded by isolated breast pain and diagnostic mammography is useful for assessment. © 2015, Springer Science+Business Media New York.

Nudleman E, Robinson J, Rao P, **Drenser KA, Capone A and Trese MT** (2015). "Long-term outcomes on lens clarity after lens-sparing vitrectomy for retinopathy of prematurity." Ophthalmology 122(4): 755-759.

[Full-Text](#)

*Department of Ophthalmology*

**Objective** To describe the long-term effect of lens-sparing vitrectomy surgery for advanced retinopathy of prematurity (ROP) on lens clarity. **Design** Retrospective case series at a single tertiary referral pediatric vitreoretinal practice. **Participants** Four hundred ninety-six eyes from 351 patients were included. **Methods** A retrospective chart review was conducted of patients with diagnosis of ROP stage 4A, 4B, and 5 who underwent lens-sparing vitrectomy (LSV) between 1992 and 2013. Data were collected from patient charts, including gender, date of birth, gestational age at birth, birthweight, stage of ROP at presentation, initial treatment (laser or cryotherapy), date of LSV, date of lensectomy (if performed), lens status at time of lensectomy, date of last visit, lens status at last visit, subsequent retinal surgeries, and retinal attachment status at last visit. Patients were excluded if any surgery had been performed at an outside institution before referral, or if a scleral buckle had been placed. Eyes with a concurrent anatomic abnormality, such as coloboma or microcornea, or a known family history of familial exudative vitreoretinopathy (FEVR), were also excluded. **Main Outcome Measures** Retinal reattachment after LSV, lensectomy after LSV, lens opacity at the time of lensectomy, and lens clarity at last follow-up. **Results** Four hundred ninety-six eyes from 351 patients met inclusion criteria for this study. The reattachment rate after a single LSV surgery was 82.1% for stage 4A, 69.5% for stage 4B, and 42.6% for stage 5. Subsequent retinal surgeries were required in 19.8% of eyes, with 88.7% of them including a lensectomy. Among eyes requiring lensectomy, 75% occurred within the first year after LSV surgery. Lens opacities were present in 26.6% of eyes at the time of lensectomy. Of all eyes in this series, 5.9% required lensectomy because of lens opacity. **Conclusions** This study demonstrates that lens clarity is observed in most eyes after LSV surgery for advanced ROP for the patient's childhood. Within the first decade of life, if necessary, lensectomy after LSV occurred mostly within 1 year following LSV.

Obi AT, Park YJ, **Bove P**, Cuff R, Kazmers A, Gurm HS, Grossman PM and Henke PK (2015). "The association of perioperative transfusion with 30-day morbidity and mortality in patients undergoing major vascular surgery." Journal of Vascular Surgery 61(4): 1000-1009.

[Full-Text](#)

*Department of Surgery*

**Objective** Blood transfusions are common among patients undergoing major vascular surgery. Prior studies suggest an association between blood transfusion and increased morbidity and mortality among patients undergoing cardiac surgery. The predictors of perioperative transfusion and its impact on patients undergoing vascular surgery have been poorly defined. **Methods** We examined data from a large multicenter quality improvement vascular surgical registry of all patients undergoing elective or urgent open peripheral arterial disease procedures, endovascular aneurysm repair, or open abdominal aortic aneurysm (AAA) repair between January 2012 and December 2013. Emergency cases, carotid endarterectomy, and carotid artery stenting were excluded. Univariate and multivariate logistic regression modeling was used to identify predictors of transfusion and association of transfusion with outcomes. All regression models had Hosmer-Lemeshow  $P > .05$  and area under the receiver operating characteristic curve of  $>0.8$ , confirming excellent goodness of fit and discrimination. **Results** Our study population comprised 2946 patients who underwent open peripheral arterial disease procedures ( $n = 1744$ ), open AAA repair ( $n = 175$ ), or endovascular aneurysm repair ( $n = 1027$ ) at 22 hospitals. The overall transfusion rate was 25%, at a median nadir hemoglobin level of 7.7 g/dL. Independent factors predicting transfusion included female gender (odds ratio [OR], 2.6; 95% confidence interval [CI], 2.1-3.2), nonwhite race (OR, 2.7; 95% CI, 1.4-5.2), preoperative admission status (ie, acute care hospital) (OR, 2.6; 95% CI, 1.3-5.3), preoperative anemia (OR, 4.2; 95% CI, 3.3-5.1), congestive heart failure (OR, 1.4; 95% CI, 1.1-1.9), prior myocardial infarction (OR, 1.3; 95% CI, 1.01-1.6), clopidogrel (OR, 1.4; 95% CI, 1.2-1.8), open AAA repair (OR, 25; 95% CI, 17-39), open bypass (OR, 3.5; 95% CI, 2.7-4.6), and urgent procedures (OR, 1.4; 95% CI, 1.1-1.8). With adjustment for major covariates, perioperative transfusion was independently associated with death (OR, 6.9; 95% CI, 3.2-15), myocardial infarction (OR, 8; 95% CI, 3.7-17), and pneumonia (OR, 7.4; 95% CI, 3.3-17). **Conclusions** Perioperative transfusion in vascular surgical patients is independently associated with increased 30-day morbidity and

mortality. Given indeterminate causation, these data suggest the need for a prospective transfusion threshold study in vascular surgical patients.

Paone G, **Herbert MA**, Theurer PF, Bell GF, Williams JK, **Shannon FL**, Likosky DS and Prager RL (2015). "Red blood cells and mortality after coronary artery bypass graft surgery: An analysis of 672operative deaths." [Annals of Thoracic Surgery](#). ePub Ahead of Print.

[Request Form](#)

*Department of Family Medicine*

*Department of Surgery*

Background: Prior studies have implicated transfusion as a risk factor for mortality in coronary artery bypass graft surgery (CABG). To further our understanding of the true association between transfusion and outcome, we specifically analyzed the subgroup of patients who died after undergoing CABG. Methods: A total of 34,362 patients underwent isolated CABG between January 2008 and September 2013 and were entered into a statewide collaborative database; 672 patients (2.0%) died and form the basis for this study. Univariate analysis compared preoperative and intraoperative variables, as well as postoperative outcomes, between those with and without transfusion in both unadjusted cohorts and those matched by predicted risk of mortality (PROM). Mortality was further evaluated with phase of care analysis. Results: Of the 672 deaths, 566 patients (84.2%) received a transfusion of red blood cells. The PROM was 7.5% for the transfused patients versus 4.3% for those not transfused ( $p < 0.001$ ). Transfused patients were older, more often female, had more emergency, on-pump, and redo procedures, and had a lower preoperative and on-bypass nadir hematocrit. Most other demographics were similar between the groups. Postoperatively, transfused patients were ventilated longer, had more renal and multisystem organ failure, and were more likely to die of infectious and pulmonary causes after longer intensive care unit and overall lengths of stay. Conclusions: Significant differences in PROM and the postoperative course leading to death between those with and without transfusion suggest the role of transfusion may be secondary to other patient-related factors. Recognizing that the relationship between transfusion and outcome after CABG remains incompletely understood, these findings are suggestive of a complex interaction of many variables.

**Park DK**, Rhee JM, Kim SS, Enyo Y and Yoshiok K (2015). "Do CT scans overestimate the fusion rate after anterior cervical discectomy and fusion?" [Journal of Spinal Disorders and Techniques](#) 28(2): 41-46.

[Full-Text](#)

*Department of Orthopedic Surgery*

Design: This study is a radiographic analysis. Objective: To compare the fusion rates after anterior cervical discectomy and fusion (ACDF) using x-rays versus computerized tomography (CT). Background: Although fusion status may be obvious when evaluating ACDFs performed in the remote past, determining the presence of a solid fusion at earlier time points after ACDF is often ambiguous but a necessary part of practice. Commonly used tools include radiographs and CT scans. Currently, there is no gold standard imaging modality to determine fusion status. Methods: Twenty-two patients status post-ACDF (cortical allograft with anterior plates) at 34 levels with CT scans and dynamic x-rays obtained at 3, 6, and 12 months postoperatively were included. Four spine surgeons blinded to the time point independently determined fusion status according to the criteria. Results: On the basis of the x-ray criteria, the fusion rates were 26%, 41%, and 65% at 3, 6, and 12 months, respectively, postoperatively. On the basis of CT criteria, the fusion rates were 79%, 79%, and 91% at 3, 6, and 12 months, respectively. There was a significant difference in the predicted fusion rate at each time point comparing x-ray versus CT criteria. In addition, at 3 months, 41% of the levels (11/27) thought to be fused by CT criteria demonstrated  $>1$ mm motion on dynamic x-rays. At 6 months, 33% (9/27) of the levels thought to be fused by CT demonstrated persistent motion of  $\geq 1$  mm. At 12 months, 23% (7/31) of the levels considered fused by CT still had persistent motion. Discussion: X-ray criteria for fusion, which incorporate both static and dynamic factors, predicted lower fusion rates at each time point when compared with CT scans, which evaluate only static factors. Depending on the time point, anywhere from 23% to 41% of levels thought to be fused by CT criteria demonstrated persistent motion on dynamic x-rays. Although  $<1$ mm motion is not a sufficient criteria for fusion by itself, levels demonstrating  $>1$ mm motion are less likely to be solidly fused. Thus, we conclude that CT scans may overestimate the fusion rate

during the early stages of ACDF healing with cortical allograft, and that CT scans alone may not accurately determine fusion status. Reliable determination of fusion may thus require dynamic information obtained from flexion-extension x-ray in association with high-resolution static information from CT.

Patricolo GE, Armstrong K, **Riutta J** and Lanni T (2015). "Lymphedema care for the breast cancer patient: An integrative approach." Breast 24(1): 82-85.

[Full-Text](#)

*Department of Physical Medicine and Rehabilitation*

Lymphedema is a serious complication that involves the accumulation of protein-rich fluid in the interstitial space. Lymphedema is common after treatment for breast cancer, especially for those patients receiving axillary lymph node dissection. Severe lymphedema is associated with serious morbidities such as swelling, fibrosis, decreased function, reduced range of motion, infection, and pain. Here, we discuss a unique, multi-disciplinary approach to effectively manage patients during and after breast cancer therapy. In this approach, patient education and screening are implemented in various departments throughout the health care system, including Physical Therapy and Rehabilitation, Integrative Medicine, and the Breast Care Center, which houses the Lymphedema Clinic. Early patient education and regular screening are combined with aggressive treatment for overt disease to effectively manage lymphedema in the at-risk population.

Peers S, Moravek JE, Jr., Budge MD, Newton MD, **Kurdziel MD, Baker KC** and **Wiater JM** (2015). "Wear rates of highly cross-linked polyethylene humeral liners subjected to alternating cycles of glenohumeral flexion and abduction." Journal of Shoulder and Elbow Surgery 24(1): 143-149.

[Full-Text](#)

*Department of Surgery*

*Department of Orthopedic Surgery*

BACKGROUND: Although short-term outcomes of reverse total shoulder arthroplasty have been promising, long-term success may be limited due to device-specific complications, including scapular notching. Scapular notching has been explained primarily as mechanical erosion; however, the generation of wear debris may lead to further biologic changes contributing to the severity of scapular notching. METHODS: A 12-station hip simulator was converted to a reverse total shoulder arthroplasty wear simulator subjecting conventional and highly cross-linked ultra-high-molecular-weight polyethylene humeral liners to 5 million cycles of alternating abduction-adduction and flexion-extension loading profiles. RESULTS: Highly cross-linked polyethylene liners (36.5 +/- 10.0 mm<sup>3</sup>/million cycle) exhibited significantly lower volumetric wear rates compared with conventional polyethylene liners (83.6 +/- 20.6 mm<sup>3</sup>/million cycle; P < .001). The flexion-extension loading profile exhibited significantly higher wear rates for conventional (P < .001) and highly cross-linked polyethylene (P < .001) compared with the abduction-adduction loading profile. Highly cross-linked wear particles had an equivalent circle diameter significantly smaller than wear particles from conventional polyethylene (P < .001). CONCLUSIONS: Highly cross-linked polyethylene liners significantly reduced polyethylene wear and subsequent particle generation. More favorable wear properties with the use of highly cross-linked polyethylene may lead to increased device longevity and fewer complications but must be weighed against the effect of reduced mechanical properties.

Peng J, Sobolewski P, Strong B, Paul A, **Boura J** and **Ogunyemi D** (2015). "Correlates of urinary arsenic metabolites in women of childbearing age in the National Health and Nutrition Examination Survey (NHANES) 2000-2010." American Journal of Obstetrics and Gynecology 212(1): S245.

[Full-Text](#)

*Department of Biomedical Sciences (BHS)*

*Department of Obstetrics and Gynecology*

OBJECTIVE: To evaluate the associations between urinary arsenic metabolites with pregnancy and select demographic, biometric, dietary, hormonal factors. STUDY DESIGN: This cross-section study analyzed 195 pregnant (PG) and 1178 not pregnant (not PG) women <55 years with urinary arsenic results from NHANES 2000-2010. We analyzed 8 Arsenic values and also mean Arsenic value of URXUAS-Urinary total Arsenic (Amg/L) , URXUAB-Urinary Arsenobetaine (Amg/L) and URXUDMA-Urinary Dimethylarsinic acid (Amg/L).

The database included all dietary intakes (total energy calories, lipids, sugars, protein, fibers), vitamin intakes (A, B1, B12, B6, folate, niacin, C, E, K), trace metals intakes (calcium, phosphorus, magnesium, zinc, iron, selenium, copper, potassium), alcohol, caffeine, and theobromine intakes. HOMA IR Insulin resistance was calculated. We analyzed Arsenic quartiles using Chi-square, Fisher's Exact tests, Kruskal-Wallis tests, Jonckheere-Terpstra tests of trend (JT p=). Logistic regression of the highest Arsenic quartile was performed with PG/noPG using the following covariates (urine creatinine, ethnicity, total Kcal of energy, total fats, age, smoking, waist circumference, arm circumference, BMI, Iron). RESULTS: Pregnant subjects had significantly lower values for most of the urinary arsenic metabolites. Sub scapular skin-fold; dietary intake of cholesterol, vitamin C, selenium, caffeine, and vitamin K were statistically significantly different with significant JT p values for linear trend. Logistic regression showed association between decreased arsenic levels with pregnancy only when creatinine was a covariate (OR=0.651,95% CI:0.434, 0.975), the most significant associations were with non-Hispanic Blacks (OR=1.532,95% CI:1.077,2.178) and non-Hispanic whites (OR=0.685, 95% CI:0.498,0.943). CONCLUSION: There are possible correlations between pregnancy and ethnicity with arsenic exposure. (Table Presented).

**Peters KM**, Gupta P, Ehlert M, Killinger KA, **Boura JA**, Wolfert C, **Bartley J** and **Gilleran J** (2015). "Pudendal neuro modulation after failed sacral stimulation." Neurourology and Urodynamics 34: S87-S88.

[Full-Text](#)

*Department of Urology*

*Department of Biomedical Sciences (BHS)*

Introduction: Many patients benefit from sacral neuromodulation (SNM) yet some do not achieve significant clinical improvements. Patients that fail SNM may benefit from increased afferent stimulation via tined lead placement at the pudendal nerve. We evaluated two-year outcomes in patients that had a pudendal lead placed after failed sacral neuromodulation (SNM). Methods: Adults enrolled in our prospective observational neuromodulation study that had a pudendal lead placed were evaluated. Medical records were reviewed. Outcomes were measured at three, six, 12 and 24 months with Interstitial Cystitis Symptom/ProblemIndices (ICSI-PI), Overactive Bladder Questionnaire (OABq) symptom and quality of life (QOL) domains, voiding diaries, and Global Response Assessments (GRA). Data were examined with Pearsons Chi-square, Fishers Exact, and Wilcoxon rank sum tests. Results: Of 103 patients that had a pudendal lead placed, 48 (46.6%) had prior SNM (mean age 54 (plus or minus) 18 years; 85% female). Primary urologic diagnoses were urinary urgency/frequency with urge incontinence (18/48; 37.5%), interstitial cystitis/ bladder pain syndrome (11/48; 22.9%), urgency/frequency (8/ 48: 16.7%), urinary retention (8/48; 16.7%), and pelvic pain (3/ 48; 6.3%). Mean operative time for lead placement was 48 (plus or minus) 19 minutes and 45/48 (93.8%) underwent generator implantation. Overall, 11 patients required 12 reoperations after lead implant; five of these occurred within the first two years. Four were explanted at median 42 months (25th, 75th: 21.9, 50.9 months). 10/11 patients had symptom worsening as a reason for reoperation. Lead migration was identified in two patients. On average, 45% (range 31 to 50%) of survey responders that had prior SNM reported moderate or marked improvement in urgency, frequency, and urge incontinence at three, six, 12 and 24 months on the GRA. Significant improvements were seen over two years in ICSI-PI composite score ( $p < 0.0001$ ), OABq symptomseverity ( $p < 0.0001$ ), and QOL improved ( $p < 0.0001$ ). When compared to pudendal patients that had not had prior SNM, urologic diagnoses, operative time, generator implant rate, reoperations, lead migration, and GRA responses were similar; ICSI-PI and OABq scores also improved significantly over time ( $p < 0.0001$  and  $p < 0.0001$  respectively). Conclusion: Pudendal neuromodulation is a reasonable alternative for patients regardless of prior sacral failure.

Pokropek C, Sobolewski P, Getachew R, Paul A, **Boura J** and **Ogunyemi D** (2015). "Dietary intake patterns and insulin resistance in women with a history of gestational diabetes in the National Health and Nutrition Examination Survey (NHANES) 2000-2010." American Journal of Obstetrics and Gynecology 212(1): S308.

[Full-Text](#)

*Department of Biomedical Sciences (BHS)*

*Department of Obstetrics and Gynecology*

OBJECTIVE: To evaluate independent associations between women with a history of gestational diabetes

(GDM) with dietary intake patterns and insulin resistance. STUDY DESIGN: This cross-section study used Data from National Health and Nutrition Examination survey for the years 2000-2010. We only included patients that had a response for the question about whether the subject was ever diagnosed with gestational diabetes (GDM) n=4529. This included 290 with GDM and 4239 without. The database included all dietary intakes (total energy calories, lipids, sugars, protein, fibers), vitamin intakes (A,B1, B12, B6, folate, niacin, C, E, K), trace metals intakes (calcium, phosphorus, magnesium, zinc, iron, selenium, copper, potassium), alcohol, caffeine, and theobromine intakes . HOMA IR, Insulin resistance was equal to (fasting insulin in mU/mL X fasting glucose in mmol/L)/22.5. We compared patients with GDM to those without. Categorical variables were analyzed using Pearsons Chi-square tests and reported with Odds ratios (OR) and 95% confidence intervals (CIs). Continuous variables were examined using Wilcoxon rank sum tests. Wald ORs and CIs were calculated using logistic regression with the GDM group as the dependent variable. RESULTS: GDM compared to non-GDM subjects had significantly higher energy calories, protein, total fat, total saturated fatty acids, total mono-saturated fatty acids, total cholesterol intakes and HOMA-IR. With vitamins and trace elements, GDM subjects only had weakly significantly higher niacin and selenium intake levels. CONCLUSION: Adult women with a past history of diabetes in pregnancy seem to eat more and had correspondingly more insulin resistance. (Table Presented).

Pololi LH, Evans AT, Civian JT, Gibbs BK, Coplit LD, **Gillum LH** and Brennan RT (2015). "Faculty vitality-surviving the challenges facing academic health centers: A national survey of medical faculty." Academic Medicine. ePub Ahead of Print.

[Full-Text](#)

*Administration*

PURPOSE: Faculty with high vitality are essential to the missions of academic health centers (AHCs). Because little is known about how to measure or enhance faculty vitality, the authors assessed current faculty vitality and identified its predictors. METHOD: In a stratified random sample of 26 nationally representative U.S. AHCs, the authors surveyed 4,578 full-time faculty during 2007-2009. The validated survey measured detailed faculty perceptions of their professional experiences and organizational culture. Vitality was measured with a previously evaluated five-item scale. RESULTS: Of the faculty invited, 2,381 (52%) responded, with 2,218 eligible for analysis. Respondents included 512 (23%) underrepresented in medicine minority (URMM) faculty and 1,172 (53%) women. In a multivariable model including individual- and AHC-level factors, the strongest predictors of vitality were faculty members' perceptions of four dimensions of AHC culture: Relationships/inclusion, Values alignment, Work-life integration, and Institutional support (all  $P < .001$ ). Weaker predictors were faculty age, institution type (public/private), and the AHC's National Institutes of Health funding rank (all  $P \leq .03$ ). Half of the respondents scored high on vitality, whereas 25% had low, or suboptimal, scores. Holding perceptions of culture constant, neither female nor URMM faculty had vitality scores that were different on average from male or nonminority faculty. CONCLUSIONS: A large percentage of faculty lack the vitality essential to meeting the AHC missions of discovery, education, and patient care. Enhancing faculty vitality, and AHC resilience, requires more attention to strengthening relationships, improving the misalignment between faculty and institutional values, and improving work-life integration.

Pomajzl R, **Maerz T, Shams C, Guettler J** and **Bicos J** (2015). "A review of the anterolateral ligament of the knee: Current knowledge regarding its incidence, anatomy, biomechanics, and surgical dissection." Arthroscopy - Journal of Arthroscopic and Related Surgery 31(3): 583-591.

[Full-Text](#)

*Department of Surgery*

*OUWB Medical Student Author*

*Department of Orthopedic Surgery*

Purpose To systematically review current literature on the anterolateral ligament (ALL) of the knee. Methods We searched the PubMed/Medline database for publications specifically addressing the ALL. We excluded studies not written in English, studies not using human cadavers or subjects, and studies not specifically addressing the ALL. Data extraction related to the incidence, anatomy, morphometry, biomechanics, and

histology of the ALL and its relation to the Segond fracture was performed. Results The incidence of the ALL ranged from 83% to 100%, and this range occurs because of small discrepancies in the definition of the ALL's bony insertions. The ALL originates anterior and distal to the femoral attachment of the lateral collateral ligament. It spans the joint in an oblique fashion and inserts between the fibular head and Gerdy tubercle on the tibia. Exact anatomic and morphometric descriptions vary in the literature, and there are discrepancies regarding the ALL's attachment to the capsule and lateral meniscus. The ALL is a contributor to tibial internal rotation stability, and histologically, it exhibits parallel, crimped fibers consistent with a ligamentous microstructure. The footprint of the ALL has been shown to be at the exact location of the Segond fracture. Conclusions The ALL is a distinct ligamentous structure at the anterolateral aspect of the knee, and it is likely involved in tibial internal rotation stability and the Segond fracture. Level of Evidence Level IV, systematic review of anatomic and imaging studies.

**Qin A**, Sun Y, Liang J and **Yan D** (2015). "Evaluation of online/offline image guidance/adaptation approaches for prostate cancer radiation therapy." International Journal of Radiation Oncology Biology Physics 91(5): 1026-1033.

[Full-Text](#)

*Department of Radiation Oncology*

Purpose To evaluate online/offline image-guided/adaptive treatment techniques for prostate cancer radiation therapy with daily cone-beam CT (CBCT) imaging. Methods and Materials Three treatment techniques were evaluated retrospectively using daily pre- and posttreatment CBCT images on 22 prostate cancer patients. Prostate, seminal vesicles (SV), rectal wall, and bladder were delineated on all CBCT images. For each patient, a pretreatment intensity modulated radiation therapy plan with clinical target volume (CTV) = prostate + SV and planning target volume (PTV) = CTV + 3 mm was created. The 3 treatment techniques were as follows: (1) Daily Correction: The pretreatment intensity modulated radiation therapy plan was delivered after online CBCT imaging, and position correction; (2) Online Planning: Daily online inverse plans with 3-mm CTV-to-PTV margin were created using online CBCT images, and delivered; and (3) Hybrid Adaption: Daily Correction plus an offline adaptive inverse planning performed after the first week of treatment. The adaptive plan was delivered for all remaining 15 fractions. Treatment dose for each technique was constructed using the daily posttreatment CBCT images via deformable image registration. Evaluation was performed using treatment dose distribution in target and critical organs. Results Treatment equivalent uniform dose (EUD) for the CTV was within [85.6%, 100.8%] of the pretreatment planned target EUD for Daily Correction; [98.7%, 103.0%] for Online Planning; and [99.2%, 103.4%] for Hybrid Adaptation. Eighteen percent of the 22 patients in Daily Correction had a target dose deficiency >5%. For rectal wall, the mean (plus or minus) SD of the normalized EUD was 102.6% (plus or minus) 2.7% for Daily Correction, 99.9% (plus or minus) 2.5% for Online Planning, and 100.6% (plus or minus) 2.1% for Hybrid Adaptation. The mean (plus or minus) SD of the normalized bladder EUD was 108.7% (plus or minus) 8.2% for Daily Correction, 92.7% (plus or minus) 8.6% for Online Planning, and 89.4% (plus or minus) 10.8% for Hybrid Adaptation. Conclusions Both Online Planning and Hybrid Adaptation can achieve comparable target coverage and normal tissue sparing and are superior to the Daily Correction technique. The Daily Correction technique using a 3-mm target margin in the pretreatment plan is not appropriate to compensate for residual variations in CBCT image-guided prostate cancer radiation therapy.

Rad S, Mugenyi G, Ganyaglo G, Sobolewski P, Sugiyama N, Josaphat B and **Ogunyemi D** (2015). "An international collaboration for the prevention of severe maternal morbidity and mortality." American Journal of Obstetrics and Gynecology 212(1): S73-S74.

[Full-Text](#)

*Department of Obstetrics and Gynecology*

OBJECTIVE: The prevention of severe maternal morbidity (SMM) and mortality is globally critical. The objective of our abstract is to describe our experience with an international collaboration for the prevention of SMM and mortality. STUDY DESIGN: In December 2010, during a resident and faculty global health mission to Uganda, an International Maternal Morbidity and Mortality Review Conference (IMMC) was developed and initiated. The goals of the collaboration include: (1) Monthly root cause analysis reviews of cases of SMM and mortality via teleconference. Format includes case presentation, use of maternal death

review forms, and development of action plans. A survey was conducted after 3.5 years to assess impact and obtain feedback; (2) Assessment and advancement of residency curriculum and patient care; (3) Faculty exchange and development programs; and (4) Collaborative research projects. RESULTS: Goal 1: Monthly IMMC teleconferences started January 2011. To date, 34 conferences have been completed and the program has expanded from 2 to now 9 institutions. Select topics presented, which relate to SMM and mortality, are listed in Figure 1. Institutions are located in California, Michigan, Arizona, Philadelphia, Florida, Vermont, Uganda, and Ghana. Select survey results are summarized in Table 1. Goal 2: Based on needs assessment, residents in Uganda were given a hands-on course on ultrasound and fetal heart rate (FHR) monitoring; an FHR monitor was donated. Goal 3: A resident, medical student, and Faculty from the USA completed sponsored international OBGYN rotations in Uganda; 2 Faculty from Uganda and Ghana were sponsored to attend a national scientific conference in the USA. Goal 4: The framework for joint research projects have been developed; follow up missions focused on collaborative research and clinical education have been planned. CONCLUSION: An international educational collaboration which contributes to the global prevention of SMM and mortality can be implemented and maintained with minimal resources. (Table Presented).

Rajaganapathy BR, **Chancellor MB**, Nirmal J, Dang L and Tyagi P (2015). "Bladder uptake of liposomes after intravesical administration occurs by endocytosis." *PloS One* 10(3): 1-15.

[Full-Text](#)

*Department of Urology*

Liposomes have been used therapeutically and as a local drug delivery system in the bladder. However, the exact mechanism for the uptake of liposomes by bladder cells is unclear. In the present study, we investigated the role of endocytosis in the uptake of liposomes by cultured human UROtsa cells of urothelium and rat bladder. UROtsa cells were incubated in serum-free media with liposomes containing colloidal gold particles for 2 h either at 37(degrees)C or at 4(degrees)C. Transmission Electron Microscopy (TEM) images of cells incubated at 37(degrees)C found endocytic vesicles containing gold inside the cells. In contrast, only extracellular binding was noticed in cells incubated with liposomes at 4(degrees)C. Absence of liposome internalization at 4(degrees)C indicates the need of energy dependent endocytosis as the primary mechanism of entry of liposomes into the urothelium. Flow cytometry analysis revealed that the uptake of liposomes at 37(degrees)C occurs via clathrin mediated endocytosis. Based on these observations, we propose that clathrin mediated endocytosis is the main route of entry for liposomes into the urothelial layer of the bladder and the findings here support the usefulness of liposomes in intravesical drug delivery.

Rajaganapathy BR, Janicki JJ, Levanovich P, Tyagi P, **Hafron J**, **Chancellor MB**, **Krueger S** and **Marples B** (2015). "Intravesical liposomal tacrolimus protects against radiation cystitis induced by 3-beam targeted bladder radiation." *Journal of Urology*. ePub Ahead of Print.

[Full-Text](#)

*Department of Urology*

*Department of Radiation Oncology*

PURPOSE: This study primarily sought to determine if the Small Animal Radiation Research Platform (SARRP) can create a rat radiation cystitis (RC) model via targeted bladder irradiation (phase I). The response to treatment of early phase RC in rats via transurethral catheter instillation of liposomal tacrolimus (lipo-tacrolimus) was examined in phase II. MATERIALS AND METHODS: In phase I, 16 adult female Sprague-Dawley rats were used and their metabolic urination patterns were analyzed before and after exposure to 20, 30, or 40 Gy radiation. In phase II, irradiated rats were randomly assigned to receive a single instillation of either saline or lipo-tacrolimus. RESULTS: The 40 Gy radiation dose induced statistically significant reductions in inter-micturition intervals (IMI) compared to the lower doses of radiation. 40 Gy radiation caused a significant reduction in mean IMI by approximately 20 minutes ( $p < 0.0001$ ). Histological analysis indicated degenerative type epithelial changes and urothelial swelling, with evidence of pseudocarcinomatous epithelial hyperplasia. Therefore, 40 Gy was chosen for the phase II efficacy study. There was no measurable change in total voided urine volume after irradiation or after instillation of lipo-tacrolimus or saline. Lipo-tacrolimus treatment significantly increased post-irradiation IMI values by

approximately 30 minutes ( $p < 0.001$ ) back to baseline levels. CONCLUSIONS: The RC rat model demonstrated a dose-dependent decrease in IMI without inducing short-term skin or gastrointestinal damage. This study demonstrated that lipo-tacrolimus may be a promising new intravesical therapy for the rare and serious condition of RC.

**Rajasekaran SK**, Smith J and **Engwall K** (2015). "Mobile handheld devices applications to teach rational prescribing and safe medication practices." The FASEB Journal 29(1 Supplement): 928.927.

[Full-Text](#)

*Department of Biomedical Sciences (OU)*

*Medical Library*

With the growing emphasis on evidence-based medicine, medical students face the challenge of assimilating a huge volume of new information during medical school. Among the most significant trends in medical education is the emergence of high quality medical applications for smart phones and tablets. As digital natives, millennial medical students respond well to this approach. First year medical students were chosen for this activity. We chose three apps (Micromedex, Epocrates and DynaMed) and for each app, the students were assigned questions related to a clinical case and a corresponding app to answer them. The tasks included a drug interaction check, adverse effect check, cost effective alternative check and patient advice and reference the levels of evidence (I, II and III). Also, students were directed to use the apps to perform similar tasks with the prescription drugs that their family or friends were taking. The students were asked to fill out an optional online pre- and post-session survey rating their level of awareness and expertise in using these apps. Out of 75 students, 42 answered both surveys. Preliminary results indicate that self-described ratings of application expertise rose substantially, as did their knowledge about critical clinical information relevant to prescribing practices. Students' knowledge of these applications also impacted their understanding of drug indications, efficacy, reactions, and interactions. Our results suggest that pedagogical interventions like these may hold potential to improve safe medication practices in clinical settings.

**Rezaee ME** and **Pollock M** (2015). "Multiple chronic conditions among outpatient pediatric patients, Southeastern Michigan, 2008-2013." Preventing Chronic Disease 12(2): 1-9.

[Full-Text](#)

*Department of Internal Medicine*

Studies investigating the prevalence of multiple chronic conditions (MCCs) and their associated health care cost and use among pediatric populations have been limited. Among 14,404 pediatric patients receiving outpatient care in southeastern Michigan from 2008 through 2013, 82.1% had 0 chronic conditions, 16.2% had 1 chronic condition, and 1.6% had 2 or more chronic conditions. Greater numbers of chronic conditions significantly predicted outpatient cost ( $\beta = 581.7$ ,  $P < .001$ ), visit frequency ( $\beta = 9.1$ ,  $P < .001$ ), and days between appointments ( $\beta = -33.9$ ,  $P < .001$ ). Further study of MCCs among pediatric patients is needed given their increasing prevalence and their associated health care cost and use.

Ricciardi BF, Fabricant PD, Fields KG, Poultsides L, **Zaltz I** and Sink EL (2015). "What are the demographic and radiographic characteristics of patients with symptomatic extraarticular femoroacetabular impingement?" Clinical Orthopaedics and Related Research 473(4): 1299-1308.

[Full-Text](#)

*Department of Orthopedic Surgery*

Extraarticular femoroacetabular impingement (FAI) can result in symptomatic hip pain, but preoperative demographic, radiographic, and physical examination findings have not been well characterized. The purposes of this study were to (1) define the demographic characteristics of patients with symptomatic extraarticular FAI; and (2) identify relevant radiographic and physical examination findings that are associated with intraoperative locations of extraarticular FAI. For purposes of this study, we defined extraarticular FAI as abnormal contact between the extraarticular regions of the proximal femur (greater trochanter, lesser trochanter, extracapsular femoral neck) and the ilium or ischium. The diagnosis was suspected preoperatively, but it was confirmed at the time of surgery by direct visualization of extraarticular impingement after surgical hip dislocation. A prospective single-center hip preservation registry was used to

retrospectively characterize patients presenting between October 2010 and November 2013 with symptomatic hip pain and intraoperative findings of extraarticular FAI (N = 75 patients, 86 hips). Detailed demographic data were recorded. Radiographs, CT, and MRI scans were reviewed for all patients by two of the authors (BFR, ELS). Outcome instruments including modified Harris hip score (mHHS), Hip Outcome Score (HOS), and International Hip Outcome Tool (iHOT-33) were assessed preoperatively. A comparison group of all patients (N = 1690 patients, 1989 hips) undergoing surgery for intraarticular FAI over the study period were included for demographic comparisons. Cases with extraarticular FAI accounted for 4% (75 of 1765 patients) of our cohort over the study time period. Patients with extraarticular FAI were more likely to be younger (mean +/- A SD, 24 +/- A 7 years versus 30 +/- A 11 years; difference [95% confidence interval {CI}], -7 [-9 to -4]; p < 0.001), female (85% versus 49%; odds ratio [95% CI], 6 [3 to 12]; p < 0.001), to have undergone prior hip surgery (44% versus 10%; odds ratio [95% CI], 9 [6 to 15]; p < 0.001), and have lower preoperative outcome scores after adjustment for age, sex, and revision status (mHHS 55 +/- A 15 versus 63 +/- A 15; adjusted difference [95% CI], -4 (-8 to -1); p = 0.017; HOS ADL 64 +/- A 19 versus 73 +/- A 18; adjusted difference [95% CI], -7 (-11 to -3); p = 0.002) than patients undergoing surgery for intraarticular FAI. Within the extraarticular FAI group, preoperative femoral version on CT was different among patients with anterior versus posterior extraarticular impingement (median [first quartile, third quartile], 8A degrees [2, 18] versus 21A degrees [20, 30], respectively; p = 0.005) and anterior versus complex extraarticular impingement (median [first quartile, third quartile], 8A degrees [2, 18] versus 20A degrees [10, 30], respectively; p = 0.007). Preoperative external rotation in extension was increased in patients with anterior versus complex extraarticular FAI (median [first quartile, third quartile], 70A degrees [55, 75] versus 40A degrees [20, 60]; p < 0.001). Extraarticular FAI is an uncommon source of impingement symptoms. We suspect the diagnosis often is missed, because many of these patients had prior hip surgery before the procedure that diagnosed the extraarticular impingement source. This diagnosis seems more common in younger, female patients. Radiographic and physical examination findings correspond to locations of intraoperative extraarticular impingement. Future studies will need to determine whether surgical treatment of extraarticular impingement pathology improves pain and function in this subset of patients. Level III, therapeutic study.

Rodenbaugh HR, Lujan HL, **Rodenbaugh DW** and DiCarlo SE (2015). "Having fun and accepting challenges are natural instincts: Jigsaw puzzles to challenge students and test their abilities while having fun!" *Advances in Physiology Education* 38(2): 185-186.

[Full-Text](#)

*Department of Biomedical Sciences (OU)*

Ross D, **Maerz T**, **Kurziel M**, Hein J, **Doshi S**, Bedi A, **Anderson K** and **Baker K** (2015). "The effect of granulocyte-colony stimulating factor on rotator cuff healing after injury and repair." *Clinical Orthopaedics and Related Research* 473(5): 1655-1664.

[Full-Text](#)

*Department of Surgery*

*Department of Diagnostic Radiology and Molecular Imaging*

*Department of Orthopedic Surgery*

**BACKGROUND:** The failure rate of tendon-bone healing after repair of rotator cuff tears remains high. A variety of biologic- and cell-based therapies aimed at improving rotator cuff healing have been investigated, and stem cell-based techniques have become increasingly more common. However, most studies have focused on the implantation of exogenous cells, which introduces higher risk and cost. We aimed to improve rotator cuff healing by inducing endogenous stem cell mobilization with systemic administration of granulocyte-colony stimulating factor (G-CSF). **QUESTIONS/PURPOSES:** We asked: (1) Does G-CSF administration increase local cellularity after acute rotator cuff repair? (2) Is there histologic evidence that G-CSF improved organization at the healing enthesis? (3) Does G-CSF administration improve biomechanical properties of the healing supraspinatus tendon-bone complex? (4) Are there micro-MRI-based observations indicating G-CSF-augmented tendon-bone healing? **METHODS:** After creation of full-thickness supraspinatus tendon defects with immediate repair, 52 rats were randomized to control or G-CSF-treated groups. G-CSF was administered for 5 days after repair and rats were euthanized at 12 or 19 postoperative days. Shoulders

were subjected to micro-MR imaging, stress relaxation, and load-to-failure as well as blinded histologic and histomorphometric analyses. RESULTS: G-CSF-treated animals had significantly higher cellularity composite scores at 12 and 19 days compared with both control (12 days: 7.40 +/- 1.14 [confidence interval {CI}, 5.98-8.81] versus 4.50 +/- 0.57 [CI, 3.58-5.41], p = 0.038; 19 days: 8.00 +/- 1.00 [CI, 6.75-9.24] versus 5.40 +/- 0.89 [CI, 4.28-6.51], p = 0.023) and normal animals (12 days: p = 0.029; 19 days: p = 0.019). There was no significant difference between G-CSF-treated animals or control animals in ultimate stress (MPa) and strain, modulus (MPa), or yield stress (MPa) and strain at either 12 days (p = 1.000, p = 0.104, p = 1.000, p = 0.909, and p = 0.483, respectively) or 19 days (p = 0.999, p = 0.964, p = 1.000, p = 0.988, and p = 0.904, respectively). There was no difference in MRI score between G-CSF and control animals at either 12 days (2.7 +/- 1.8 [CI, 1.08-4.24] versus 2.3 +/- 1.8 [CI, 0.49-4.17], p = 0.623) or 19 days (2.5 +/- 1.4 [CI, 1.05-3.94] versus 2.3 +/- 1.5 [CI, 0.75-3.91], p = 0.737). G-CSF-treated animals exhibited significantly lower relative bone volume compared with normal animals in the entire humeral head (24.89 +/- 3.80 [CI, 20.17-29.60] versus 32.50 +/- 2.38 [CI, 29.99-35.01], p = 0.009) and at the supraspinatus insertion (25.67 +/- 5.33 [CI, 19.04-32.29] versus 33.36 +/- 1.69 [CI, 31.58-35.14], p = 0.027) at 12 days. Further analysis did not reveal any additional significant relationships with respect to regional bone volume or trabecular thickness between groups and time points (p > 0.05). CLINICAL RELEVANCE: Postoperative stem cell mobilization agents may be an effective way to enhance rotator cuff repair. Future studies regarding the kinetics of mobilization, the homing capacity of mobilized cells to injured tissues, and the ability of homing cells to participate in regenerative pathways are necessary.

Russell MM, Ganz PA, Lopa S, Yothers G, Ko CY, Arora A, Atkins JN, Bahary N, Soori GS, **Robertson JM**, Eakle J, Marchello BT, Wozniak TF, Beart RW and Wolmark N (2015). "Comparative effectiveness of sphincter-sparing surgery versus abdominoperineal resection in rectal cancer patient-reported outcomes in national surgical adjuvant breast and bowel project randomized trial r-04." *Annals of Surgery* 261(1): 144-148.

[Full-Text](#)

*Department of Radiation Oncology*

Objective: National Surgical Adjuvant Breast and Bowel Project (NSABP) R-04 was a randomized controlled trial of neoadjuvant chemoradiotherapy in patients with resectable stage II-III rectal cancer. We hypothesized that patients who underwent abdominoperineal resection (APR) would have a poorer quality of life than those who underwent sphincter-sparing surgery (SSS). Methods: To obtain patient-reported outcomes (PROs) we administered two symptom scales at baseline and 1 year postoperatively: the Functional Assessment of Cancer Therapy-Colorectal (FACT-C) and the European Organization for the Research and Treatment of Cancer module for patients with Colorectal Cancer Quality of Life Questionnaire (EORTC QLQ-CR38). Scoring was stratified by nonrandomly assigned definitive surgery (APR vs SSS). Analyses controlled for baseline scores and stratification factors: age, sex, stage, intended surgery, and randomly assigned chemoradiotherapy. Results: Of 1,608 randomly assigned patients, 987 had data for planned analyses; 62% underwent SSS; 38% underwent APR. FACT-C total and subscale scores were not statistically different by surgery at 1 year. For the EORTC QLQ-CR38 functional scales, APR patients reported worse body image (70.3 vs 77.0, P = 0.0005) at 1 year than did SSS patients. Males undergoing APR reported worse sexual enjoyment (43.7 vs 54.7, P = 0.02) at 1 year than did those undergoing SSS. For the EORTC QLQ-CR38 symptom scale scores, APR patients reported worse micturition symptoms than the SSS group at 1 year (26.9 vs 21.5, P = 0.03). SSS patients reported worse gastrointestinal tract symptoms than did the APR patients (18.9 vs 15.2, P < 0.0001), as well as weight loss (10.1 vs 6.0, P = 0.002). Conclusions: Symptoms and functional problems were detected at 1 year by EORTC QLQ-CR38, reflecting different symptom profiles in patients who underwent APR than those who underwent SSS. Information from these PROs may be useful in counseling patients anticipating surgery for rectal cancer.

**Safian RD** (2015). "Bridging antiplatelet therapy prior to surgery in DES patients: Is less more?" *Catheterization and Cardiovascular Interventions* 85(1): 32-33.

[Full-Text](#)

*Department of Internal Medicine*

**Safian RD** (2015). "The TAVI stent frame: Minimum security prison for the coronary arteries." Catheterization and Cardiovascular Interventions 85(3): 488-489.

[Full-Text](#)

*Department of Internal Medicine*

Sallis R, **Franklin B**, Joy L, Ross R, Sabgir D and Stone J (2015). "Strategies for promoting physical activity in clinical practice." Progress in Cardiovascular Diseases 57(4): 375-386.

[Full-Text](#)

*Department of Internal Medicine*

The time has come for healthcare systems to take an active role in the promotion of physical activity (PA). The connection between PA and health has been clearly established and exercise should be viewed as a cost effective medication that is universally prescribed as a first line treatment for virtually every chronic disease. While there are potential risks associated with exercise, these can be minimized with a proper approach and are far outweighed by the benefits. Key to promoting PA in the clinical setting is the use of a PA Vital Sign in which every patient's exercise habits are assessed and recorded in their medical record. Those not meeting the recommended 150min per week of moderate intensity PA should be encouraged to increase their PA levels with a proper exercise prescription. We can improve compliance by assessing our patient's barriers to being more active and employing new and evolving technology like accelerometers and smart phones applications, along with various websites and programs that have proven efficacy.

Salzman JG, Frascione RJ, Burkhart N, Holcomb R, Wewerka SS, **Swor RA**, Mahoney BD, Wayne MA, Domeier RM, Olinger ML, Aufderheide TP and Lurie KG (2015). "The association of health status and providing consent to continued participation in an out-of-hospital cardiac arrest trial performed under exception from informed consent." Academic Emergency Medicine 22(3): 347-353.

[Full-Text](#)

*Department of Emergency Medicine*

Objectives Emergency medical research performed under federal regulation 21 (section) CFR 50.24 provides a means to protect human subjects and investigate novel time-sensitive treatments. Although prospective individual consent is not required for studies conducted under this regulation, consent from a legally authorized representative (LAR) or the patient at the earliest feasible opportunity is required to obtain short- and long-term outcome data. The objective of this study was to determine which demographic, cardiac arrest, and patient outcome characteristics predicted the likelihood of obtaining informed consent following enrollment under exception from informed consent in a multicenter cardiac arrest study. Methods This investigation was an analysis of data collected during a multisite, randomized, controlled, out-of-hospital cardiac arrest clinical trial performed under 21 (section) CFR 50.24. Research personnel attempted to obtain informed consent from LARs and subjects for medical records review of primary outcome data, as well as consent for neurologic outcome assessments up to 1 year post-cardiac arrest. Hospital discharge and neurologic status were obtained from public records and/or medical records up until the time consent was formally denied, in accordance with federal regulations and guidance. Local institutional review boards also allowed medical records review for cases where consent was neither obtained nor declined despite multiple consent attempts. Patient demographic, cardiac arrest, and clinical outcome characteristics were analyzed in univariate multinomial regression models, with consent status (obtained, denied, neither obtained nor denied) as the dependent variable. A multivariate multinomial logistic regression was then performed. An exploratory secondary analysis following the same process was performed after assigning patients who neither consented nor declined to the declined consent group. Results Among a total study population of 1,655 cardiac arrest subjects, 457 were transported and had consent attempted (27.6%). The survival status and neurologic function at the time of hospital discharge were known in 440 of 457 (96%) subjects. In the multivariate analysis, initial rhythm of ventricular fibrillation/ventricular tachycardia (VF/VT) and survival with good neurologic outcome were strong predictors of obtaining consent (odds ratio [OR] = 3.15, 95% confidence interval [CI] = 1.73 to 5.75; OR = 7.64, 95% CI = 2.28 to 25.63, respectively). The exploratory secondary analysis also showed initial rhythm of VF/VT and survival with good neurologic outcome as strong predictors of obtaining consent (OR = 1.86, 95% CI = 1.17 to 2.95; OR = 4.52, 95% CI = 2.21 to 9.26,

respectively). Conclusions Initial arrest rhythm and survival with good neurologic outcome were highly predictive of obtaining consent in this cardiac arrest trial. This phenomenon could result in underrepresentation of outcome data in the study arm with the worse outcome and represents a significant potential confounder in studies performed under 21 (section) CFR 50.24. Future revisions to the exception from informed consent regulations should allow access to critical survival data recorded as part of standard documentation, regardless of patient consent status.

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

[Full-Text](#)

*Department of Internal Medicine*

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

**Sawyer KN** and Kurz MC (2015). "If there is a "time to target temperature paradox" in post-cardiac arrest care, would we know?" Resuscitation 88: A3-A4.

[Full-Text](#)

*Department of Emergency Medicine*

Schulman-Marcus J, Hertaigh BO, Giambone AE, Gransar H, Valenti V, Berman DS, Budoff MJ, Achenbach S, Al-Mallah M, Andreini D, Cademartiri F, Callister TQ, Chang HJ, **Chinnaiyan K**, Chow BJ, Cury R, Delago A, Hadamitzky M, Hausleiter J, Feuchtner G, Kim YJ, Kaufmann PA, Leipsic J, Lin FY, Maffei E, Pontone G, Raff G, Shaw LJ, Villines TC, Dunning A and Min JK (2015). "Effects of cardiac medications for patients with obstructive coronary artery disease by coronary computed tomographic angiography: Results from the multicenter CONFIRM registry." Atherosclerosis 238(1): 119-125.

[Full-Text](#)

*Department of Internal Medicine*

OBJECTIVE: This study sought to determine the correlation between baseline cardiac medications and cardiovascular outcomes in patients with obstructive coronary artery disease (CAD) diagnosed by coronary computed tomographic angiography (CCTA). METHODS: 1637 patients (mean age 64.8 +/- 10.2 years, 69.6% male) with obstructive CAD from the CONFIRM (COronary CT Angiography EvaluationN For Clinical Outcomes: An InteRnational Multicenter) registry were followed over the course of three years. Obstructive CAD was defined as a >/=50% stenosis in an epicardial vessel. Medications analyzed included statins, aspirin, beta-blockers, angiotensin converting enzyme (ACE) inhibitors, and angiotensin receptor blockers (ARBs). Using Cox proportional-hazards models, we calculated the hazard ratio (HR) with 95% confidence intervals (95% CIs) for incident major adverse cardiovascular events (MACE), defined as death, acute coronary syndrome, or myocardial infarction. RESULTS: At the time of CCTA, 59%, 54%, 40%, and 46% of patients were using statins, aspirin, beta-blockers, and ACE inhibitors or ARBs, respectively. Statins were associated with a 43% (95% CI = 0.38-0.87, p = 0.008) lower adjusted risk of MACE. Following adjustment, aspirin, beta-blockers, ACE inhibitors and ARBs did not attenuate the risk of MACE. When restricted to patients with multivessel obstructive CAD, only statins were associated with lower risk of MACE. CONCLUSION: In patients with obstructive CAD by CCTA, the baseline use of statins was associated with improved clinical outcomes. Other cardiac medications-including aspirin, beta-blockers, ACE inhibitors, and ARBs-were not associated with reduced risk of MACE.

Scruggs RT and **Black EH** (2015). "Granular cell tumor masquerading as a chalazion: A case report." [Ophthalmic Plastic and Reconstructive Surgery](#) 31(1): e6-e8.

[Full-Text](#)

*Department of Ophthalmology*

Granular cell tumors were first described in the 1920s and since then have been commonly found throughout the body. They are rarely found in periorbital, orbital, and ocular structures. The authors present a patient with a 2-year history of a lesion that had been previously excised as a presumed chalazion without pathologic analysis. The lesion recurred, and histopathological analysis following complete resection revealed a granular cell tumor. This case is an example of a rare periocular tumor. Although only an isolated case, it provides support for the recommendation that excised lesions be sent to pathologic study, particularly those with an atypical clinical course.

Shah AR, Abbey AM and **Williams GA** (2015). "Evolving surgical management of rhegmatogenous retinal detachments." [Current Surgery Reports](#) 3(3): 1-5.

[Request Form](#)

*Department of Ophthalmology*

**Shapiro PS**, Diao E and Givens LM (2015). "Meniscal allograft arthroplasty for the treatment of trapeziometacarpal arthritis of the thumb." [Hand](#): 1-10. ePub Ahead of Print.

[Full-Text](#)

*Department of Orthopedic Surgery*

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

[Full-Text](#)

*Department of Diagnostic Radiology and Molecular Imaging*

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

**Siegel MJ**, Boling WS, Faridi OS, **Gupta CK**, Kim C, Boling RC, **Citron ME**, **Siegel MJ** and **Siegel LI** (2015). "Combined endoscopic cyclophotocoagulation and phacoemulsification versus phacoemulsification alone in the treatment of mild to moderate glaucoma." [Clinical & Experimental Ophthalmology](#). ePub Ahead of Print.

[Full-Text](#)

*Department of Ophthalmology*

**BACKGROUND:** To evaluate the long-term effects of combined endoscopic cyclophotocoagulation (ECP) and

phacoemulsification (phaco) vs. phacoemulsification alone on intraocular pressure (IOP) control and medication reliance in the treatment of mild to moderate glaucoma. DESIGN: Retrospective chart review in private practice setting by glaucoma fellowship trained surgeons. PARTICIPANTS: 261 eyes in the combined phaco-ECP group with 52 eyes in the phaco alone group. METHODS: Comparison of phaco-ECP to phaco alone over 36 months. MAIN OUTCOME MEASURES: Full and qualified success cumulative survival, IOP and medication reliance six to 36 months compared to baseline. Full success was defined as minimum 20% IOP reduction with a decrease of at least one ocular hypertensive medication. Qualified success was defined as IOP no higher than baseline with a decrease of at least one ocular hypertensive medication. RESULTS: At 36 months, mean IOP in the combined phaco-ECP group was 14.6 mmHg while the phaco alone group was 15.5 mmHg (P = 0.34). Mean medication reliance in the combined phaco-ECP group was 0.2 medications while the phaco alone group was 1.2 (P <0.001). Full success in the phaco-ECP group was 61.4%; the phaco alone group was 23.3% (P<0.001). Qualified success survival was 72.6% in the phaco-ECP group and 23.3% in the phaco alone group (P <0.001). CONCLUSIONS: Combined phaco-ECP effectively lowers or maintains IOP and results in ocular hypertensive medication reduction up to 36 months when compared to phaco alone. Therefore phaco-ECP may help to increase medication compliance and reduce glaucoma progression in mild to moderate glaucoma.

Sikdar S, Prada A and **Crisan D** (2015). "Calreticulin mutation in JAK2V617F negative myeloproliferative neoplasms - the Beaumont experience." Modern Pathology 28: 378A.

[Full-Text](#)

*Department of Pathology*

Sikdar S, Prada A and **Crisan D** (2015). "Calreticulin mutation in JAK2V617F negative myeloproliferative neoplasms-the Beaumont experience." Laboratory Investigation 95: 378A.

[Full-Text](#)

*Department of Pathology*

Background: Approximately 50 to 60% of patients with essential thrombocythemia (ET) or primary myelofibrosis (PMF) carry a mutation in the Janus kinase 2 gene (JAK2), and an additional 5 to 10% have activating mutations in the thrombopoietin receptor gene (MPL). Calreticulin gene (CALR) mutations have been recently reported in the majority of JAK2 and MPL negative ET and PMF cases. We performed CALR mutation analysis in such cases to establish the rate of positivity in our institution and correlate with clinical presentation and evolution. Design: After human investigation committee (HIC) approval, 14 JAK2 negative and 25 JAK2 or MPL positive cases were identified from the records in molecular pathology from 2006 to 2014. These cases had a bone marrow diagnosis of ET or PMF. All samples were previously analysed for the presence of JAK2V617F mutation. CALR exon 9 indel mutation analysis was performed on stored DNA; all JAK2V617F negative cases were also analyzed for the presence of MPL mutation using real time PCR with allele discrimination. For the detection of CALR mutations, genomic DNA was amplified by PCR and products were analyzed by capillary electrophoresis. Statistical analysis was performed considering clinical and laboratory parameters obtained at the time of diagnosis or first referral. Results: We identified somatic mutations in CALR in JAK2 negative patients with a bone marrow diagnosis of PMF and ET. CALR mutations were mutually exclusive with both JAK2 and MPL mutations. Of the 14 JAK2 negative cases, CALR mutation was positive in 8 cases (57.1%); 6 cases (42.9 %) were triple negative. All 24 cases of JAK2 positive myeloproliferative neoplasms (16 ET and 8 PMF) and one case of MPL positive PMF, were negative for CALR mutation. The CALR mutation-positive cases were more prevalent in ET (75%), had higher hemoglobin (mean 12.5 g/dL) and lower white blood cell count (mean 8.6 bil/L) and showed tendency for younger age at diagnosis (mean 61 years). However, the case numbers were too small to get reliable statistical analysis. Conclusions: Somatic CALR mutations were found in a significant number (57.1%) of patients with myeloproliferative neoplasms (MPNs) with nonmutated JAK2 or MPL. CALR mutational screening in MPNs helps the diagnosis of ET and PMF in cases negative for JAK2 and MPL mutations and should be included in the MPN testing algorithm.

Simon V, Quant C, Fong A, Pan D and **Ogunyemi D** (2015). "Total parenteral nutrition in pregnancy-a strong association with venous thromboembolism and other obstetrical morbidities." *American Journal of Obstetrics and Gynecology* 212(1): S419.

[Full-Text](#)

*Department of Obstetrics and Gynecology*

OBJECTIVE: To describe the association of total parental nutrition (TPN) in pregnancy to venous thromboembolism (VTE) and other obstetrical morbidities. STUDY DESIGN: A retrospective cohort study was performed using California discharge data. All deliveries from 2001-2009 were analyzed. Women receiving TPN as well as other obstetric morbidities were identified via ICD-9-CM codes. 493 cases of TPN in the cohort were compared to the remaining deliveries (n=4,423,556). Either presence of deep venous thrombosis and/or pulmonary embolism qualified as having VTE. Logistic regression was performed to adjust for potential confounders. RESULTS: Subjects undergoing TPN were older and more likely to be of African-American race. They were also more likely to have chronic hypertension, renal disease, diabetes, and multiple gestations. The adjusted rate of VTE was 1 in 27 - a marked increase of 38-fold (aOR 37.8, 95% CI 23.5-61.0) when compared to the population baseline rate (1 in 1,394). Other increased morbidities included stillbirth (aOR 3.9, 95% CI 2.2-7.2), preterm delivery (aOR 3.0, 95% CI 2.4-3.8), endometritis (aOR 12.0, 95% CI 7.9-18.3), postpartum hemorrhage (aOR 1.7, 95% CI 1.1-2.6), placental abruption (aOR 3.0, 95% CI 1.8-4.9), and severe preeclampsia (aOR 3.3, 95% CI 2.0-5.5). There were no differences in other obstetrical outcomes including cesarean delivery, preterm premature rupture of membranes, mild preeclampsia or chorioamnionitis. CONCLUSION: There is a markedly increased prevalence of thrombotic events in pregnant patients undergoing TPN. Other obstetrical morbidities appear to be increased as well. This may be due to the fact that TPN patients often have other underlying medical conditions, central venous catheterization or other factors to increase thrombosis risk. Future research should aim to confirm this association as our findings suggest that venous thromboprophylaxis could be considered in women undergoing TPN in pregnancy. (Table Presented).

Singh S, Manickam P, Iyer PG and **Desai TK** (2015). "Response." *Gastrointestinal Endoscopy* 81(2): 484-485.

[Full-Text](#)

*Department of Internal Medicine*

**Sirls LT**, Tennstedt S, Brubaker L, Kim HY, Nygaard I, Rahn DD, Shepherd J and Richter HE (2015). "The minimum important difference for the international consultation on incontinence questionnaire - Urinary incontinence short form in women with stress urinary incontinence." *Neurourology and Urodynamics* 34(2): 183-187.

[Full-Text](#)

*Department of Urology*

Introduction Minimum important difference (MID) estimates the minimum degree of change in an instrument's score that correlates with a patient's subjective sense of improvement. We aimed to determine the MID for the International Consultation on Incontinence Questionnaire-Urinary Incontinence Short Form (ICIQ-UI SF) using both anchor based and distribution based methods derived using data from the Trial of Midurethral Slings (TOMUS). Materials and Methods Instruments for the anchor-based analyses included the urogenital distress inventory (UDI), incontinence impact questionnaire (IIQ), patient global impression of improvement (PGI-I), incontinence episodes (IE) on 7-day bladder diary, and satisfaction with surgical results. After confirming moderate correlation ( $r$  (greater-than or equal to) 0.3) of ICIQ-UI SF and each anchor, MIDs were determined by calculating the difference between the mean instrument scores for individuals with the smallest amount of improvement and with no change. The distribution-based method of MID assessment was applied using effect sizes of 0.2 and 0.5 SD (small to medium effects). Triangulation was used to examine these multiple MID values in order to converge on a small range of values. Results Anchor-based MIDs range from -4.5 to -5.7 at 12 months and from -3.1 to 4.3 at 24 months. Distribution-based MID values were lower. Triangulation analysis supports a MID of -5 at 12 months and -4 at 24 months. Conclusion The recommended MIDs for ICIQ-UI SF are -5 at 12 months and -4 at 24 months. In surgical patients, ICIQ-UI SF score changes that meet these thresholds can be considered clinically meaningful. *Neurourol. Urodynam.* 34:183-187, 2015.

Smillie RP, **Shetty M, Boyer AC**, Madraza B and **Jafri SZ** (2015). "Imaging evaluation of the inferior vena cava." *Radiographics* 35(2): 578-592.

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*Department of Diagnostic Radiology and Molecular Imaging*

The inferior vena cava (IVC) is an essential but often overlooked structure at abdominal imaging. It is associated with a wide variety of congenital and pathologic processes and can be a source of vital information for referring clinicians. Initial evaluation of the IVC is most likely to occur at computed tomography performed for another indication. Many routine abdominal imaging protocols may result in suboptimal evaluation of the IVC; however, techniques to assist in specific evaluation of the IVC can be used. In this article, the authors review the spectrum of IVC variants and pathologic processes and the relevant findings from magnetic resonance imaging, angiography, sonography, and positron emission tomography. Embryologic development of the IVC and examples of congenital IVC variants, such as absence, duplication, left-sided location, azygous or hemiazygous continuation, and web formation, are described. The authors detail IVC involvement in Wilms tumor, leiomyosarcoma, adrenal cortical carcinoma, testicular carcinoma, hepatocellular carcinoma, renal cell carcinoma, and other neoplasms, as well as postsurgical, traumatic, and infectious entities (including filter malposition, mesocaval shunt, and septic thrombophlebitis). The implications of these entities for patient treatment and instances in which specific details should be included in the dictated radiology report are highlighted. Furthermore, the common pitfalls of IVC imaging are discussed. The information provided in this review will allow radiologists to detect and accurately characterize IVC abnormalities to guide clinical decision making and improve patient care. ((c))RSNA, 2015.

Smorgick Y, **Baker KC**, Herkowitz H, **Montgomery D**, Badve SA, Bachison C, Ericksen S and **Fischgrund JS** (2015). "Predisposing factors for dural tear in patients undergoing lumbar spine surgery." *Journal of Neurosurgery: Spine*: 1-4. ePub Ahead of Print.

[Full-Text](#)

*Department of Orthopedic Surgery*

**Smythe MA**, Forman MJ, Bertran EA, Hoffman JL, Priziola JL and Koerber JM (2015). "Dabigatran versus warfarin major bleeding in practice: an observational comparison of patient characteristics, management and outcomes in atrial fibrillation patients." *Journal of Thrombosis and Thrombolysis*. ePub Ahead of Print.

[Full-Text](#)

*Department of Biomedical Sciences (BHS)*

Data comparing the patient characteristics, management and outcomes for dabigatran versus warfarin major bleeding in the practice setting are limited. We performed a retrospective single health system study of atrial fibrillation patients with dabigatran or warfarin major bleeding from October 2010 through September 2012. Patient identification occurred through both an internal adverse event reporting system and a structured stepwise data filtering approach using the International Classification of Diseases diagnosis codes. Thirty-five dabigatran major bleeding patients were identified and compared to 70 warfarin major bleeding patients. Intracranial bleed occurred in 4.3 % of warfarin patients and 8.6 % of dabigatran patients. Dabigatran patients tended to be older (79.9 vs. 76 years) and were more likely to have a creatinine clearance of 15-30 mL/min (40 vs. 18.6 %,  $p = 0.02$ ). Over one-third of dabigatran patients had an excessive dose based on renal function. More dabigatran patients required a procedure for bleed management (37.1 vs. 17.1 %,  $p = 0.03$ ) and received a hemostatic agent for reversal (11.4 vs. 1.4 %,  $p = 0.04$ ). Dabigatran patients were twice as likely to spend time in an ICU (45.7 vs. 27.1 %,  $p = 0.06$ ), be placed in hospice/comfort care (14.3 vs. 7.1 %,  $p = 0.24$ ), expire during hospitalization (14.3 vs. 7.1 %,  $p = 0.24$ ), and expire within 30-days (22.9 vs. 11.4 %,  $p = 0.28$ ). In a single hospital center practice setting, as compared to warfarin, patients with dabigatran major bleeding were more likely to be older, have renal impairment, require a procedure for bleed management and receive a hemostatic agent. Patients with dabigatran major bleeding had an excessive dose for renal function in more than one-third of cases.

**Soto R, Jahr JS, Pavlin J, Sabo D, Philip BK, Egan TD, Rowe E, de Bie J and Woo T (2015).** "Safety and efficacy of rocuronium with sugammadex reversal versus succinylcholine in outpatient surgery-A multicenter, randomized, safety assessor-blinded trial." [American Journal of Therapeutics](#). ePub Ahead of Print.

[Full-Text](#)

*Department of Anesthesiology*

Complex surgical procedures are increasingly performed in an outpatient setting, with emphasis on rapid recovery and case turnover. In this study, the combination of rocuronium for neuromuscular blockade (NMB) reversed by single-dose sugammadex was compared with succinylcholine followed by spontaneous recovery in outpatient surgery. This multicenter, randomized, safety assessor-blinded study enrolled adults undergoing a short elective outpatient surgical procedure requiring NMB and tracheal intubation. Patients were randomized to NMB with either rocuronium 0.6 mg/kg for tracheal intubation with incremental doses of rocuronium 0.15 mg/kg and subsequent reversal with sugammadex 4.0 mg/kg at 1-2 posttetanic counts or succinylcholine 1.0 mg/kg for intubation with spontaneous recovery. The primary efficacy end point was the time from sugammadex administration to recovery of the train-of-four ratio to 0.9; for succinylcholine, time from administration to recovery of the first twitch (T1) to 90% was assessed. From 167 patients enrolled, 150 received treatment. The all-subjects-treated population comprised 70 patients in the rocuronium-sugammadex group and 80 in the succinylcholine group. Geometric mean (95% confidence interval) time from the start of sugammadex administration to recovery of the train-of-four ratio to 0.9 was 1.8 (1.6-2.0) minutes. Geometric mean (95% confidence interval) time from succinylcholine administration to recovery of T1 to 90% was 10.8 (10.1-11.5) minutes. Health outcome variables were similar between the groups. Adverse events were reported in 87.1% and 93.8% of patients for rocuronium-sugammadex and succinylcholine, respectively. In conclusion, rocuronium for intubation followed by sugammadex for reversal of NMB offers a viable treatment option in outpatient surgery without prolonging recovery duration or jeopardizing safety.

Stambough JB, Clohisy JC, Baca GR, **Zaltz I**, Trousdale R, Millis M, Sucato D, Kim YJ, Sink E, Schoenecker PL, Sierra R, Podeszwa D and Beaulé P (2015). "Does previous pelvic osteotomy compromise the results of periacetabular osteotomy surgery?" [Clinical Orthopaedics and Related Research](#) 473(4): 1417-1424.

[Full-Text](#)

*Department of Orthopedic Surgery*

As the Bernese periacetabular osteotomy (PAO) has grown in popularity, specific indications and the results in patients treated for those indications need to be evaluated. Currently, although many patients undergo PAO after having had prior pelvic osteotomy, there is limited information regarding the efficacy of the PAO in these patients. The purpose of this study was to compare the (1) early pain, function, activity, and quality of life outcomes; (2) radiographic correction; and (3) major complications and failures between patients who underwent PAO after prior pelvic reconstruction versus those who had a PAO without prior surgery. Between February 2008 and January 2012, 39 patients underwent PAO after prior pelvic osteotomy at one of 11 centers and were entered into a collaborative multicenter database. Of those, 34 (87%) were available for followup at a mean of 2.5 years (range 1-5 years). This group was compared with a matched group of 78 subjects, of whom 71 (91%) were available for followup at a similar interval. We compared clinical outcomes including UCLA activity score, SF-12, and Hip Disability and Osteoarthritis Outcome Score (HOOS); radiographic measures- anterior and lateral center-edge angle and acetabular inclination (AI)-and reoperations, major complications, and conversions to total hip arthroplasty. Although both groups reached clinical improvement in all categorical measures, the revision PAO group demonstrated greater pain (HOOS pain, study 74 versus 85,  $p = 0.03$ ; 95% confidence interval [CI], 18.58 to -0.95) and less function (HOOS activities of daily living, study 80 versus 92,  $p = 0.002$ ; 95% CI, 0.18-99-4.45) than the primary cohort. The revision cohort achieved a smaller average radiographic correction than in patients undergoing PAO without prior pelvic surgery. The mean correction in AI was less dramatic when directly comparing the revision and comparison groups (-12A degrees to -17A degrees,  $p < 0.001$ , SD 2.3-8.5). Although there was no difference in severe complications requiring further surgery, there were two conversions to hip arthroplasty ( $p = 0.109$ ; 95% CI, 0.004-2.042) in the study group. PAO performed after prior pelvic surgery is associated with improvements in pain, function, radiographic correction, and early complication rates, but the improvements

observed at short-term followup were smaller and more variable than those seen in patients who had not undergone prior pelvic surgery. We recommend considering PAO for residual deformities after prior osteotomy to improve function and quality life but warning patients of potential ceiling effects with a second periacetabular surgery. Level III, therapeutic study.

Stefaniak JE, **Mi M** and **Afonso N** (2015). "Triangulating perspectives: A needs assessment to develop an outreach program for vulnerable and underserved populations." *Performance Improvement Quarterly* 28(1): 49-68.

[Full-Text](#)

*Medical Library*

*Department of Biomedical Sciences (OU)*

This article describes the tiered process used to conduct a needs assessment and the implications of the methods employed had on the design and development of interventions for a community audience. A needs assessment was conducted to identify health needs for an underserved, vulnerable population. This report emphasizes the findings addressing the need for preventative educational materials and programming. Ethnographic characteristics were used to gather information from multiple sample sources in order to triangulate data from three different perspectives: (1) the client, (2) providers and support staff, and (3) educators in the community. The outcomes of this project will serve as input for designing and implementing innovative educational outreach programs for the vulnerable and underserved populations and for community-based physicians and medical students who serve the community.

Suminski R, Heinrich K, **Wasserman JA** and Rasu RS (2015). "Perceived neighborhood size: Implications for physical activity-environment research." *Journal of Physical Activity and Health* 12(2): 282-288.

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*Department of Biomedical Sciences (OU)*

Background: Nonsignificant findings are reported in approximately half of the studies examining correlations between environmental characteristics and walking. One reason could involve spatial incongruence in which environments examined are not necessarily the ones where the behavior occurred. Purpose: To study correlates of perceived neighborhood size and the congruence between perceived and investigator defined neighborhood areas. Methods: Door-to-door surveys were conducted in 12 U.S. Census block groups with 18- to 87-year-old adults. Participants were asked about exercise participation and to draw a map representing their neighborhood. Geographical information software was used to construct maps, calculate neighborhood areas, and analyze congruence. Results: Neighborhood sizes perceived by women were smaller than those perceived by men and positively related to min/wk of biking and education. Education and age were negatively and perceived neighborhood support for exercise was positively associated with perceived neighborhood size in men. Approximately 90% of perceived neighborhood areas overlapped with neighborhood areas defined by circles with 1200-m radii from participants' homes. Conclusions: Several individual characteristics including exercise are associated with perceptions of neighborhood size. Standard investigator-defined neighborhoods using a 1200-m radius (15 min walk) from a participant's home is sufficient to capture a majority of perceived neighborhood areas. © 2015 Human Kinetics, Inc.

Thottakara P, **Nghiem H** and **Vartanian SA** (2015). "Diagnostic yield of CT-guided percutaneous core biopsy of groundglass pulmonary lesions." *Journal of Vascular and Interventional Radiology* 26(2): S195.

[Full-Text](#)

*Department of Diagnostic Radiology and Molecular Imaging*

Purpose: The purpose of the study is to determine the sensitivity, specificity and accuracy of CT-guided percutaneous core biopsy of groundglass pulmonary lesions. Materials and Methods: A retrospective review of 1873 consecutive CT-guided lung biopsies at our institution between January 1, 2008 and January 31, 2014 was performed. 77 cases (4%) of groundglass pulmonary lesion biopsy were identified and selected for further review. The average patient age was 77 years and 42% of the patients had a previous diagnosis of lung cancer. Pathologic diagnosis from the core biopsy and any subsequent surgical pathology data were recorded. The cases were also reviewed for complications including pneumothorax and hemorrhage. Results: 51 (66%) of the biopsied lesions were positive for malignancy, 17 (22%) demonstrated benign pathology, 6

(8%) were suspicious for malignancy, and 3 (4%) were nondiagnostic. 28 of the patients with biopsies positive for malignancy subsequently underwent surgical resection with surgical pathology concordant in all cases. There was 1 false negative biopsy, proven to be malignancy following surgical resection. The overall diagnostic yield was 96%. The sensitivity of biopsy was 96% in cases confirmed with surgical pathology. 3 patients (4%) developed pneumothorax requiring chest tube placement. All 23 patients with core biopsy positive for malignancy who did not undergo surgical resection were treated with external beam radiation therapy. Conclusion: CT-guided percutaneous biopsy is high yield for ground-glass pulmonary lesions, with high diagnostic accuracy and low complication rate.

Tomakowsky J, Gupta P, Ehlert M, Dove-Medows E, Diaz M, Carrico D, **Sirls LT, Gilleran J, Bartley J and Peters KM** (2015). "Associations among psychological distress, dyspareunia and levator pain in women with pelvic pain." Neurourology and Urodynamics 34: S62-S63.

[Full-Text](#)

*Department of Urology*

Introduction: Women who present to urology specialty centers often have a complex array of interrelated concerns, particularly women with pelvic/urogenital pain problems. This study examined the associations among pain variables, including urogenital pain, dyspareunia, levator pain, and distress (depression and anxiety) in a sample of women who were seeking evaluation from a multidisciplinary urology center. Methods: Consecutive women presenting for initial evaluations were targeted. Intake questionnaires assessed medical and behavioral health history, anxiety (Generalized Anxiety Disorder-7) and depression (Patient Health Questionnaire-8). Women rated their current urogenital pain (0-10) and also rated their levator tenderness on vaginal palpation by clinician examiners (left and right sides, 0-10). Results: Of 380 women, two cohorts were established: 1) Women with and without urogenital pain (Pain Cohort, n=287), and 2) Women with and without dyspareunia (Dyspareunia Cohort, n=213). The cohorts overlapped; 78% of the women with urogenital pain also had dyspareunia. Associations were assessed among presence of pain, depression and anxiety using t-tests and Chi-square analyses. Women with urogenital pain had significantly higher anxiety and depression scores, and women with dyspareunia had significantly higher depression scores (Table 1). Association between mean levator pain scores and distress (anxiety, depression) in each cohort was assessed via Pearson correlation: in the Pain Cohort, rho=0.22 and 0.19 (with anxiety and depression, respectively, p<0.05); and in the Dyspareunia Cohort, rho=0.19 and 0.18 (with anxiety and depression, respectively, p<0.05). Conclusion: This study affirmed the association between psychological distress and pelvic pain, and found substantial overlap in urogenital pain complaints with dyspareunia. For some women, dyspareunia may uniquely contribute to the distress associated with pain through its association with depression a topic for further investigation, but the presence of levator pain only marginally affects distress. (Table Presented).

**Trivax JE and Safian RD** (2015). "PCI of CTOs: Hope or hype?" Catheterization and Cardiovascular Interventions 85(5): 795-796.

[Full-Text](#)

*Department of Internal Medicine*

Troeller A, **Yan D**, Marina O, Schulze D, Alber M, Parodi K, Belka C and Sohn M (2015). "Comparison and limitations of DVH-based NTCP models derived from 3D-CRT and IMRT data for prediction of gastrointestinal toxicities in prostate cancer patients by using propensity score matched pair analysis." International Journal of Radiation Oncology Biology Physics 91(2): 435-443.

[Full-Text](#)

*Department of Radiation Oncology*

Purpose: This study compared normal tissue complication probability (NTCP) modeling of chronic gastrointestinal toxicities following prostate cancer treatment for 2 treatment modalities. Possible factors causing discrepancies in optimal NTCP model parameters between 3-dimensional conformal radiation therapy (3D-CRT) and intensity modulated RT (IMRT) were analyzed and discussed, including the impact of patient characteristics, image guidance, toxicity scoring bias, and NTCP model limitations. Methods and

Materials: Rectal wall dose-volume histograms of 1115 patients treated for prostate cancer under an adaptive radiation therapy protocol were used to model gastrointestinal toxicity grade >2 (according to Common Terminology Criteria for Adverse Events). A total of 457 patients were treated with 3D-CRT and 658 with IMRT. 3D-CRT patients were matched to IMRT patients based on various patient characteristics, using a propensity score-based algorithm. Parameters of the Lyman equivalent uniform dose and cut-off dose logistic regression NTCP models were estimated for the 2 matched treatment modalities and the combined group. Results: After they were matched, the 3D-CRT and IMRT groups contained 275 and 550 patients with a large discrepancy of 28.7% versus 7.8% toxicities, respectively ( $P < .001$ ). For both NTCP models, optimal parameters found for the 3D-CRT groups did not fit the IMRT patients well and vice versa. Models developed for the combined data overestimated NTCP for the IMRT patients and underestimated NTCP for the 3D-CRT group. Conclusions: Our analysis did not reveal a single definitive cause for discrepancies of model parameters between 3D-CRT and IMRT. Patient characteristics and bias in toxicity scoring, as well as image guidance alone, are unlikely causes of the large discrepancy of toxicities. Whether the cause was inherent to the specific NTCP models used in this study needs to be verified by future investigations. Because IMRT is increasingly used clinically, it is important that appropriate NTCP model parameters are determined for this treatment modality.

Vilchez G, Dai J, Gill N, Agboola R, **Bahado-Singh R** and Sokol R (2015). "Uterine rupture and interval variable risks." *American Journal of Obstetrics and Gynecology* 212(1): S172-S173.

[Full-Text](#)

*Department of Obstetrics and Gynecology*

OBJECTIVE: Risks for uterine rupture, such as previous cesarean delivery, have been recognized for a century, but how much the risk increases for each increase in number of prior deliveries, for each increase in the number of fetuses (twins, triplets, quads - plurality) and for each previous cesarean has been less amenable to reliable estimation given the rarity of uterine rupture. Our goal here was to estimate the independent risk of uterine rupture to increases in each of these variables. STUDY DESIGN: All births complicated by uterine rupture in the US from 2011-2012 were selected from the CDC Vital Statistics Birth Cohorts. Variables analyzed included patient demographics, obstetric/ medical history, & labor complications. Logistic regression analysis, with  $p < .05$  significant, yielded adjusted odds ratios for increasing parity, plurality and previous cesareans, using singleton, primiparous labor with no history of a cesarean cases as the reference group. RESULTS: In the 7,922,016 US births, there were 1,925 uterine ruptures (2.43 per 10,000 births). The number of rupture cases by parity, plurality & number of prior cesareans are shown in Table 1. Odds Ratios are shown in Table 1 and Figure 1. Increasing parity only slowly increases rupture risk until one achieves grand multiparity where the risk increases to almost 3 fold and again doubles to about 6 fold by parity 8. Plurality also shows a more than linear increase with twin pregnancy doubling the risk of rupture, but triplets or greater, though very rare, increasing the risk 13 fold. A single previous cesarean increases the risk 4 fold, but further cesareans only slightly increase the risk. CONCLUSION: The risk for uterine rupture increases as parity & plurality increase with grand multiparity and triplets and above being noteworthy risks. Once a cesarean, always at least a 4 fold increase risk for uterine rupture. These findings may be of use in patient counselling. (Figure Presented).

Viteri OA, Soto EE, **Bahado-Singh RO**, Christensen CW, Chauhan SP and Sibai BM (2015). "Fetal anomalies and long-term effects associated with substance abuse in pregnancy: A literature review." *American Journal of Perinatology* 32(5): 405-416.

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*Department of Obstetrics and Gynecology*

Objectives Substance abuse in pregnancy remains a major public health problem. Fetal teratogenicity results from the effect of these substances during fetal development, particularly when used in combination. This review will focus on and attempt to clarify the existing literature regarding the association of substance abuse on the development of congenital anomalies and the long-term implications in exposed offspring. Methods Systematic review of available English literature using the PubMed database of all peer-reviewed articles on the subject. Results A total of 128 articles were included in this review. Alcohol was the most

common substance associated with fetal anomalies, particularly facial dysmorphisms and alterations in the central nervous system development. Adverse maternal environments associated with risky behaviors and lack of adequate prenatal care precludes the timely detection of fetal anomalies, confounding most studies linking causality. In addition, although methodological differences and limited availability of well-designed trials exist, substance abuse in pregnancy has been associated with adverse long-term outcomes in infant growth, behavior, cognition, language and achievement. Conclusion The literature summarized in this review suggests that drug exposure during pregnancy may increase the risk of congenital anomalies and long-term adverse effects in exposed children and adolescents. These conclusions must be tempered by the many confounders associated with drug use. A multidisciplinary approach is paramount for appropriate counseling regarding the known immediate and long-term risks of substance abuse in pregnancy. © 2015 by Thieme Medical Publishers, Inc.

Wang HJ, Tyagi P, Chuang YC, Yoshimura N, Huang CC and **Chancellor MB** (2015). "Pharmacologic and molecular characterization of underactive bladder induced by lumbar canal stenosis." *Urology*. ePub Ahead of Print.

[Full-Text](#)

*Department of Urology*

Objective: To investigate the voiding function in a rat model of lumbar canal stenosis (LCS) using pharmacologic and molecular approaches. Methods: Sixty-one female Sprague-Dawley rats were broadly split into a sham and an LCS group. A hole was surgically drilled in the L5-L6 epidural space and filled with a rectangular piece of silicone rubber. Metabolic cage study at week 2 and continuous cystometry (CMG) under urethane anesthesia at weeks 2 and 4 were performed. During CMG, prostaglandin E2 or sulprostone, an prostaglandin E receptor 1 and prostaglandin E receptor 3 agonist was administered locally and intravenously, respectively, and the bladder was then harvested for histology and Western blot. Results: Compared with sham, the LCS group showed dribbling urination and progressive increase in bladder size. CMG under urethane anesthesia in the LCS group was marked by overflow incontinence and acontractile bladder. Administration of intravesical prostaglandin E2 (200 (mu)M) or intravenous sulprostone (0.1mg/kg) in the sham group induced bladder overactivity, but decreased the compliance and failed to restore the bladder emptying function in the LCS group. The LCS group showed edematous changes and muscle thinning at week 2, which were partially restored by week 4. Histologic changes were accompanied by downregulation of agrin protein (64.0%) at week 2 and upregulation of M2 receptor (65.4%) at week 4. Expression of M3, protein gene product 9.5, and nerve growth factor did not differ between groups. Conclusion: LCS-induced underactive bladder is associated with altered expression of agrin and M2 receptor. The underactive bladder model is clinically relevant, and the findings indicate potential molecular targets for new therapies.

Wenzler DL, **Burks FN**, Cooney M and **Peters KM** (2015). "Proof of concept trial on changes in current perception threshold after sacral neuromodulation." *Neuromodulation* 18(3): 228-232.

[Full-Text](#)

*Department of Urology*

OBJECTIVES: Sacral neuromodulation (SNM) is theorized to alter the neural pathways that mediate bladder and urethral sensation. We hypothesize that SNM affects current perception thresholds (CPTs) of afferent sensory nerve pathways. MATERIALS AND METHODS: Eight women were enrolled and completed pre and postoperative testing. A CPT device was used to measure CPT at 5 Hz (C-fibers), 250 Hz (Delta-fibers), and 2000 Hz (Abeta-fibers) on the urethra and bladder prior to and one month after SNM. Index finger readings at 2000 Hz served as controls. RESULTS: SNM had the greatest effect on the bladder at 250 and 2000 Hz, suggesting reduced bladder sensitivity. Significant changes in CPT were seen in the bladder at 2000 Hz with a decrease in sensitivity ( $p = 0.033$ ). CPT testing was well tolerated, and no adverse events were identified. CONCLUSIONS: With a measurable change in CPT values for Delta-fibers and Abeta-fibers, these findings suggest that SNM modulates large myelinated afferent fibers in the bladder. Notably, little or no changes were found in the C-fiber CPT measurements. More research is needed with a larger sample size to determine the significance of these findings.

**Wiater BP**, Koueiter DM, **Maerz T**, Moravek JE, Jr., Yonan S, **Marcantonio DR** and **Wiater JM** (2015). "Preoperative deltoid size and fatty infiltration of the deltoid and rotator cuff correlate to outcomes after reverse total shoulder arthroplasty." Clinical Orthopaedics and Related Research 473(2): 663-673.

[Full-Text](#)

*Department of Orthopedic Surgery*

*Department of Surgery*

*Department of Diagnostic Radiology and Molecular Imaging*

**BACKGROUND:** Reverse total shoulder arthroplasty (RTSA) allows the deltoid to substitute for the nonfunctioning rotator cuff. To date, it is unknown whether preoperative deltoid and rotator cuff parameters correlate with clinical outcomes. **QUESTIONS/PURPOSES:** We asked whether associations exist between 2-year postoperative results (ROM, strength, and outcomes scores) and preoperative (1) deltoid size; (2) fatty infiltration of the deltoid; and/or (3) fatty infiltration of the rotator cuff. **METHODS:** A prospective RTSA registry was reviewed for patients with cuff tear arthropathy or massive rotator cuff tears, minimum 2-year followup, and preoperative shoulder MRI. Final analysis included 30 patients (average age, 71 +/- 10 years; eight males, 22 females). Only a small proportion of patients who received an RTSA at our center met inclusion and minimum followup requirements (30 of 222; 14%); however, these patients were found to be similar at baseline to the overall group of patients who underwent surgery in terms of age, gender, and preoperative outcomes scores. The cross-sectional area of the anterior, middle, and posterior deltoid was measured on axial proton density-weighted MRI. Fatty infiltration of the deltoid, supraspinatus, infraspinatus, teres minor, and subscapularis were quantitatively assessed on sagittal T1-weighted MR images. Patients were followed for Constant-Murley score, American Shoulder and Elbow Surgeons (ASES) scores, subjective shoulder value, pain, ROM, and strength. Correlations of muscle parameters with all outcomes measures were calculated. **RESULTS:** Preoperative deltoid size correlated positively with postoperative Constant-Murley score (67.27 +/- 13.07) ( $\rho = 0.432$ ,  $p = 0.017$ ), ASES (82.64 +/- 14.25) ( $\rho = 0.377$ ;  $p = 0.40$ ), subjective shoulder value (82.67 +/- 17.89) ( $\rho = 0.427$ ;  $p = 0.019$ ), and strength (3.72 pounds +/- 2.99 pounds) ( $\rho = 0.454$ ;  $p = 0.015$ ). Quantitative deltoid fatty infiltration (7.91% +/- 4.32%) correlated with decreased postoperative ASES scores ( $\rho = -0.401$ ;  $p = 0.047$ ). Quantitative fatty infiltration of the infraspinatus (30.47% +/- 15.01%) correlated with decreased postoperative external rotation (34.13 degrees +/- 16.80 degrees) ( $\rho = -0.494$ ;  $p = 0.037$ ). **CONCLUSIONS:** Larger preoperative deltoid size correlates with improved validated outcomes scores, whereas fatty infiltration of the deltoid and infraspinatus may have deleterious effects on validated outcomes scores and ROM after RTSA. The current study is a preliminary exploration of this topic; future studies should include prospective enrollment and standardized MRI with a multivariate statistical approach. Quantitative information attained from preoperative imaging not only holds diagnostic value, but, should future studies confirm our findings, also might provide prognostic value. This information may prove beneficial in preoperative patient counseling and might aid preoperative and postoperative decision-making by identifying subpopulations of patients who may benefit by therapy aimed at improving muscle properties. **LEVEL OF EVIDENCE:** Level III, prognostic study.

**Williams GA** (2015). "Health care reform: How are we doing?" Retina Today 2015(MARCH 2015): 14-15.

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*Department of Ophthalmology*

Wobb JL, **Chen PY**, Shah C, Moran MS, Shaitelman SF, Vicini FA, Mbah AK, Lyden M and Beitsch P (2015). "Nomogram for predicting the risk of locoregional recurrence in patients treated with accelerated partial-breast irradiation."

International Journal of Radiation Oncology Biology Physics 91(2): 312-318.

[Full-Text](#)

*Department of Radiation Oncology*

**Purpose:** To develop a nomogram taking into account clinicopathologic features to predict locoregional recurrence (LRR) in patients treated with accelerated partialbreast irradiation (APBI) for early-stage breast cancer. **Methods and Materials:** A total of 2000 breasts (1990 women) were treated with APBI at William Beaumont Hospital (n=551) or on the American Society of Breast Surgeons MammoSite Registry Trial (n=1449). Techniques included multiplanar interstitial catheters (n=98), balloon-based brachytherapy

(n=1689), and 3-dimensional conformal radiation therapy (n=213). Clinicopathologic variables were gathered prospectively. A nomogram was formulated utilizing the Cox proportional hazards regression model to predict for LRR. This was validated by generating a bias-corrected index and cross-validated with a concordance index. Results: Median follow-up was 5.5 years (range, 0.9-18.3 years). Of the 2000 cases, 435 were excluded because of missing data. Univariate analysis found that age <50 years, pre-/perimenopausal status, close/positive margins, estrogen receptor negativity, and high grade were associated with a higher frequency of LRR. These 5 independent covariates were used to create adjusted estimates, weighting each on a scale of 0-100. The total score is identified on a points scale to obtain the probability of an LRR over the study period. The model demonstrated good concordance for predicting LRR, with a concordance index of 0.641. Conclusions: The formulation of a practical, easy-to-use nomogram for calculating the risk of LRR in patients undergoing APBI will help guide the appropriate selection of patients for off-protocol utilization of APBI.

Wobb JL, Shah C, **Chen PY**, Wallace M, Ye H, Jawad MS and **Grills IS** (2015). "Brachytherapy-based accelerated partial breast irradiation provides equivalent 10-year outcomes to whole breast irradiation: A matched-pair analysis." [American Journal of Clinical Oncology](#). ePub Ahead of Print.

[Full-Text](#)

*Department of Radiation Oncology*

**INTRODUCTION:** Although whole breast irradiation (WBI) represents the standard radiotherapy technique in breast conserving therapy, accelerated partial breast irradiation (APBI) has emerged as an option to reduce treatment duration with comparable clinical outcomes. The purpose of this analysis is to present long-term clinical outcomes between WBI and APBI. **METHODS:** A total of 3009 patients were treated with breast conserving therapy at a single institution between 1980 and 2012. Among them, 2528 patients received WBI and 481 received APBI (interstitial or balloon based). A matched-pair analysis was performed with patients matched by age (+/-3 years), stage (T-stage vs. T1 vs. T2), and estrogen receptor status (+/-). All patients had a minimum of 12 months follow-up. A total of 274 matches (ratio 1:1) were made. **RESULTS:** No differences between groups were noted with respect to clinicopathologic features; WBI patients demonstrated a trend for slightly larger tumors (1.3 vs. 1.1 cm, P=0.06). At 10 years, no differences were noted with respect to rates of ipsilateral breast tumor recurrence (4% vs. 4%, P=0.11), regional recurrence (1% vs. 1%, P=0.20), contralateral breast failure (9% vs. 3%, P=0.06), or distant metastases (3% vs. 6%, P=0.47) for WBI and APBI, respectively. In addition, 10-year disease-free survival (93% vs. 91%, P=0.10) and overall survival (83% vs. 75%, P=0.34) were similar. Long-term cosmesis was good to excellent in 94% of WBI patients versus 95% of APBI patients (P=0.78). **CONCLUSIONS:** At 10 years, no differences in recurrence or survival were found between patients undergoing WBI or brachytherapy-based APBI.

**Xi A, Kulkarni N and Hankin M** (2015). "En bloc dissection of thoracic and abdominal viscera: A beneficial approach for medical student learning." [The FASEB Journal](#) 29(1 Supplement): 548.541.

[Full-Text](#)

*Department of Biomedical Sciences (OU)*

*OUWB Medical Student Author*

A typical medical school approach to dissecting the thorax and abdomen begins with removal of the anterior body wall. With the viscera caged in the body cavities, access to dissection is limited, the view is restricted, and critical relationships may be disrupted due to removal of structures. To overcome these challenges, an en bloc dissection of the thoracic and abdominal viscera was experimented, in which the thoracic and abdominal organs, diaphragm, and neurovasculature were removed as a unit for dissection and study. Removal of the visceral block required transecting: (1) structures that traverse the anatomical thoracic inlet, (2) the mural attachments of the diaphragm, and (3) the ureters, rectum, and distal ends of the abdominal aorta and inferior vena cava. This preparation has a number of advantages: (1) a 360° view of the viscera not confined by body wall; (2) increased space for dissection of abdominal organs and neurovasculature; (3) a clear display of relationships between retroperitoneal organs (e.g., kidneys and great vessels); (4) an easier view of the diaphragm in relation to surrounding structures; and (5) unhindered dissection of the posterior abdominal and thoracic walls. In addition, integrity of the thoraco-abdominal structures (e.g., descending

aorta, esophagus, sympathetic chain and vagus nerve) was maintained. First-year medical students found these preparations to be extremely useful as a supplement to more traditional dissection. We conclude that en bloc dissection of thoracic and abdominal viscera provides advantages that underscore its potential role in anatomy education.

Yadav D, Yadav S and **Chisti MM** (2015). "A rare case of metastasis of small cell carcinoma of cervix to breast." World Journal of Oncology 6(1): 301-303.

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*Department of Internal Medicine*

Extrapulmonary small cell carcinomas (SCCs) are rare and often have an aggressive natural course. A 42-year-old female presented to the hospital with vaginal bleeding and lower abdominal pain. She was eventually diagnosed with SCC of cervix by biopsy. She was treated with chemoradiation. However, on follow-up positron emission tomography (PET) scan, fluorodeoxyglucose (FDG) uptake was noted in bilateral breasts. Biopsy of these lesions was consistent with metastatic SCC. Breast is a very unusual site for metastasis of cervical SCC and only four cases have been reported in the medical literature to date. Our case highlights the importance of considering metastatic disease when evaluating breast mass in patients with history of SCC of cervix.

Yang A, **Arndt DH, Berg RA**, Carpenter JL, Chapman KE, Dlugos DJ, Gallentine WB, Giza CC, Goldstein JL, Hahn CD, Lerner JT, Loddenkemper T, Matsumoto JH, Nash KB, Payne ET, Fernandez IS, Shults J, Topjian AA, Williams K, Wusthoff CJ and Abend NS (2015). "Development and validation of a seizure prediction model in critically ill children." Seizure 25: 104-111.

[Full-Text](#)

*Department of Pediatrics*

*Department of Surgery*

Purpose Electrographic seizures are common in encephalopathic critically ill children, but identification requires continuous EEG monitoring (CEEG). Development of a seizure prediction model would enable more efficient use of limited CEEG resources. We aimed to develop and validate a seizure prediction model for use among encephalopathic critically ill children. Method We developed a seizure prediction model using a retrospectively acquired multi-center database of children with acute encephalopathy without an epilepsy diagnosis, who underwent clinically indicated CEEG. We performed model validation using a separate prospectively acquired single center database. Predictor variables were chosen to be readily available to clinicians prior to the onset of CEEG and included: age, etiology category, clinical seizures prior to CEEG, initial EEG background category, and inter-ictal discharge category. Results The model has fair to good discrimination ability and overall performance. At the optimal cut-off point in the validation dataset, the model has a sensitivity of 59% and a specificity of 81%. Varied cut-off points could be chosen to optimize sensitivity or specificity depending on available CEEG resources. Conclusion Despite inherent variability between centers, a model developed using multi-center CEEG data and few readily available variables could guide the use of limited CEEG resources when applied at a single center. Depending on CEEG resources, centers could choose lower cut-off points to maximize identification of all patients with seizures (but with more patients monitored) or higher cut-off points to reduce resource utilization by reducing monitoring of lower risk patients (but with failure to identify some patients with seizures).

Yonekawa Y, Thomas BJ and **Hassan TS** (2015). "New self-retaining sutureless cellulose flanged disposable contact viewing system for vitreoretinal surgery." Retina 35(4): 834-837.

[Full-Text](#)

*Department of Ophthalmology*

Yoshikawa S, Kawamorita N, Oguchi T, Funahashi Y, **Tyagi P, Chancellor MB** and Yoshimura N (2015). "Pelvic organ cross-sensitization to enhance bladder and urethral pain behaviors in rats with experimental colitis." Neuroscience 284: 422-429.

[Full-Text](#)

*Department of Urology*

Neural cross-sensitization has been postulated as a mechanism underlying overlaps of chronic pelvic pain disorders such as bladder pain syndrome/interstitial cystitis (BPS/IC) and irritable bowel syndrome (IBS). Animals with experimental colitis have been used to study the underlying mechanisms for overlapped pelvic pain symptoms, and shown to exhibit bladder overactivity evidenced by frequent voiding; however, it has not directly been evaluated whether pain sensation derived from the lower urinary tract is enhanced in colitis models. Also, the cross-sensitization between the colon and urethra has not been studied previously. In the present study, we therefore investigated pain behaviors induced by nociceptive stimuli in the lower urinary tract and the involvement of C-fiber afferent pathways using rats with colitis induced by intracolonic application of 2,4,6-trinitrobenzenesulfonic acid (TNBS). In TNBS-induced colitis rats at 10days, intravesical application of resiniferatoxin (RTx) induced a significantly greater number of episodes of both licking and freezing behaviors, which were reduced by capsaicin-sensitive C-fiber afferent desensitization. Histochemical studies using fluorescent dye tracers injected into the colon, bladder or urethra showed that dichotomized afferent neurons comprised 6.9-14.5% of L1, L6 and S1 dorsal root ganglion (DRG) neurons innervating the colon or the lower urinary tract. Transient receptor potential vanilloid 1 (TRPV1) mRNA expression was significantly increased in, the bladder, urethra and S1 DRG in colitis rats. An increase in myeloperoxidase (MPO) activity was found in the colon, but not in the bladder or urethra after intracolonic TNBS treatment. These results indicate that TNBS-induced colitis increased pain sensitivity in the bladder and urethra via activation of C-fiber afferent pathways due to colon-to-bladder and colon-to-urethral cross-sensitization, suggesting the contribution of pelvic organ cross-sensitization mechanisms to overlapped pain symptoms in BPS/IC and IBS.

**Ysunza PA**, Repetto GM, Pamplona MC, Calderon JF, **Shaheen K, Chaiyasate K** and Rontal M (2015). "Current controversies in diagnosis and management of cleft palate and velopharyngeal insufficiency." BioMed Research International 2015(Article ID 196240): 1-11.

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Background. One of the most controversial topics concerning cleft palate is the diagnosis and treatment of velopharyngeal insufficiency (VPI). Objective. This paper reviews current genetic aspects of cleft palate, imaging diagnosis of VPI, the planning of operations for restoring velopharyngeal function during speech, and strategies for speech pathology treatment of articulation disorders in patients with cleft palate. Materials and Methods. An updated review of the scientific literature concerning genetic aspects of cleft palate was carried out. Current strategies for assessing and treating articulation disorders associated with cleft palate were analyzed. Imaging procedures for assessing velopharyngeal closure during speech were reviewed, including a recent method for performing intraoperative videonasopharyngoscopy. Results. Conclusions from the analysis of genetic aspects of syndromic and nonsyndromic cleft palate and their use in its diagnosis and management are presented. Strategies for classifying and treating articulation disorders in patients with cleft palate are presented. Preliminary results of the use of multiplanar videofluoroscopy as an outpatient procedure and intraoperative endoscopy for the planning of operations which aimed to correct VPI are presented. Conclusion. This paper presents current aspects of the diagnosis and management of patients with cleft palate and VPI including 3 main aspects: genetics and genomics, speech pathology and imaging diagnosis, and surgical management.