

OAKLAND UNIVERSITY WILLIAM BEAUMONT SCHOOL OF MEDICINE
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Abbas AE, Franey LM and Lester SJ (2014). "Doppler-derived pulmonary vascular resistance: Simplicity, accuracy, and applicability." *Journal of the American Society of Echocardiography* 27(1): 109.

[Full-Text](#)

Department of Internal Medicine

Adeyemo A, Bannazadeh M, Riggs T, **Shellnut J**, **Barkel D** and **Wasvary H** (2014). "Does sedation type affect colonoscopy perforation rates?" *Diseases of the Colon and Rectum* 57(1): 110-114.

[Full-Text](#)

Department of Surgery

Sedation with propofol is gaining popularity. It is unclear whether sedation with propofol is associated with colonoscopic perforation. **OBJECTIVE:** The purpose of this study was to compare perforation rates during colonoscopy using sedation with or without propofol. **DESIGN:** This was a retrospective case series study. **SETTINGS:** Data from a tertiary center were analyzed. Demographics, method of sedation, and type of endoscopic procedure performed were collected. **PATIENTS:** Patients who underwent a colonoscopy from January 2003 to October 2012 were analyzed. **MAIN OUTCOME MEASURES:** Perforation rate expressed per 10,000 colonoscopies was measured. **RESULTS:** A total of 118,004 colonoscopies were performed during the study period, with 48 perforations (0.041% or 4.1 per 10,000). Overall, the use of propofol was associated with a 2.5 times increased rate of perforation (6.9 vs 2.7 per 10,000; $p = 0.0015$). Similarly, in patients undergoing therapeutic colonoscopies, there was a 3.4-times increased risk of perforation associated with the use of propofol (8.7 vs 2.6 per 10,000; $p = 0.0016$). However, in patients undergoing diagnostic colonoscopies, there was no significantly increased risk of perforation with the use of propofol (4.2 vs 2.9 per 10,000; $p = 0.64$). In univariate and multivariate analyses, there were no differential perforation risks on the basis of sex, but each decade increase in age was associated with an increased risk of perforation. In those patients having a therapeutic colonoscopy, age (per decade) and propofol use were independently and significantly associated with an increased perforation risk, with adjusted ORs of 1.32 ($p = 0.04$) and 3.38 ($p =$

0.001). LIMITATIONS: This was a retrospective study with the potential for selection bias. CONCLUSIONS: This study shows that propofol administration is associated with an increased risk of colonoscopic perforation among patients undergoing a therapeutic colonoscopy; however, this association was not evident in patients undergoing a diagnostic colonoscopy. Further studies, such as a prospective, randomized clinical trial, should be done to further evaluate this association. © The ASCRS 2013.

Afonso N, Kavanagh M and Swanberg S (2014). "Improvement in attitudes toward influenza vaccination in medical students following an integrated curricular intervention." *Vaccine* 32(4): 502-506.

[Full-Text](#)

Department of Biomedical Sciences (OU)

Clinical Skills Training and Simulation Center

Medical Library

INTRODUCTION: Vaccination of health care workers (HCW) reduces transmission of influenza among patients, yet uptake of vaccination remains low. If vaccination education is integrated into the early medical school curriculum, will student attitudes toward the vaccine change? The objectives of the study were to: (1) Determine influenza vaccination rates among entering medical students; (2) Assess the attitudes toward influenza vaccination; (3) Evaluate the effects of a multifaceted educational intervention on attitudes to vaccination. METHODS: Entering medical students were surveyed before and after an intervention at the beginning of the influenza season. This intervention provided by an inter-professional team, included education about influenza, importance of vaccination for HCWs, followed by vaccination administration practice, and ended with students vaccinating consenting classmates. RESULTS: The pre-intervention surveys and intervention were completed by 124 of 125 (99%) students. Pre-intervention survey revealed 60 (48%) of students had been previously vaccinated. Of the vaccinated students 91% had been recommended vaccination by their healthcare provider compared to 43% of non-vaccinated students. More positive attitudes were noted in the vaccinated students compared to non-vaccinated students: importance of vaccination ($p < 0.01$); HCWs should be vaccinated ($p < 0.01$); recommendation of vaccine to family and friends ($p < 0.01$). 97 (78%) students completed post-intervention surveys. Significant improvement in these attitudes was noted post-intervention compared to pre-intervention: importance of vaccination 93% versus 71% ($p < 0.01$); HCWs should be vaccinated 95% versus 83% ($p < 0.01$); recommendation to family and friends 93% versus 73% ($p < 0.01$); comfort with vaccine counseling 92% versus 41%; comfort with vaccine administration 84% versus 22% ($p < 0.01$). CONCLUSION: Educating medical students and promoting the importance of vaccination early in a medical student's career using such an intervention is relatively simple and easily integrated into the curriculum. This intervention was successful in vaccinating all students, and demonstrated a marked positive shift in attitudes toward influenza vaccination.

Aggarwal A, **Goldstein J**, Neupane S, **Berman A**, Whitten T, Franey L, **Boura J** and **Abbas A** (2014). "The incremental benefit of echocardiography in predicting major adverse cardiac events in patients with congestive heart failure." *Journal of the American College of Cardiology* 63(12): A1080.

[Full-Text](#)

Department of Internal Medicine

Department of Biomedical Sciences (BHS)

Background: We sought to assess the incremental benefit of echocardiography (echo) over clinical risk factors [CRF] (SBP < 115 mmHG, Cr > 2.75 mg/dl, and BUN > 43 mg/dl) in predicting major adverse cardiovascular (MACE) events (death, CVA, MI, cardiac arrest, ICD firing) in patients admitted with congestive heart failure (CHF). Methods: All patients admitted from Jan 2011- March 2012 with CHF were included (77.3% with decreased versus 22.70% with preserved ejection fraction [EF]). Charts and echo were retrospectively reviewed and clinical and echo variables were recorded. MACE was assessed at 18 months. Results: 142 patients were included. 43/142 patients (30.3%) suffered a MACE; 18/43 (41.9%) had > 0 CRF, 17/38 (44.7%) had a tricuspid regurgitation jet velocity [TRV] > 3.2 m/s, and 35/43 (94.6%) had E/E' > 15 . 99/142 patients (67.1%) were free of MACE, of which 33/99 (33.3%) had > 0 CRF ($p = 0.33$), 22/88 (25.0%) patients had a TRV > 3.2 (p value = 0.03), and 69/99 (71.1%) had E/E' > 15 (p value = 0.004). On multivariate analysis, the presence of CRF did not predict MACE, (OR 1.2, CI 0.54-2.8, C stat 0.52, AUC 0.52). The addition of TRV > 3.2 m/s and E/E' > 15 improved the risk prediction model (C-statistic improves from 0.52 to 0.67, and AUC 0.52 to 0.690, OR 5.76, CI 1.27 -26 for E/E') Conclusions: The presence of TRV > 3.2 m/s and E/E'

>15 is predictive of MACE in patients presenting with CHF. (Figure presented).

Aghababaei N, **Wasserman JA** and Hatami J (2014). "Personality factors and attitudes toward euthanasia in Iran: Implications for end-of-life research and practice." Death Studies 38(2): 91-99.

[Full-Text](#)

Department of Biomedical Sciences (OU)

This article reports on the relationship of personality and euthanasia attitudes. Results from a survey of 165 Iranian students showed that religiosity, honesty-humility, agreeableness, and extraversion were related to negative attitudes toward euthanasia, whereas openness was related to acceptance of euthanasia, with the unconventionality facet driving this relationship. Moreover, openness explained additional variance when added to a multivariate model containing religiosity and HEXACO factors. This study illustrates the possibility of accounting for variation beyond the traditional group level predictors of attitudes toward euthanasia and promoting future cross-cultural studies into personality and end-of-life issues and informing end-of-life conversations at the bedside. © 2014 Copyright Taylor and Francis Group, LLC.

Aguin E, Van De Ven C, Cordoba M, Albayrak S and **Bahado-Singh R** (2014). "Cerclage retention versus removal following preterm premature rupture of membranes and association with amniotic fluid markers." International Journal of Gynecology and Obstetrics 125(1): 37-40.

[Full-Text](#)

Department of Obstetrics and Gynecology

Objective To evaluate whether amniotic fluid markers can aid the decision of whether to retain or remove a cervical cerclage after preterm premature rupture of membranes (PPROM). **Methods** A retrospective cohort study included pregnancies involving PPRM after diagnostic amniocentesis and cerclage placement. Cerclage was retained for more than 12 hours after PPRM in the study group (n = 18); the comparison group comprised women who underwent immediate cerclage removal after PPRM (n = 22). Analyses were performed using concentrations of interleukin (IL)-6, glucose, and white blood cells (WBCs) in the amniotic fluid to measure relationships with adverse outcomes. **Results** The latency period from PPRM to delivery was significantly shorter in the group that underwent immediate cerclage removal (P < 0.005). Latency periods of more than 48 hours (P < 0.001) and more than 7 days (P < 0.01), and chorioamnionitis (P < 0.05) were associated with cerclage retention. Neonatal outcomes were not significantly different between the study group and the comparison group. However, elevated IL-6 levels were associated with cumulative neonatal morbidity (P < 0.05). Low IL-6 (P < 0.001) and WBC (P < 0.05) levels were significantly associated with a latency period of more than 7 days. **Conclusion** Amniotic fluid levels of IL-6 and WBCs may be of clinical value for individualizing the management of patients with PPRM after cerclage.

Akervall J, Nandalur S, Zhang J, Qian CN, Goldstein N, Gyllerup P, Gardinger Y, Alm J, Lorenc K, Nilsson K, Resau J, **Wilson G** and Teh B (2014). "A novel panel of biomarkers predicts radioresistance in patients with squamous cell carcinoma of the head and neck." European Journal of Cancer 50(3): 570-581.

[Full-Text](#)

Department of Biomedical Sciences (BHS)

Department of Radiation Oncology

Purpose Global gene expression analysis was performed on pre-treatment biopsies from patients with squamous cell carcinoma of the head and neck (SCCHN) to discover biomarkers that can predict outcome of radiation based therapy. **Methods** We initially evaluated RNA expression using cDNA microarray analysis of 38 patients that received radiotherapy (RT). The five strongest candidates (VEGF, BCL-2, CLAUDIN-4, YAP-1 and c-MET) were then analysed in pre-treatment biopsies in a second group of 86 patients who received radiation based treatment using immunohistochemical staining (IHC), prepared by tissue microarray. **Results** In the first population, 13 of 38 (34%) had no (NR) or partial response (PR) to RT. cDNA microarrays revealed 60 genes that were linked to response to therapy. In the second series, 12 of 86 patients (14%) experienced NR or PR to CRT. Cause specific survival (CSS) and recurrence free survival (RFS) at 2 years was 85% and 90% and at 3 years 81% and 84%, respectively. Biomarkers predictive for NR/PR were increased expression of vascular endothelial growth factor (VEGF) (p = 0.02), Yes-associated protein (YAP-1) (p < 0.01), CLAUDIN-4 (p < 0.01), c-MET (p < 0.01) and BCL-2 (p = 0.02). Biomarkers predictive of poor RFS were YAP-1 (p = 0.01) and BCL-2 (p < 0.01). Biomarkers predictive of poor CSS were YAP-1 (p = 0.04), VEGF (p = 0.03) and

CLAUDIN-4 ($p = 0.03$). Furthermore, when YAP-1 and c-MET expression levels were combined the prediction of radio-resistance was increased. Conclusion All five biomarkers were predictive of poor response to radiation based therapy. In particular, YAP-1 and c-MET have synergistic power and could be used to make treatment decisions. © 2013 Elsevier Ltd. All rights reserved.

Al-Mallah MH, Qureshi W, Lin FY, Achenbach S, Berman DS, Budoff MJ, Callister TQ, Chang HJ, Cademartiri F, **Chinnaiyan K**, Chow BJW, Cheng VY, Delago A, Gomez M, Hadamitzky M, Hausleiter J, Kaufmann PA, Leipsic J, Maffei E, **Raff G**, Shaw LJ, Villines TC, Cury RC, Feuchtner G, Plank F, Kim YJ, Dunning AM and Min JK (2014). "Does coronary CT angiography improve risk stratification over coronary calcium scoring in symptomatic patients with suspected coronary artery disease? Results from the prospective multicenter international CONFIRM registry." European Heart Journal Cardiovascular Imaging 15(3): 267-274.

[Full-Text](#)

Department of Internal Medicine

AimsThe prognostic value of coronary artery calcium (CAC) scoring is well established and has been suggested for use to exclude significant coronary artery disease (CAD) for symptomatic individuals with CAD. Contrast-enhanced coronary computed tomographic angiography (CCTA) is an alternative modality that enables direct visualization of coronary stenosis severity, extent, and distribution. Whether CCTA findings of CAD add an incremental prognostic value over CAC in symptomatic individuals has not been extensively studied.**Methods and results**We prospectively identified symptomatic patients with suspected but without known CAD who underwent both CAC and CCTA. Symptoms were defined by the presence of chest pain or dyspnoea, and pre-test likelihood of obstructive CAD was assessed by the method of Diamond and Forrester (D-F). CAC was measured by the method of Agatston. CCTAs were graded for obstructive CAD (>70% stenosis); and CAD plaque burden, distribution, and location. Plaque burden was determined by a segment stenosis score (SSS), which reflects the number of coronary segments with plaque, weighted for stenosis severity. Plaque distribution was established by a segment-involvement score (SIS), which reflects the number of segments with plaque irrespective of stenosis severity. Finally, a modified Duke prognostic index - accounting for stenosis severity, plaque distribution, and plaque location - was calculated. Nested Cox proportional hazard models for a composite endpoint of all-cause mortality and non-fatal myocardial infarction (D/MI) were employed to assess the incremental prognostic value of CCTA over CAC. A total of 8627 symptomatic patients (50% men, age 56 ± 12 years) followed for 25 months (interquartile range 17-40 months) comprised the study cohort. By CAC, 4860 (56%) and 713 (8.3%) patients had no evident calcium or a score of >400, respectively. By CCTA, 4294 (49.8%) and 749 (8.7%) had normal coronary arteries or obstructive CAD, respectively. At follow-up, 150 patients experienced D/MI. CAC improved discrimination beyond D-F and clinical variables (area under the receiver-operator characteristic curve 0.781 vs. 0.788, $P = 0.004$). When added sequentially to D-F, clinical variables, and CAC, all CCTA measures of CAD improved discrimination of patients at risk for D/MI: obstructive CAD (0.82, $P < 0.001$), SSS (0.81, $P < 0.001$), SIS (0.81, $P = 0.003$), and Duke CAD prognostic index (0.82, $P < 0.0001$).**Conclusion**In symptomatic patients with suspected CAD, CCTA adds incremental discriminatory power over CAC for discrimination of individuals at risk of death or MI. © The Author 2013.

Almradi A, Wolforth SC, **Parasuraman R**, **Li W**, **Rooney MT** and **Zhang PL** (2014). "Overload of polyclonal light chains in proximal tubules can be associated with acute tubular injury and interstitial fibrosis." Laboratory Investigation 94: 405A.

[Full-Text](#)

Department of Internal Medicine

Department of Pathology

Background: Monoclonal light chains have been known to be nephrotoxic. Although serum levels of free polyclonal light chains (PLC) are found elevated in chronic kidney diseases by several groups, potential damage of PLC in the kidney has not been studied before. Our preliminary study showed that light chain staining by immunohistochemical method (IHC) was similar to that by immunofluorescent method in renal biopsies. This study was to determine whether overexpression of PLC in proximal tubules was associated with both acute renal injury and subsequent chronicity. **Design:** Three groups of polyclonal cases included normal renal parenchyma from nephrectomy specimens ($n = 39$, normal controls), minimal change disease ($n = 13$, MCD controls) and PLC study group composed of random native biopsies with various chronic kidney

diseases (n = 33). They were all stained for kappa and lambda by IHC and their kappa staining scores (0 to 3+) were correlated with serum creatinine levels (sCr), periodic acid-schiff stain (PAS) scores for diminished brush borders (0 to 3+), and fibrosis scores on Trichrome stained sections (0 to 3+) using linear regression analysis. Results: The two control groups had significant lower PAS and fibrosis scores when compared to PLC study group (by ANOVA). Taken 3 groups together, there were significant correlations between either sCr, PAS scores or fibrosis scores (on Y axis), and kappa scores (on X axis) as shown in the following table (null p < 0.05 = significance). Conclusions: Our data, showing significant association of PLC staining in the proximal tubules with acute and chronic renal injury, suggest that chronic overload of freely filtered PLC (due to their low molecular weights via glomerular filter barrier) in the proximal tubules can be nephrotoxic. (Table Presented).

Almradi A, Wolforth SC, **Parasuraman R, Li W, Rooney MT and Zhang PL** (2014). "Overload of polyclonal light chains in proximal tubules can be associated with acute tubular injury and interstitial fibrosis." Modern Pathology 27: 405A.

[Full-Text](#)

Department of Internal Medicine

Department of Pathology

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 (2014). "Metabolomic prediction of fetal congenital heart defect in the first trimester." American Journal of Obstetrics and Gynecology. ePub Ahead of Print.

[Full-Text](#)

Department of Obstetrics and Gynecology

Baqai J and **Crisan D** (2014). "Correlation of FLT3 mutations with expression of CD7 in acute myeloid leukemia." Diagnostic Molecular Pathology. ePub Ahead of Print.

[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.

Barnes GD, Kaatz S, Winfield J, Gu X, Haymart B, Kline-Rogers E, Kozlowski J, Beasley D, **Almany S**, Leyden T and Froehlich JB (2014). "Warfarin use in atrial fibrillation patients at low risk for stroke: Analysis of the Michigan Anticoagulation Quality Improvement Initiative (MAQI2)." Journal of Thrombosis and Thrombolysis 37(2): 171-176.

[Full-Text](#)

Department of Internal Medicine

To more accurately quantify the proportion of anticoagulated patients with atrial fibrillation (AF) that may be inappropriately treated with warfarin for stroke prevention. Patients with AF have an increased risk of stroke, which is lowered by the use of warfarin. However there is likely more potential harm than benefit in patients that do not have additional stroke risk factors. Studies have described overuse of warfarin for stroke prophylaxis in lowest risk patients. However, many of those studies did not assess for electrical cardioversion (ECV) or radiofrequency ablation (RFA) as indications for warfarin therapy. Data from 1852 non-valvular AF

patients treated with warfarin between October 2009 and October 2011 at seven anticoagulation centers participating in the Michigan Anticoagulation Quality Improvement Initiative registry were analyzed. Low risk AF patients were risk stratified using the CHADS2 scoring systems, with a score of zero representing lowest risk. 193 (10.4 %) of AF patients receiving warfarin were identified as having the lowest risk of stroke by the CHADS2 score. Of the patients with CHADS2 = 0, 130 (67.4 %) had undergone a recent ECV and/or RFA. Of all AF patients, only 63 (3.4 %) had a CHADS2 score of 0 and no recent ECV or RFA. The vast majority of AF patients receiving anticoagulation in this multi-center registry are doing so in accordance with national and international guidelines. In contrast to prior population-based studies, very few low risk patients are receiving inappropriate warfarin therapy for stroke prophylaxis in AF, when procedure-based indications are also considered. © 2013 Springer Science+Business Media New York.

Baschnagel AM, Cartier JL, Dreyer J, **Chen PY, Pieper DR, Olson RE, Krauss DJ**, Maitz AH and **Grills IS** (2014). "Trigeminal neuralgia pain relief after gamma knife stereotactic radiosurgery." Clinical Neurology and Neurosurgery 117: 107-111.

[Full-Text](#)

Department of Radiation Oncology

Department of Neurosurgery

Objectives To report outcomes of patients with medical and/or surgical refractory trigeminal neuralgia (TN) treated with gamma knife stereotactic radiosurgery (GK SRS). **Methods** One hundred and forty-nine patients with 152 cases of TN treated with GK SRS were analyzed. All patients, except one, received a dose of 40 Gy to the 50% isodose volume. The Barrow Neurological Institute (BNI) pain intensity score was used to grade pain. Actuarial rates of pain relief were calculated. Multiple factors were analyzed for association with pain relief. **Results** The median follow up was 27 months (4-71 months). Overall 92% of cases achieved a BNI score I-III after GK SRS. Of those who had pain relief after GK SRS, 32% developed pain recurrence defined as a BNI score of IV or V. The actuarial rate of freedom from pain recurrence (BNI scores I-III) of all treated cases at 1, 2 and 3-years was 76%, 69% and 60%, respectively. On univariate analysis age ≥ 70 was predictive of better pain relief ($p = 0.046$). Type of pain, prior surgery, multiple sclerosis, number of isocenters, treated nerve length, volume and thickness and distance from the root entry zone to the isocenter were not significant for maintaining a BNI score of I-III. Those who achieved a BNI score of I or II were more likely to maintain pain relief compared to those who only achieved a BNI score of III (93% vs 38% at three years, $p < 0.01$). The rate of pain relief of twenty-seven patients who underwent repeat GK SRS was 70% and 62% at 1 and 2 years, respectively. Toxicity after first GK SRS was minimal with 25% of cases experiencing only new or worsening post-treatment numbness. **Conclusion** GK SRS provides acceptable pain relief with limited morbidity in patients with medical and/or surgical refractory TN. © 2013 Elsevier B.V.

Baschnagel AM, Williams L, Hanna A, **Chen PY, Krauss DJ**, Pruetz B, **Akervall J** and **Wilson GD** (2014). "C-met expression is a marker of poor prognosis in patients with locally advanced head-and-neck squamous cell carcinoma treated with chemoradiation: Molecular biology and therapeutics." International Journal of Radiation Oncology Biology Physics 88(2): 469.

[Full-Text](#)

Department of Radiation Oncology

Department of Biomedical Sciences (BHS)

Purpose/Objective(s): c-Met is a tyrosine kinase receptor that is involved in tumor progression and invasion in head & neck squamous cell carcinomas (HNSCC). c-Met inhibitors are currently undergoing testing in clinical trials. This study examined the prognostic significance of c-Met expression in relation to p16 and EGFR in a cohort of locally advanced HNSCC patients treated with definitive concurrent chemoradiation. **Materials/Methods:** Archival tissue from 107 HNSCC patients treated with chemoradiation was retrieved and a tissue microarray consisting of 237 cores was assembled. Immunohistochemical staining of c-Met, p16 and EGFR was performed. c-Met expression was graded according to staining intensity by three independent blinded observers as either absent (0), low (1+), intermediate (2+) or high (3+). p16 was graded as positive (3+ or 2+ in (greater-than or equal to)50% of tumor cells) or negative. Positive EGFR expression was defined as any 3+ or 1+/2+ in (greater-than or equal to)50% of tumor cells. c-Met expression was correlated with p16 status, EGFR expression, and with clinical endpoints including locoregional control (LRC); distant metastases (DM), disease-free survival (DFS) and overall survival (OS). Univariate and multivariate analyses

(MVA) were performed. Results: Sixty-four percent of patients were positive for p16 and 53% were positive for EGFR. Both p16 negative ($p < 0.001$) and EGFR positive ($p = 0.019$) status predicted for worse DFS. c-Met staining intensity was absent in 7%, weak in 22%, intermediate in 36% and high in 35%. Patients were divided into low c-Met expression (0, 1+ or 2+ intensity) versus high c-Met expression (3+ intensity). On univariate analysis high c-Met expression predicted for worse LRC (HR: 2.27; 95% CI: 1.08 to 4.77; $p = 0.031$), DM (HR: 4.41; 95% CI: 1.56 to 12.45; $p = 0.005$), DFS (HR: 3.00; 95% CI: 1.68 to 5.38; $p < 0.001$) and OS (HR: 4.35, 95% CI: 2.13 to 8.88; $p < 0.001$). The 2-year DFS for low c-Met expression was 78.5% compared to 36.5% for high c-Met expression ($p < 0.001$). High c-Met expression was predictive of worse DFS in both EGFR positive ($p = 0.032$) and EGFR negative patients ($p = 0.008$). In the cohort of p16 negative patients, those with high c-Met expression had worse DFS ($p = 0.036$) compared to low c-Met expression. c-Met expression was not associated with any outcome in the p16 positive patients. On MVA, after adjusting for site, T-stage, smoking history, and EGFR status only high c-Met expression ($p = 0.011$) and negative p16 status ($p = 0.003$) predicted for worse DFS. Conclusions: c-Met is expressed in the majority of locally advanced HNSCC and high c-Met expression predicts for worse clinical outcomes. High c-Met expression predicted for worse DFS in p16 negative patients but not for p16 positive patients. c-Met predicted for worse outcome regardless of EGFR status.

Baschnagel AM, Williams L, Hanna A, **Chen PY, Krauss DJ**, Pruetz BL, **Akervall J** and **Wilson GD** (2014). "C-met expression is a marker of poor prognosis in patients with locally advanced head and neck squamous cell carcinoma treated with chemoradiation." *International Journal of Radiation Oncology Biology Physics* 88(3): 701-707.

[Full-Text](#)

Department of Radiation Oncology

Department of Biomedical Sciences (BHS)

Purpose To examine the prognostic significance of c-Met expression in relation to p16 and epidermal growth factor receptor (EGFR) in patients with locally advanced head and neck squamous cell carcinoma (HNSCC) treated with definitive concurrent chemoradiation. Methods and Materials Archival tissue from 107 HNSCC patients treated with chemoradiation was retrieved, and a tissue microarray was assembled. Immunohistochemical staining of c-Met, p16, and EGFR was performed. c-Met expression was correlated with p16, EGFR, clinical characteristics, and clinical endpoints including locoregional control (LRC), distant metastasis (DM), disease-free survival (DFS), and overall survival (OS). Results Fifty-one percent of patients were positive for p16, and 53% were positive for EGFR. Both p16-negative ($P \leq .001$) and EGFR-positive ($P = .019$) status predicted for worse DFS. Ninety-three percent of patients stained positive for c-Met. Patients were divided into low (0, 1, or 2+ intensity) or high (3+ intensity) c-Met expression. On univariate analysis, high c-Met expression predicted for worse LRC (hazard ratio [HR] 2.27; 95% CI, 1.08-4.77; $P = .031$), DM (HR 4.41; 95% CI, 1.56-12.45; $P = .005$), DFS (HR 3.00; 95% CI, 1.68-5.38; $P < .001$), and OS (HR 4.35; 95% CI, 2.13-8.88; $P < .001$). On multivariate analysis, after adjustment for site, T stage, smoking history, and EGFR status, only high c-Met expression ($P = .011$) and negative p16 status ($P = .003$) predicted for worse DFS. High c-Met expression was predictive of worse DFS in both EGFR-positive ($P = .032$) and -negative ($P = .008$) patients. In the p16-negative patients, those with high c-Met expression had worse DFS ($P = .036$) than did those with low c-Met expression. c-Met expression was not associated with any outcome in the p16-positive patients. Conclusions c-Met is expressed in the majority of locally advanced HNSCC cases, and high c-Met expression predicts for worse clinical outcomes. High c-Met expression predicted for worse DFS in p16-negative patients but not in p16-positive patients. c-Met predicted for worse outcome regardless of EGFR status. © 2014 Elsevier Inc.

Bastani A, Shaqiri B, Palomba K, Bananno D and **Anderson W** (2014). "An ED scribe program is able to improve throughput time and patient satisfaction." *American Journal of Emergency Medicine* 32(5): 399-402.

[Full-Text](#)

Department of Emergency Medicine

INTRODUCTION: At our institution, we previously described the detrimental effect of computerized physician order entry (CPOE) on throughput time and patient satisfaction (Ann of Emer Med, Vol 56, P S83-S84). To address these quality metrics, we conducted a pilot program using scribes in the emergency department (ED). METHODS: We conducted a before-and-after study of ED throughput at our 320-bed suburban community hospital with a census of 70000 annual visits. Our primary outcome measure was the effect of

scribes on ED throughput as measured by the effect on (1) door-to-room time; (2) room-to-doc time; (3) door-to-doc time; (4) doc-to-dispo time; and (5) length of stay for discharged/admitted patients, between pre-CPOE and post-CPOE cohorts. Our secondary outcome measure was patient satisfaction as provided by Press Ganey surveys. Data were analyzed using descriptive statistics, and means were compared using a standard t test. RESULTS: Patient data from a total of 11729 patients in the before cohort were compared with data from 12609 patients in the after cohort. Despite a 7.5 % increase in volume between the post-CPOE and post-scribe cohorts, all throughput metrics improved in the post-scribe cohort. This process improved the overall door-to-doc time to 61 minutes in the after cohort from 74 minutes in the before cohort. Furthermore, patient and physician satisfaction was improved from the 58th and 62nd percentile to 75th and 92nd percentile, respectively.

Belmont Jr PJ, Garcia EJ, Romano D, Bader JO, **Nelson KJ** and Schoenfeld AJ (2014). "Risk factors for complications and in-hospital mortality following hip fractures: a study using the National Trauma Data Bank." Archives of Orthopaedic and Trauma Surgery 134(5): 597-604.

[Full-Text](#)

Department of Family Medicine

Study design: Retrospective review of prospectively collected data. Objective: To describe the impact of patient demographics, injury-specific factors, and medical co-morbidities on outcomes after hip fracture using the National Sample Program (NSP) of the National Trauma Data Bank (NTDB). Methods: The 2008 NSP-NTDB was queried to identify patients sustaining hip fractures. Patient demographics, co-morbidities, injury-specific factors, and outcomes (including mortality and complications) were recorded and a national estimate model was developed. Unadjusted differences for risk factors were evaluated using t test/Wald Chi square analyses. Weighted logistic regression and sensitivity analyses were performed to control for all factors in the model. Results: The weighted sample contained 44,419 incidents of hip fracture. The average age was 72.7. Sixty-two percent of the population was female and 80 % was white. The mortality rate was 4.5 % and 12.5 % sustained at least one complication. Seventeen percent of patients who sustained at least one complication died. Dialysis, presenting in shock, cardiac disease, male sex, and ISS were significant predictors of mortality, while dialysis, obesity, cardiac disease, diabetes, and a procedure delay of (greater-than or equal to)2 days influenced complications. The major potential modifiable risk factor appears to be time to procedure, which had a significant impact on complications. Conclusions: This is the first study to postulate predictors of morbidity and mortality following hip fracture in a US national model. While many co-morbidities appear to be influential in predicting outcome, some of the more significant factors include the presence of shock, dialysis, obesity, and time to surgery. Level of evidence: Prognostic study, Level II. (copyright) 2014 Springer-Verlag Berlin Heidelberg (outside the USA).

Boils C, Baker P, Edelman M, Gokden N, Grignon D, Gu X, Holanda D, Kats A, Magil A, Martignoni G, Nasr S, Perry D, Phillips C, **Zhang P** and Bonsib S (2014). "Tuberous sclerosis: the spectrum of metanephric defects, cystic kidney diseases and neoplasms in 26 pediatric and adult cases." Laboratory Investigation 94: 407A.

[Full-Text](#)

Department of Pathology

Background: Tuberous sclerosis (TS), an autosomal dominant disease affects multiple organs, brain and kidneys most often. Renal failure is common, attributable to polycystic cystic kidney disease (PKD) and neoplasms, but other lesions occur. The full spectrum of renal disease in children and adults has not been reported. Design: 26 cases of TS were obtained from the Jay Bernstein Consultative Collection (17) and files of several authors (9). There are 17 pediatric cases (1 wk-14 yrs) and 9 adult cases (21-64 yrs). Demographic and clinical information was available on 20/26 cases. Results: Four types of lesions occurred. (1) metanephric defects (MD) (2) ectatic tubules (ET) and PKDs (3) neoplasms (4) myoid and non-tumor proliferations designated angiomyolipomatosis (AMLosis). MD (9 cases) consisted of cortical hypoplasia, medullary islands within PKD, glomerular cysts and dimorphism. ET were lined by large eosinophilic cells (EC). The PKDs (17 cases) included proliferative PKD lined by large EC in neonates and infants, autosomal dominant-like PKD in older children and adults, and acquired cystic kidney disease in a diabetic with TS. Renal neoplasms (8 cases) included multifocal/bilateral angiomyolipomas (AML) and renal cell carcinomas. They occurred in adolescents and adults ranging in size from 13 cm to microscopic. Myoid proliferations enveloped tubules and cysts and were in the interstitium. AMLosis consists of myoid and lipid interstitial proliferations. Most cases contained

more than one lesion. Conclusions: 1) TS has diverse renal manifestations: MD, PKDs, neoplasms, and mesenchymal proliferations 2) MD in the young are associated with proliferative PKD 3) Neoplasms occur in adolescents and adults 4) AMLosis, multifocal AMLs, and EC in tubules and cysts appear unique to TS 5) Familiarity with these lesions is important because 60% of cases are new mutations and renal disease may be the initial or only manifestation of TS.

Boils C, Baker P, Edelman M, Gokden N, Grignon D, Gu X, Holanda D, Kats A, Magil A, Martignoni G, Nasr S, Perry D, Phillips C, **Zhang P** and Bonsib S (2014). "Tuberous sclerosis: The spectrum of metanephric defects, cystic kidney diseases and neoplasms in 26 pediatric and adult cases." Modern Pathology 27: 407A.

[Full-Text](#)

Department of Pathology

Boone C, Carlberg KN, Koueiter DM, **Baker KC, Sadowski J, Wiater PJ, Nowinski GP** and **Grant KD** (2014). "Short versus long intramedullary nails for treatment of intertrochanteric femur fractures (OTA 31-A1 and A2)." Journal of Orthopaedic Trauma 28(5): e96-e100.

[Full-Text](#)

Department of Surgery

Department of Orthopedic Surgery

OBJECTIVES: The purpose of this study was to compare blood loss and operative times associated with long versus short intramedullary nails for intertrochanteric fracture fixation and rate of periprosthetic fracture. DESIGN: A retrospective study. SETTING: Level 1 trauma center. PATIENTS: One hundred ninety-four patients with an intertrochanteric fracture (AO/OTA class 31-A1 and A2) and low-energy mechanism of injury treated by 1 of 4 fellowship-trained orthopaedic traumatologists. INTERVENTION: Short versus long intramedullary nail. METHODS: Medical records were reviewed for age, gender, estimated blood loss (EBL), transfusion rate, operative time, length of stay, and incidence of periprosthetic fracture. Variables were statistically compared between long and short intramedullary nails, with statistical significance at $P < 0.05$. RESULTS: The average EBL (135.5 +/- 91.9 mL) and transfusion rate (57.1%) for long nails were found to be significantly greater ($P = 0.002$) than the EBL (92.6 +/- 47.2 mL) and transfusion rate (40.2%) for short nails. Average operative time was also found to be significantly greater ($P < 0.001$) for long (56.8 +/- 19.4 minutes) than for short (44.0 +/- 10.7 minutes) intramedullary nail procedures. The overall incidence of periprosthetic fracture was 0.5%, one patient with initial treatment of a long intramedullary nail. CONCLUSIONS: Statistically significant lower operative time, EBL, and transfusion rate were found in this study for short intramedullary nails. There were no differences seen in length of stay or periprosthetic fracture. The incidence of periprosthetic fracture was very low in both cohorts. Further study with greater statistical power is needed. LEVEL OF EVIDENCE: Therapeutic Level III. See Instructions for Authors for a complete description of levels of evidence.

Boyanton BL, Almradi A, Mehta T and **Robinson-Dunn B** (2014). "Performance of the Directigen EZ Flu A+B rapid influenza diagnostic test to detect pandemic influenza A/H1N1 2009." Diagnostic Microbiology and Infectious Disease 78(4): 360-362.

[Full-Text](#)

Department of Pathology

The Directigen EZ Flu A+B rapid influenza diagnostic test, as compared to real-time reverse transcriptase polymerase chain reaction, demonstrated suboptimal performance to detect pandemic influenza A/H1N1 2009. Age- and viral load-stratified test sensitivity ranged from 33.3 to 84.6% and 0 to 100%, respectively. (copyright) 2014 Elsevier Inc.

Boyanton Jr BL, Almradi A, Espy MJ, Prada AE, Gibson JP and Pritt BS (2014). "Characterization of a novel melt curve by use of the Roche LightCycler HSV 1/2 analyte-specific reagent real-time PCR assay: Frequencies of this novel (low) melt curve and commonly encountered (intermediate) melt curves." Journal of Clinical Microbiology 52(3): 957-959.

[Full-Text](#)

Department of Pathology

We characterize a novel probe binding-site polymorphism detectable solely by melt curve analysis using the Roche LightCycler HSV 1/2 analyte-specific reagent real-time PCR assay. The frequencies of this novel (47°C) and previously described intermediate (60 to 62°C) melt curves were 0.016% and 4.9%, respectively.

Brubaker L, Litman HJ, Rickey L, Dyer KY, Markland AD, **Sirls L**, Norton P, Casiano E, Paraiso MFR, Ghetti C, Rahn DD and Kusek JW (2014). "Surgical preparation: Are patients "ready" for stress urinary incontinence surgery." [International Urogynecology Journal and Pelvic Floor Dysfunction](#) 25(1): 41-46.

[Request Form](#)

Department of Urology

Introduction and hypothesis Patient preparedness for stress urinary incontinence (SUI) surgery is associated with improvements in post-operative satisfaction, symptoms and quality of life (QoL). This planned secondary analysis examined the association of patient preparedness with surgical outcomes, treatment satisfaction and quality of life. Methods The ValUE trial compared the effect of pre-operative urodynamic studies with a standardized office evaluation of outcomes of SUI surgery at 1 year. In addition to primary and secondary outcome measures, patient satisfaction with treatment was measured using a five-point Likert scale (very dissatisfied to very satisfied) that queried subjects to rate the treatment's effect on overall incontinence, urge incontinence, SUI, and frequency. Preparedness for surgery was assessed using an 11-question Patient Preparedness Questionnaire (PPQ). Results Based on PPQ question 11, 4 out of 5 (81 %) of women reported they "agreed" or "strongly agreed" that they were prepared for surgery. Selected demographic and clinical characteristics were similar in unprepared and prepared women. Among SUI severity baseline measures, total UDI score was significantly but weakly associated with preparedness (question 11 of the PPQ; Spearman's $r=0.13$, $p=0.001$). Although preparedness for surgery was not associated with successful outcomes, it was associated with satisfaction ($r_s=0.11$, $p=0.02$) and larger PGI-S improvement (increase; $p=0.008$). Conclusions Approximately half (48 %) of women "strongly agreed" that they felt prepared for SUI. Women with higher pre-operative preparedness scores were more satisfied, although surgical outcomes did not differ. © The International Urogynecological Association 2013.

Capone A (2014). "Current screening and treatments in ROP." [ARVO 2014 Annual Meeting Abstracts](#).

[Full-Text](#)

Department of Ophthalmology

This presentation will review current strategies for optimal ROP screening as well as the state-of-the-art in interventions to mitigate the impact of ROP.

Capone Jr A, Singer MA, Dodwell DG, Dreyer RF, Oh KT, Roth DB, Walt JG, Scott LC and Hollander DA (2014). "Efficacy and safety of two or more dexamethasone intravitreal implant injections for treatment of macular edema related to retinal vein occlusion (shasta study)." [Retina](#) 34(2): 342-351.

[Full-Text](#)

Department of Ophthalmology

PURPOSE: To evaluate the efficacy, safety, and reinjection interval of dexamethasone intravitreal implant (DEX implant) in branch retinal vein occlusion and central retinal vein occlusion patients receiving ≥ 2 DEX implant treatments. METHODS: Multicenter (26-site), retrospective chart review study. Data were collected from baseline (at first DEX implant) through 3 months to 6 months after last DEX implant. RESULTS: Patients ($n = 289$) received 2 to 9 (mean, 3.2) DEX implants as monotherapy (29.1% of patients) or with adjunctive treatments/procedures. Mean duration of macular edema before first DEX implant was 18.4 months. Mean reinjection interval was 5.6 months. Mean peak change in best-corrected visual acuity from baseline through 4 weeks to 20 weeks after final DEX implant was +1.0 line ($P < 0.001$). Best-corrected visual acuity and central retinal thickness improved significantly from baseline after each of the first 6 DEX implant injections ($P \leq 0.037$); 59.7% of branch retinal vein occlusion and 66.7% of central retinal vein occlusion patients achieved ≥ 2 -line best-corrected visual acuity improvement. Intraocular pressure increase (≥ 10 mmHg) occurred in 32.6% of patients; 29.1% used intraocular pressure-lowering medication to treat increases associated with DEX implant. Only 1.7% of patients required incisional glaucoma surgery. CONCLUSION: Retinal vein occlusion patients treated with multiple DEX implant injections, either alone or combined with other therapies, had improved central retinal thickness and visual acuity with each subsequent injection. No new safety concerns developed with multiple implants. Copyright © by Ophthalmic Communications Society, Inc.

Chehab M, **Vartanian SA, Ciacci J, Li X, Korman H and Krishnan A** (2014). "Percutaneous cryoablation vs open and robot assisted partial nephrectomy: Cost and clinical analysis." Journal of Vascular and Interventional Radiology 25(3): S75.

[Request Form](#)

Department of Diagnostic Radiology and Molecular Imaging

Department of Urology

Purpose: The aim of this study was to compare actual costs and charges of Percutaneous Cryoablation (PC) to Open (OPN) and Robot Assisted Partial Nephrectomy (RPN); treatment options demonstrating nearly comparable clinical efficacy in the management of Small Renal Masses (SRM). Materials and Methods: We retrospectively compared financial and clinical data for all adult PC, OPN and RPN performed for SRM (<5 cm) at our institution from January 2011 to March 2013. Revenue code based financial data included costs and charges for each encounter reported in real world values. Total cost was calculated as the sum of direct and indirect dollars itemized into procedural and periprocedural hospital elements including: operating room, operator fees, surgical supplies, anesthesia, PACU, room and board, ICU, lab, pharmacy, ancillary, dialysis and other. Charge refers to the amounts billed to third party payers based on costs. Clinical data included age, gender, BMI, date of hospital/ICU admission/discharge, blood loss, 30 day readmission and dialysis requirement was obtained from each patients medical record. All formal tests compared PC to OPN and then PC to RPN. Categorical variables were analyzed using Pearson or Fisher's exact tests while continuous variables utilized t-tests or Wilcoxon two-sample tests. Results: 195 cases including 37 PC, 39 OPN and 119 RPN were compared. PC had significantly lower (po.0001) direct, indirect and total median costs (\$2164, \$1536, \$3736) compared to OPN (\$5813, \$4470, \$10228) and RPN (\$6690, \$3744, \$10367), respectively. Median total charges for PC (\$21486) were also significantly lower than OPN (\$26182) p=0.0109 and RPN (\$24468) p=0.0232. These results were predominantly the result of significantly lower surgical supply and hospitalization costs of PC. In addition to shorter hospitalization times, PC also demonstrated significantly lower blood loss volume and rates of ICU admission compared to OPN and RPN. No other cost or clinical data elements demonstrated statistically significant differences. Conclusion: Percutaneous Cryoablation can be performed at significantly lower costs and charges compared to Open and Robot Assisted Partial Nephrectomy in the treatment of Small Renal Masses.

Chelliah AM, Vilchez G, Jeelani R, Sokol R and **Bahado-Singh RO** (2014). "Demographic evaluation of severe preeclampsia, hellp and atypical HELLP syndrome." Reproductive Sciences 21(3): 189A.

[Full-Text](#)

Department of Obstetrics and Gynecology

INTRODUCTION: The spectrum of hypertensive disorders of pregnancy is a significant cause of maternal morbidity. Among the classic disease processes there are many variations involving elevation in blood pressure & some level of organ dysfunction. Of these, Atypical HELLP is very poorly defined. We aim to investigate whether demographic differences exist between patients with Severe Preeclampsia, Classic HELLP, & Atypical HELLP. Atypical HELLP was characterized as patients with severe elevation in blood pressures, proteinuria & thrombocytopenia. Identification of these cases can offer insight as to whether these should be included in the spectrum of disease or whether their etiology is different. METHODS: A retrospective comparative analysis involving 485 patients, 270 Severe Preeclampsia, 60 Classic HELLP, 52 Atypical HELLP & 103 controls. The demographic variables compared included maternal age, race, gravidity, parity, gestational age, BMI, race, insurance, smoking & substance abuse. The chi-square test was used to analyze categorical variables, and student t-test for numerical variables. P values < .05 with 95%CI was considered significant. RESULTS: A total of 382 cases and 103 controls were collected with cases shown in the table below. There was a statistical difference in mean gestational age at birth between the Severe Preeclampsia & HELLP cases. For all other variables, there was no statistical difference between cases (severe preeclampsia, HELLP & atypical HELLP). There was a difference when cases were compared to controls (table). Post hoc ANOVA test showed no differences within cases. CONCLUSIONS: In the first study of this kind, atypical cases of HELLP displayed a similar demographic profile as Classic HELLP & Severe Preeclampsia. This suggests atypical forms may result from a common etiology & may be considered in the spectrum of hypertensive disorders of pregnancy. Further characterization, including molecular studies, are warranted. (Table Presented).

Chen PY (2014). "Accelerated partial breast irradiation: Keeping guidelines in step with evolving data." International Journal of Radiation Oncology Biology Physics 88(2): 263-265.

[Full-Text](#)

Department of Radiation Oncology

Chennamsetty A, Wenzler D and **Fischer M** (2014). "Removal of a penile constriction device with a large orthopedic pin cutter." Case Reports in Urology 2014: 347285.

[Full-Text](#)

Department of Urology

Penile strangulation is an infrequent clinical condition that has widely been reported. It usually results following placement of a constriction device to enhance sexual stimulation. Early treatment is essential to avoid potential complications, including ischemic necrosis and autoamputation. We describe the use of a Large Orthopedic Pin Cutter to remove a metal penile constriction device in the Emergency Department (ED). This case report describes the relatively safe technique of using an instrument available in many hospitals that can be added to the physician's arsenal in the removal of metal constriction devices.

Cheung AY, Kashani AH and **Drenser KA** (2014). "Subretinal peripapillary neovascularization associated with persistent fetal vasculature." Retinal Cases and Brief Reports 8(1): 83-86.

[Request Form](#)

Department of Ophthalmology

Purpose: The purpose of this study was to report a unique case of persistent fetal vasculature presenting as peripapillary choroidal neovascularization. Methods: Ophthalmologic examination, examination under anesthesia, fluorescein angiogram, chart review, review of relevant literature. A 2-year 4-month-old white girl was referred for decreased vision and suspicious retinal findings. Results: Fundus examination of the right eye demonstrated a peripapillary macular scar with old subretinal hemorrhage, subretinal fluid consistent with peripapillary neovascular net, a persistent fetal vascular stalk, and a central posterior lenticular opacity. Fluorescein angiogram of the right eye showed normal arterial filling in the early phase, normal arteriovenous transit, and late staining with mild leakage. Conclusion: This is a unique case of persistent fetal vasculature presenting with the findings of subretinal exudates and choroidal neovascularization that has not been described before. Although the etiology of the choroidal neovascularization is unclear, we postulate it may be a result of the traction from the persistent fetal vasculature stalk in the peripapillary region. These findings may also be secondary to an optic disk anomaly that was not detected on examination. Copyright (copyright) by Ophthalmic Communications Society, Inc.

Chew EY, Clemons TE, SanGiovanni JP, Danis RP, Ferris FL, Elman MJ, Antoszyk AN, **Ruby AJ**, Orth D, Bressler SB, Fish GE, Hubbard GB, Klein ML, Chandra SR, Blodi BA, Domalpally A, Friberg T, Wong WT, Rosenfeld PJ, Agrón E, Toth CA, Bernstein PS and Sperduto RD (2014). "Secondary analyses of the effects of lutein/zeaxanthin on age-related macular degeneration progression AREDS2 Report No. 3." JAMA Ophthalmology 132(2): 142-149.

[Request Form](#)

Department of Ophthalmology

IMPORTANCE The Age-Related Eye Disease Study (AREDS) formulation for the treatment of age-related macular degeneration (AMD) contains vitamin C, vitamin E, beta carotene, and zinc with copper. The Age-Related Eye Disease Study 2 (AREDS2) assessed the value of substituting lutein/zeaxanthin in the AREDS formulation because of the demonstrated risk for lung cancer from beta carotene in smokers and former smokers and because lutein and zeaxanthin are important components in the retina. **OBJECTIVE** To further examine the effect of lutein/zeaxanthin supplementation on progression to late AMD. **DESIGN, SETTING, PARTICIPANTS** The Age-Related Eye Disease Study 2 is a multicenter, double-masked randomized trial of 4203 participants, aged 50 to 85 years, at risk for developing late AMD; 66% of patients had bilateral large drusen and 34% had large drusen and late AMD in 1 eye. **INTERVENTIONS** In addition to taking the original or a variation of the AREDS supplement, participants were randomly assigned in a factorial design to 1 of the following 4 groups: placebo; lutein/zeaxanthin, 10 mg/2 mg; omega-3 long-chain polyunsaturated fatty acids, 1.0 g; or the combination. **MAIN OUTCOMES AND MEASURES** Documented development of late AMD by central, masked grading of annual retinal photographs or by treatment history. **RESULTS** In exploratory analysis of lutein/zeaxanthin vs no lutein/zeaxanthin, the hazard ratio of the development of late AMD was

0.90 (95%CI, 0.82-0.99; P = .04). Exploratory analyses of direct comparison of lutein/zeaxanthin vs beta carotene showed hazard ratios of 0.82 (95%CI, 0.69-0.96; P = .02) for development of late AMD, 0.78 (95%CI, 0.64-0.94; P = .01) for development of neovascular AMD, and 0.94 (95%CI, 0.70-1.26; P = .67) for development of central geographic atrophy. In analyses restricted to eyes with bilateral large drusen at baseline, the direct comparison of lutein/zeaxanthin vs beta carotene showed hazard ratios of 0.76 (95%CI, 0.61-0.96; P = .02) for progression to late AMD, 0.65 (95%CI, 0.49-0.85; P = .002) for neovascular AMD, and 0.98 (95%CI, 0.69-1.39; P = .91) for central geographic atrophy. CONCLUSION AND RELEVANCE The totality of evidence on beneficial and adverse effects from AREDS2 and other studies suggests that lutein/zeaxanthin could be more appropriate than beta carotene in the AREDS-type supplements. Copyright 2014 American Medical Association. All rights reserved.

Chung MS, Chuang YC, Lee JJ, Lee WC, **Chancellor MB** and Liu RT (2014). "Prevalence and associated risk factors of nocturia and subsequent mortality in 1,301 patients with type 2 diabetes." International Urology and Nephrology: 1-7. ePub Ahead of Print.

[Full-Text](#)

Department of Urology

Objective: To evaluate the correlates of nocturia and subsequent mortality in patients with type 2 diabetes mellitus (T2DM). Methods: A self-administered questionnaire containing overactive bladder symptom score was obtained from subjects with T2DM. Nocturia and severe nocturia were defined as rising ≥ 2 or ≥ 3 per night to void, respectively. Patient characteristics and diabetes-related complications to risk of nocturia were evaluated. Results: Of 1,301 consecutive subjects, 59.6 and 25.3 % reported having nocturia and severe nocturia, respectively. The presence and severity of nocturia increased with age and overactive bladder (OAB). The presence of OAB was 28.8 % in patients with nocturia and was significantly associated with nocturia (OR 2.26) after adjustment for age and duration of DM. The presence of stroke, calcium channel blocker use, hypertension, waist circumference greater than standard, albuminuria, and higher serum creatinine level, and high-sensitivity C-reactive protein was associated with nocturia and severe nocturia after adjustment for age, duration of DM, and the presence of OAB. Higher estimated glomerular filtration rate, hemoglobin, serum albumin, and male gender were less likely to have nocturia (OR <1). Severe nocturia increased mortality (OR 1.93) independent of age and DM duration and has a higher mortality rate compared to those without severe nocturia (6.1 vs. 2.4 %, P = 0.001) in 2.5 years follow-up. Conclusions: While OAB is an important predictor of nocturia in T2DM patients, systemic issues, including stroke, hypertension, obesity, and chronic kidney disease, have further impact on nocturia independent of OAB. Severe nocturia is a marker for increased mortality. © 2014 Springer Science+Business Media Dordrecht.

Cockerham WC and **Wasserman JA** (2014). "Postmodernity," In Cockerham WC, Dingwall R and Quah SR (ed). The Wiley Blackwell Encyclopedia of Health, Illness, Behavior, and Society. 4. West Sussex: John Wiley & Sons, Ltd. pp: 1851-1855.

[Full-Text](#)

Department of Biomedical Sciences (OU)

The term "postmodernity" literally refers to the period following modernity, in which society moved out of its post-industrial era to the next stage of development, bringing with it new social conditions and phenomena. The sociological version of postmodern theory that developed generally held that post-industrial society's traditional centers of authority were disintegrating and giving way to the emergence of a new social modernity – the postmodern. Postmodern social theory mandated a turning away from theorizing in terms of grand, all-encompassing systems (metanarratives) that conceptualized the social as a totality, along with the negation of formal, positivist conceptions of social theory and the belief that the sociological classics speak to the current era. Postmodernism may be best understood as an epistemological break from modernist thinking, rooted in Enlightenment thinking. While the strength of postmodern theory lies in its depiction of the type of social change taking place at the beginning of the twenty-first century, its greatest shortcoming was its failure to account for the shape of the oncoming society. Other strengths and weaknesses of postmodern theory are discussed, along with its reception in medical sociology and in sociology generally.

Comi C, Dianzani U, Martinelli Boneschi F and **Menkes DL** (2014). "Advances in neuroimmunology: From bench to bedside." Autoimmune Diseases 2014. ePub Ahead of Print.

[Full-Text](#)

Department of Neurosurgery

Comstock CH and **Bronsteen RA** (2014). "The antenatal diagnosis of placenta accreta." BJOG: An International Journal of Obstetrics and Gynaecology 121(2): 171-181.

[Full-Text](#)

Department of Obstetrics and Gynecology

The incidence of placental attachment disorders continues to increase with rising caesarean section rates. Antenatal diagnosis helps in the planning of location, timing and staffing of delivery. In at-risk women grey-scale ultrasound is quite sensitive, although colour ultrasound is the most predictive. Magnetic resonance imaging can add information in some limited instances. Patients who have had a previous caesarean section could benefit from early (before 10 weeks) visualisation of the implantation site. Current data refer only to placentas implanted in the lower anterior uterine segment, usually over a caesarean section scar. © 2013 Royal College of Obstetricians and Gynaecologists.

Cox BM, Shah MM, Cichon T, Tancer ME, Galloway MP, **Thomas DM** and Perrine SA (2014). "Behavioral and neurochemical effects of repeated MDMA administration during late adolescence in the rat." Progress in Neuro-Psychopharmacology and Biological Psychiatry 48: 229-235.

[Full-Text](#)

Department of Biomedical Sciences (OU)

Adolescents and young adults disproportionately abuse 3,4-methylenedioxymethamphetamine (MDMA; 'Ecstasy'); however, since most MDMA research has concentrated on adults, the effects of MDMA on the developing brain remain obscure. Therefore, we evaluated place conditioning to MDMA (or saline) during late adolescence and assessed anxiety-like behavior and monoamine levels during abstinence. Rats were conditioned to associate 5 or 10. mg/kg MDMA or saline with contextual cues over 4 twice-daily sessions. Five days after conditioning, anxiety-like behavior was examined with the open field test and brain tissue was collected to assess serotonin (5-hydroxytryptamine, 5-HT) and its metabolite 5-hydroxyindoleacetic acid (5-HIAA) in the dorsal raphe, amygdala, and hippocampus by high-pressure liquid chromatography (HPLC). In a separate group of rats, anxiety-like and avoidant behaviors were measured using the light-dark box test under similar experimental conditions. MDMA conditioning caused a place aversion at 10, but not at 5. , mg/kg, as well as increased anxiety-like behavior in the open field and avoidant behavior in light-dark box test at the same dose. Additionally, 10. mg/kg MDMA decreased 5-HT in the dorsal raphe, increased 5-HT and 5-HIAA in the amygdala, and did not alter levels in the hippocampus. Overall, we show that repeated high (10. mg/kg), but not low (5. mg/kg), dose MDMA during late adolescence in rats increases anxiety-like and avoidant behaviors, accompanied by region-specific alterations in 5-HT levels during abstinence. These results suggest that MDMA causes a region-specific dysregulation of the serotonin system during adolescence that may contribute to maladaptive behavior. © 2013.

Crimmins GM, Madder RD, **Marinescu V** and **Safian RD** (2014). "Validity of estimated glomerular filtration rates for assessment of renal function after renal artery stenting in patients with atherosclerotic renal artery stenosis." JACC: Cardiovascular Interventions. ePub Ahead of Print.

[Full-Text](#)

Department of Internal Medicine

Objectives: The purpose of this study was to evaluate the validity of estimates of glomerular filtration rate (eGFR) for assessing serial changes in renal function after renal artery stenting. Background: eGFR are unreliable for assessing serial renal function in patients with atherosclerotic renal artery stenosis (RAS). eGFR have not been validated for assessment of serial renal function after renal artery stenting. Methods: Serum creatinine (SCr) and 125I-iothalamate GFR (iGFR) were measured in RAS patients before and after renal artery stenting. eGFR were calculated from Modification of Diet in Renal Disease (MDRD), Chronic Kidney Disease Epidemiology Collaboration (CKD-EPI), and Cockcroft-Gault (CG) formulas. Using iGFR as the reference standard, the sensitivity, specificity, and area under the receiver-operating characteristic curve (AUC) were determined for MDRD, CKD-EPI, and CG for assessing changes in GFR before and after intervention. Results:

Between 1998 and 2007, 84 patients underwent iGFR and eGFR before and after renal artery stenting. All eGFR demonstrated poor sensitivity and reliability for detecting (greater-than or equal to)20% changes in iGFR, and poor agreement in the magnitude and direction of change in iGFR, before and after renal stenting. Conclusions: In RAS patients, eGFR demonstrate poor sensitivity and reliability for detecting meaningful changes in iGFR after renal artery stenting. eGFR should be abandoned as primary endpoints in major clinical trials assessing the impact of renal revascularization on renal function. (copyright) 2014 American College of Cardiology Foundation.

Cyrlin MN (2014). "Malignant glaucoma (posterior aqueous diversion syndrome)," In Samples JR and Schacknow PN (ed). Clinical Glaucoma Care New York: Springer. pp: 323-334.

[Full-Text](#)

Department of Ophthalmology

Cyrlin MN (2014). "Primary and secondary angle-closure glaucomas," In Samples JR and Schacknow PN (ed). Clinical Glaucoma Care New York: Springer. pp: 287-322.

[Full-Text](#)

Department of Ophthalmology

Dangas GD, Kini AS, Sharma SK, Henriques JPS, Claessen BE, **Dixon SR**, Massaro JM, Palacios I, Popma JJ, Ohman EM, Stone GW and O'Neill WW (2014). "Impact of hemodynamic support with Impella 2.5 versus intra-aortic balloon pump on prognostically important clinical outcomes in patients undergoing high-risk percutaneous coronary intervention (from the PROTECT II randomized trial)." American Journal of Cardiology 113(2): 222-228.

[Full-Text](#)

Department of Internal Medicine

A periprocedural myocardial infarction, defined as the advent of new Q-waves or a creatine kinase-MB elevation >8null normal has been previously validated as predictive of subsequent mortality. We examined the effects of using this clinically relevant definition of periprocedural myocardial infarction instead of the original protocol definition on outcomes in the recent PROTECT II [A Prospective, Multi-center, Randomized Controlled Trial of the IMPELLA RECOVER LP 2.5 System Versus Intra Aortic Balloon Pump (IABP) in Patients Undergoing Non Emergent High Risk PCI] trial. In this trial, patients who were undergoing high-risk percutaneous coronary intervention (PCI) were randomized to either an intra-aortic balloon pump (IABP, n = 211) or a left ventricular assist device (Impella, n = 216). All eligible patients per study protocol were included in the analysis. Patient outcomes were compared up to 90 days, the longest available follow-up, on the composite end points of major adverse events (MAE) and major adverse cardiac and cerebral events (MACCE = death, stroke, myocardial infarction, and repeat revascularization). At 90 days, the rates of both composite end points were lower in the Impella group compared with the IABP group (MAE, 37% vs 49%, p = 0.014 respectively; MACCE, 22% vs 31%, p = 0.034 respectively). There were no differences in death or large myocardial infarction between the 2 arms. By multivariable analysis, treatment with Impella as opposed to IABP was an independent predictor for freedom from MAE (odds ratio = 0.75 [95% confidence interval 0.61 to 0.92], p = 0.007) and MACCE (odds ratio = 0.76 [95% confidence interval 0.61 to 0.96], p = 0.020) at 90 days postprocedure. In conclusion, hemodynamic support with Impella compared with IABP during high-risk PCI in the PROTECT-II trial resulted in improved event-free survival at 3-month follow-up; this finding was further supported by multivariate analyses. (copyright) 2014 Elsevier Inc. All rights reserved.

David JA and **Huang JZ** (2014). "Diagnostic utility of flow cytometry analysis of reactive T-cells in nodular lymphocyte-predominant hodgkin lymphoma." Laboratory Investigation 94: 344A.

[Full-Text](#)

Department of Pathology

Background: Nodular Lymphocyte-Predominant Hodgkin Lymphoma (NLPHL) is an indolent, but progressive B-cell malignancy associated with frequent relapses. Pathological diagnosis of NLPHL can provide challenges due to the minimal number of lymphoma cells, which are scattered in a background of reactive lymphocytes. Previous immunophenotypic studies of T-cells in NLPHL have indicated that the frequency of CD57+ T-cells and CD4:CD8 ratio are often increased in NLPHL. However, the diagnostic utility of quantitative flow cytometry analysis in NLPHL remains to be further defined. Design: A retrospective chart review of patient

records from 2001 and 2013 was performed. Patients were identified based on diagnosis with Nodular Lymphocyte- Predominant Hodgkin Lymphoma (NLPHL, n=30), Classical Hodgkin Lymphoma (CHL, n=33), and Reactive Lymphoid Hyperplasia (RLH, n=43). Pathology reports and concurrent flow cytometric studies were reviewed. Flow cytometry list mode data were re-analyzed with a focus on T-cell phenotype, including CD4:CD8 ratio and percentage of T-cells expressing CD57. Results: Reactive T-cells in NLPHL showed an average CD4:CD8 ratio of 10.6:1 and an average proportion of 28% T-cells expressing CD57. Eighty-six percent (26/30) of NLPHL cases showed a CD4:CD8 ratio > 4:1. Reactive T-cells in CHL showed an average CD4:CD8 ratio of 6.5:1 and an average of 3.4% T-cells expressing CD57. Sixty percent (20/33) of CHL cases showed a CD4:CD8 ratio > 4:1. Both CD4:CD8 ratio and CD57+ proportions in CHL were significantly less than that seen in NLPHL (p<0.01). Reactive T-cells in RLH without Hodgkin Lymphoma showed a highly variable CD4:CD8 ratio but a consistently low percentage of CD57+ T-cells (average 3.2%), significantly less than that seen in NLPHL (p<0.001). A high proportion of CD57+ T-cells (>10% of total T-cells) was seen in 97% (29/30) of cases with NLPHL, in 6% (2/33) of cases with CHL, and 0% (0/43) cases of RLH. Overall, the high proportion of CD57+ T-cells has a sensitivity of 97% and a specificity of 97% for diagnosis of NLPHL. Conclusions: Quantitative evaluation of CD57+ T-cells and CD4:CD8 ratio by flow cytometry is very useful in the diagnosis of NLPHL. Increased CD57+ T-cell proportion (>10% of total T-cells) is highly suggestive of the possibility of NLPHL. Additionally, NLPHL diagnosis appears unlikely if neither CD57+ T-cell percentage nor CD4:CD8 ratio is increased. Further validation with a great variety of reactive lymphoid hyperplasia and T-cell lymphoproliferative disorders is in progress.

David JA and **Huang JZ** (2014). "Diagnostic utility of flow cytometry analysis of reactive T-cells in nodular lymphocyte-predominant hodgkin lymphoma." Modern Pathology 27: 344A-344A.

[Full-Text](#)

Department of Pathology

Delaroché A, Riggs T and **Maisels MJ** (2014). "Impact of the new 16-hour duty period on pediatric interns' neonatal education." Clinical Pediatrics 53(1): 51-59.

[Full-Text](#)

Department of Pediatrics

Objective. To assess the impact of the 16-duty hour restriction on pediatric interns' neonatal education. Method. Survey of interns clinical and educational experiences during their neonatal rotations. Results. A total of 316 respondents in 2011, who worked >16 hours, were compared with 509 respondents in 2012, who worked ≤16 hours. The average work week decreased from 67.3 ± 9.6 to 59.3 ± 8.1 hours (P <.0001). The 2012 cohort attended fewer didactic lectures (-16%, P <.0001), grand rounds (-27%, P <.0001), and mock resuscitations (-16%, P <.005). There were no significant differences in the number of (1) patients on service, (2) deliveries attended, or (3) procedures. There was no significant difference in the median number of correct responses (4) on 10 knowledge-based multiple-choice questions. Conclusions. The decrease in duty hours was achieved without significantly affecting interns' knowledge or clinical experience. © The Author(s) 2013.

Dilworth JT, **Krueger SA, Wilson GD and Marples B** (2014). "Preclinical models for translational research should maintain pace with modern clinical practice." International Journal of Radiation Oncology Biology Physics 88(3): 540-544.

[Full-Text](#)

Department of Radiation Oncology

Dohany L, Dreyfuss H, Fulbright J, Reeves A and **Zakalik D** (2014). "Breast cancer gene panel testing among high-risk individuals: A single-institution experience." Current Oncology 21(2): e383.

[Full-Text](#)

Department of Internal Medicine

Objective: Identifying individuals with hereditary predisposition to breast cancer has important implications. Next-generation sequencing (ngs) allows for rapid identification of multiple genes responsible for hereditary cancer risk and is being increasingly utilized in cancer genetics evaluation. This study presents the results of gene-panel testing for patients with significant history of breast cancer seen at Beaumont Health System.

Methods: Patients with suspected hereditary predisposition to breast cancer were evaluated at the Beaumont Cancer Genetics Program. Patients received genetic counselling and were informed of the implications and limitations of gene panel testing. The panels consisted of 6-26 genes associated with a risk for breast cancer, offered by 2 different laboratories in 5 different panel combinations. These genes were all evaluated using ngs and microarray technologies. Results: Between November 2012 and January 2014, 57 patients underwent gene-panel testing, with 38 (66.7%) testing negative and 3 (5.3%) testing positive for a deleterious mutation (1 PALB2, 2 PTEN). Of the PTEN carriers, 1 did not meet testing criteria for Cowden syndrome. Sixteen patients were found to carry a variant, with 1 patient having 2 mutations (BRCA1 and BRCA2), for a total of 17 variants (29.8%). Of the variants, 6 occurred in BRCA1/2, and 11 occurred in other genes (2 CDH1, 3 CHEK2, 2 RAD50, 1 MUTYH, 1 ATM, and 1 CDKN2A). Of the CHEK2 variants, 2 were interpreted as deleterious by another laboratory. Conclusion: This study demonstrates the finding of deleterious mutations in genes other than BRCA1/2 that would likely not have been discovered by pedigree analysis alone. The limitation is that 29.8% of patients had a variant in a gene with unknown clinical implications. Further studies are needed to better define the broad mutational spectrum of high-risk families with breast cancer to optimize clinical management.

Dohany L, Dreyfuss H, Fulbright J, Reeves A and **Zakalik D** (2014). "Successful implementation of an annual hospital-based conference for BRCA mutation carriers." *Current Oncology* 21(2): e375.

[Full-Text](#)

Department of Internal Medicine

Objective: Since discovery of the BRCA1 and BRCA2 genes, great strides have been made in understanding the varied impact of testing positive. Significant challenges remain for BRCA-positive patients, which are not always addressed by their medical team. To educate our BRCA community regarding advancements in the field and to address the unique medical and psychological needs of BRCA carriers, the Beaumont Cancer Genetics Program initiated an annual BRCA Symposium. Methods: BRCA-positive individuals and their families from Beaumont Health System and the local community were invited to attend a BRCA Symposium initiated in the fall of 2012. A variety of relevant topics were presented, including cancer risks, high-risk surveillance, prophylactic surgery, gynecologic issues, and psychosocial topics. Participants were asked to complete a survey rating the quality, added benefit, and overall impact of the conference at the 2012 and 2013 meetings. Results: Survey respondents included 48 of 58 participants (83%) in 2012, and 34 of 47 participants (72%) in 2013. Participants included 30 cancer survivors, 23 previvors, and 13 who had a family member who was BRCA-positive, but had not tested themselves. The majority were Caucasian (73%), with representation from Asian, African, and Arabic Americans. The primary reasons for attending included gathering information regarding BRCA, help with medical decisionmaking, support, and networking with other individuals who are BRCA-positive. 96% of participants felt that the conference met or exceeded their expectations; 88% felt that their knowledge about BRCA improved significantly. Conclusion: This experience demonstrates successful implementation of an annual educational and support symposium for BRCA-positive patients and their families. This approach addresses a significant need in this unique population for continued long-term education and support, and serves as a model for others.

Doherty AN, Kring EA, **Posey YF** and **Maisels MJ** (2014). "Glucose-6-phosphate dehydrogenase activity levels in white newborn infants." *Journal of Pediatrics*. ePub Ahead of Print.

[Full-Text](#)

Department of Pathology

Department of Pediatrics

Objective: To define normal levels of glucose-6-phosphate dehydrogenase (G6PD) activity in a population of North American white newborns. Study design: We studied 2 white newborn populations, ≥ 35 weeks of gestation. In the retrospective study, G6PD activity was measured (on clinical indication) in 242 newborns aged ≤ 7 days. In the prospective study, we measured G6PD activity in umbilical cord blood samples in 347 newborns and daily transcutaneous bilirubin levels in these infants. Results: The mean G6PD activity level was 12.3 ± 3.1 units per gram hemoglobin (U/gHb) in the retrospective population and 13.3 ± 1.8 U/gHb in the prospective population, and there was no difference between males and females. The distribution of values suggested that infants with activity levels < 7 U/gHb should be considered deficient and 8 infants (6 males and 2 females), all in the retrospective population had such levels. Conclusions: As in other ethnic

populations, the mean G6PD activity in white newborn infants is substantially greater than that of white adults. The lower limits of normal are also similar to those of other newborn ethnic groups and of adults. The diagnosis of G6PD deficiency should be considered in any white infant whose G6PD activity is <7 U/gHb. © 2014 Mosby, Inc. All rights reserved.

Dreyfuss H, Dohany L, Fulbright J, Reeves A and **Zakalik D** (2014). "Non-founder mutations in Ashkenazi Jewish individuals undergoing testing for BRCA1/2." Current Oncology 21(2): e368.

[Full-Text](#)

Department of Internal Medicine

Objective: Individuals of Ashkenazi Jewish (aj) ancestry are at increased risk for carrying a mutation in 1 of 3 specific locations in BRCA1/BRCA2 (187delAG and 5385insC in BRCA1, 6174delT in BRCA2). These founder mutations account for the vast majority of all deleterious BRCA mutations in this ethnic group. There is some debate on whether proceeding to reflex full sequencing and deletion/duplication BRCA1/2 analysis is warranted in certain aj families. Due to the significantly increased risk of cancer and strong management implications, it is important to elucidate whether reflex testing provides additional yield in aj families. This study presents the results of three aj families identified to carry a non-founder mutation in BRCA1/2. Methods: BRCA genetic testing results of aj individuals who presented for genetic counselling between May 2008 and December 2013 were reviewed. Based on their aj ancestry, BRCA1/2 testing was performed in a stepwise fashion, starting with analysis of the three aj founder mutations. Certain individuals who tested negative for the 3 aj founder mutations, and who met more stringent family history criteria, proceeded to BRCA full sequencing. Excluding their aj ancestry, each of these families still met National Comprehensive Cancer Network (nccn) guidelines for BRCA1/2 genetic testing. Results: Three aj families tested were found to carry a deleterious mutation outside the aj founder sites. Two tested positive for a BRCA2 mutation, (4075delGT and 3036del4) and one tested positive for a BRCA1 mutation (4035delTT). Each family had a significant cancer family history, including early onset breast, male breast cancer, and/or ovarian cancer. Conclusion: This series demonstrates the occurrence of non-aj founder mutations in a minority of patients with significant family histories undergoing testing for BRCA. These results may have implications for families who, despite having a strong family history, test negative for the 3 aj founder mutations.

Dumler F (2014). "Anthropometric assessment in kidney disease," In Byham-Gray LD, Burrowes JD and Chertow GM (ed). Nutrition in Kidney Disease New York: Humana Press. pp: 49-56.

[Full-Text](#)

Department of Internal Medicine

An adequate nutritional status is inherent to an optimal level of health. In continuing illness states, such as chronic kidney disease (CKD), there is a significant interdependence between both. Nutritional status influences the disease process and its comorbidities. Renal failure and its management may have a negative impact on nutritional status thereby creating a vicious cycle. Thus, monitoring nutritional status and body composition is imperative to the appropriate management of CKD [1].

Eastwood J and Doubleday A (2014). "Student-developed learning resources for the anatomical sciences." FASEB Journal 28(1): 719.712.

[Full-Text](#)

Department of Biomedical Sciences (OU)

The process of creating learning resources provides students with opportunities to explore information, create study aids, and identify learning gaps prior to an examination. We present two examples of activities for the anatomical sciences that engage students through resource building and provide formative assessment opportunities. At UIC first-year dental students produce video narrations in the anatomy laboratory. Videos are created on instructor-controlled devices and viewable online via a password-protected link on a secure site. Students review videos and instructors correct inaccuracies in subsequent classes. All students and instructors can comment on videos within the secure site. Students find that the process of taking videos helps them organize their thoughts and students can better prepare for the laboratory by viewing other groups' videos. At OUWB, first and second year medical students develop practice practical questions in histology lab. Students select and capture images from virtual histology slides and use presentation software to develop image-based questions. The instructor compiles, corrects, and

posts slides for the class. Misconceptions can be quickly identified and addressed with students prior to summative assessment. Students find these practice questions valuable and frequently approach the instructors with questions generated from the use of this resource.

Ehlert M, Bartley J, Killinger K, **Gillera J** and **Fischer M** (2014). "Management of recurrent prolapse after robotic-assisted prolapse surgery (RAPS)." Neurourology and Urodynamics 33(2): 266.

[Full-Text](#)

Department of Urology

Introduction and Objectives: Recurrent prolapse can occur after abdominal prolapse repair. Treatment options include observation or additional surgical repair. We examine the incidence and treatment of prolapse after RAPS. Methods: RAPS performed between 2007 and 2012 were identified through retrospective chart review. Patients who were found to have any postoperative prolapse, defined as (greater-than or equal to) grade 2 in any compartment, were examined as a subset. Subsequent management, either observation or surgical, was characterized. Results: Of 100 patients who underwent attempted RAPS by three urologists, 21 had recurrent prolapse. In this subset, 16 had prior hysterectomy, seven had prior anti-incontinence procedure and seven had prior prolapse repair. Preoperative prolapse was characterized as grade 2 (1), grade 3 (11), grade 4 (8). 12 had all three compartments involved. The majority received a robotic sacrocolpopexy (n=19), four with concomitant robotic hysterectomy and one had vaginal hysterectomy. Two additional patients had a sacrohysteropexy. With a mean follow-up of seven months, seven patients had grade 3 recurrent prolapse (4 anterior and 3 posterior compartment) and 14 grade 2 (15 Anterior, 11 posterior, and 3 apical). Six patients with grade 3 prolapse underwent a second procedure at an average of 230 days (range 38-345). Procedures included primary cystocele (2) or rectocele repair (1), posterior vaginal mesh (2) and anterior mesh repair (1). None of the grade 2 prolapse required surgical repair. Conclusions: Recurrent prolapse can occur after robotic assisted prolapse repair. Grade 2 recurrence can successfully be managed conservatively but grade 3 recurrences often require additional surgery. Grade 3 anterior and posterior compartment failures were effectively addressed using a vaginal approach.

Ehlert M, Bartley J, Killinger K, **Gillera J** and **Fischer M** (2014). "Secondary procedures after robotic assisted prolapse surgery (RAPS)." Neurourology and Urodynamics 33(2): 262.

[Full-Text](#)

Department of Urology

Introduction and Objectives: The safety and efficacy of minimally invasive abdominal prolapse repair has been established. Many patients require secondary procedures for recurrent prolapse, incontinence, mesh complications and other sequelae of laparoscopic abdominal surgery. We examine all secondary procedures after RAPS. Methods: Consecutive RAPS from 2007-2012 were identified through retrospective chart review. All secondary procedures after primary surgery were categorized. Results: 100 patients underwent attempted RAPS by three surgeons. Excluding one aborted procedure due to abdominal adhesions and one aborted sling due to a vaginal inclusion cyst, 19 patients underwent 23 subsequent procedures. Primary procedures were sacrocolpopexy (18) and sacrohysteropexy (1). Concomitant procedures included hysterectomy (3), retropubic urethrolysis (1), vaginal hysterectomy (1), removal of prior sacrocolpopexy mesh (1), umbilical hernia repair (1) and anti-incontinence procedures (4 TOT slings, 2 Burch colposuspensions, 1 mini-sling). During a mean follow-up of 16 months, seven patients underwent anti-incontinence procedures (6 synthetic slings, 1 fascial sling in a patient after synthetic sling, 3 urethral bulking agents). Secondary prolapse repairs were performed in six patients with recurrent grade 3 prolapse: two anterior repairs with transvaginal mesh, one primary anterior repair with partial excision of prior mesh, two posterior repairs with transvaginal mesh and one primary posterior repair. Other procedures included cystoscopic suture removal with subsequent open mesh excision from bladder, transvaginal suture granuloma excision and transvaginal mesh excision (1 each). Transvaginal urethrolysis with Martius flap was performed for persistent obstructive voiding after the attempted robotic urethrolysis. Additionally, two patients presented with an incarcerated port-site hernia requiring laparotomy, one with a small bowel resection. The patient who had an umbilical hernia repair subsequently underwent laparoscopic ventral wall hernia repair with mesh. Median time to

second procedure was 258 days for prolapse repair, 48 days for slings and 249 days for remaining vaginal and abdominal surgeries (range 3- 2025 days). Conclusions: Robotic assisted prolapse surgery may result in the need for secondary procedures and patients should be counseled appropriately. Adequate follow-up beyond one year is required to monitor this population closely.

Ehlert M, Bartley J, Killinger K, **Gilleran J** and **Fischer M** (2014). "Voiding symptoms and treatments after robotic assisted prolapse surgery (RAPS)." *Neurourology and Urodynamics* 33(2): 203-204.

[Full-Text](#)

Department of Urology

Introduction and Objectives: Voiding symptoms after surgery for pelvic organ prolapse (POP) are common and include denovo stress urinary incontinence (SUI), urinary urgency and frequency. We define the incidence and treatment of voiding symptoms after robotic prolapse repair. Materials and Methods: Consecutive RAPS patients from 2007 to 2012 were identified. Those with post-operative voiding symptoms of stress incontinence or urinary urgency were further characterized, as were subsequent treatments. Results: A total of 100 patients underwent attempted RAPS. Of these, 34 presented with 37 post-op voiding complaints. Mean age was 59 (plus or minus)11. Previous surgeries included prolapse repair (n=8), hysterectomy (n=19), procedure for stress incontinence (n=11). The majority presented with initial grade 3 POP (71%) and multiple compartments involved (65%). RAPS included 30 sacrocolpopexies and 4 sacrohysteropexies. Concomitant procedures included hysterectomy (n=9), midurethral sling, (n=11), primary posterior repair (n=2), retropubic urethrolysis (1) and one urethral suspension. With an average follow-up of 8.2 months (median 5), 11 patients presented with de-novo stress incontinence and 3 with recurrent SUI after a mid-urethral sling (MUS). 2 patients had worse SUI post-op -1 declined sling pre-operatively, the other had an aborted sling due to a vaginal inclusion cyst. Management for SUI included mid-urethral sling (n=6) at a median time of 48 days (range 35-2025), urethral bulking agents (n=2) and observation (n=8). 13 patients complained of de-novo urinary urgency, and 8 with worsening urgency symptoms. Of these, 6 and 3 respectively had undergone sling at the time of sacrocolpopexy. Urgency was treated with medication in 14, 21, sacral neuromodulation (1), and repeat transvaginal urethrolysis with Martius flap (1). Conclusion: Voiding complaints are common after complex RAPS. A minority require additional procedures, while most can be managed non-operatively. Funding by MPURE philanthropic gift.

Ehlert M, Carrico D, Dove-Medows E, **Seltzer M**, Bartley J, **Gilleran J**, **Sirls L** and **Peters K** (2014). "Bullying and abuse history: Relationships with pain, urologic symptoms, exam and co-morbidities." *Neurourology and Urodynamics* 33(2): 256.

[Full-Text](#)

Department of Obstetrics and Gynecology

Department of Urology

Introduction and Objectives: Nationally, 25% of women report a history of abuse or bullying. To date there are no publications on bullying and urologic symptoms, and few relate to abuse and urologic symptoms. The objective is to describe abuse/ bullying history relationships with co-morbidities, pain levels, exam findings, voiding and pelvic floor symptoms in a women's urology center. Methods: All new patients presenting to our center from July 2012 to April 2013 were included in this retrospective chart review. Patients completed an intake history form, pain ratings in several domains (overall, bladder, pelvic, vulvar on a 0-10 scale) and validated questionnaires prior to their visit. These were reviewed and updated in a 1:1 interview. Data was abstracted by four clinicians. Analyses of Variance (ANOVA) with post-hoc correction for multiple analysis and Pearson's correlation coefficients (u) were calculated. Results: 199 patients were identified. 24% of this group reported each a history of abuse (N=48) and being bullied (N=48). 52% (N=104) reported a bullying history (being bullied, being a bully, witnessing bullying). Those with an abuse history and those abused with a bullying history had significantly higher pain scores in each domain (Table 1). Abuse or bullying history was not associated with being sexually active, OABq total or subscale scores, BMI, levator muscle pain or trigger points. Correlations with comorbidities are strong for smoking history (u=.220), anxiety (u=.335), IBS (u=.297) and depression (u=.380). There was no significant difference related to bullying on the Pelvic Floor Distress Inventory (PFDI), but significant differences were seen in total score (p=0.013), Pelvic Organ Prolapse Distress Index (POPDI-6), (p=0.01) and ColoRectal-Anal Distress Inventory (CRADI-8) (p=0.049) for those with a history of abuse compared to those without a history of abuse. Conclusions: A history of bullying or abuse or

both significantly correlates with pain scores, pelvic floor symptom distress and several comorbidities. A longitudinal prospective study of women bullied or abused prior to urologic/pain symptoms would contribute to research in this field. (Table Presented).

Ehlert M, Carrico D, Tomakowsky J, Dove-Medows E, Carty J, Lumley M, **Sirls L**, Bartley J and **Peters K** (2014). "Associations between validated urology and psychology questionnaires in a women's urology center practice." Neurourology and Urodynamics 33(2): 255-256.

[Full-Text](#)

Department of Urology

Introduction and Objectives: Little is known about the relationship of the Overactive Bladder Questionnaire Short Form (OABq-SF) and Pelvic Floor Distress Inventory (PFDI-20) to the following validated psychology questionnaires: Pain Catastrophizing Scale (PCS), Generalized Anxiety Disorder-7 (GAD-7), Patient Health Questionnaire (PHQ-8) and General Social Constraints Scale (GSC). The objective of this study is to present correlations between these questionnaires in women with a variety of urologic and pelvic pain conditions presenting to our multidisciplinary urology clinic. Methods: A retrospective chart review was completed for patients initially seen from July 2012 to April 2013 in our women's urology center. Prior to their first visit patients are asked to complete the following questionnaires: OABq, PFDI, GAD-7, PHQ-8, GSC and PCS (if pain was present). Questionnaire data was compiled and Pearson Correlation Coefficients were calculated for statistical significance using the PFDI and OABq total scores and subscales and the psychology questionnaire total scores. Results: 175 of 199 women (88% of total women seen) completed the GAD-7 and PHQ-8 while 125 women (63%) completed the GSC and PCS. Statistically significant correlations were found between the PFDI total score and all total scores on the psychological questionnaires ($p=0.05$, Table 1). The transformed OABq health related quality of life score (HRQOL) and all total scores on the psychology questionnaires were significantly negatively correlated ($p=0.01$), where higher HRQOL scores indicated better quality of life. The PHQ8 was the only psychological questionnaire that was significantly correlated with the PFDI and all subscales, as well as the OAB q Symptom Severity and HRQOL scores ($p<0.05$). Conclusions: These correlations suggest that pelvic floor symptoms, overactive bladder symptoms and quality of life are significantly correlated with psychological variables such as pain catastrophizing, anxiety, social constraints and depression. This underscores the importance for a multidisciplinary approach to treatment. Further research is needed to develop implications for practice. (Table Presented).

Ehlert M, **Sirls L**, Carrico D, Dove-Medows E, **Gilleran J**, Bartley J, Tomakowsky J, Carty J and **Peters K** (2014). "Voiding complaints in patients presenting with pelvic pain." Neurourology and Urodynamics 33(2): 222.

[Full-Text](#)

Department of Urology

Introduction: Women with pelvic pain are heterogeneous and presenting symptoms may not reflect primary organ pathology. The objectives of this study were to determine associations among clinic-demographic variables, and voiding symptoms in women with high pain scores vs. low pain scores who present to a multidisciplinary women's urology clinic. Methods: A retrospective chart review of consecutive women presenting from July 2012 to April 2013. Data collected include demographics, symptom surveys, past medical history, physical exam findings and final diagnosis codes (ICD-9). Women with higher pelvic pain scores, defined a priori as self-reported severity of (greater-than or equal to) 3/10 in any domain (overall, bladder, vulvar, pelvic), were compared to those with lower pain scores, <3/10. Voiding symptoms were quantified with Overactive Bladder Questionnaire Short Form (OABq-SF) and Pelvic Floor Distress Inventory (PFDI 20) scores and sub-scores. Results: 199 women were identified. Of 190 of women with valid pain scores, 103 (52%) had high pain scores. This group was younger (45 yrs. vs. 54 yrs., $p<0.001$), more likely to abstain from alcohol (55% vs. 37%, $p=0.013$), have irritable bowel syndrome (33% vs. 19%, $p=0.026$) and have more pelvic (1.66 vs. 1.01, $p=0.029$) and urologic (0.49 vs. 0.15, $p=0.017$) surgeries, including surgical menopause (60% vs. 30%, $p=0.004$). The high pain score group reported less stress incontinence (36% vs. 51%, $p=0.04$), but more sensation of incomplete bladder emptying (50% vs. 23%, $p<0.001$). The groups did not differ in the incidence of urinary frequency, urgency with leakage or OABq symptom severity score. The high pain score group had a higher Pelvic Organ Prolapse Distress Index (POPDI 6) (9.5 vs. 6.1, $p>0.001$), PFDI 20 summary score (25.8 vs. 17.7, $p<0.001$), a lower (worse) transformed Health Related Quality of Life score (61.9 v. 72.3, $p=0.013$) and were more likely to have a history of anxiety (51% vs. 32%, $p=0.009$) and

depression (43%vs. 22%, $p=0.003$). They were also least likely to be given a urologic diagnosis (23%) versus a gynecologic or pelvic pain diagnosis (31% and 46%, $p<0.001$). Conclusions: Women presenting with higher pelvic pain scores are significantly younger, have had more urologic and gynecologic procedures, have more pelvic organ distress and worse quality of life than women with lower pelvic pain scores. They report less irritative voiding symptoms and are less likely to be assigned a urologic diagnosis.

Einstein AJ, Berman DS, Min JK, Hendel RC, Gerber TC, Carr JJ, Cerqueira MD, Cullom SJ, Dekemp R, Dickert NW, Dorbala S, Fazel R, Garcia EV, Gibbons RJ, Halliburton SS, Hausleiter J, Heller GV, Jerome S, Lesser JR, **Raff GL**, Tilkemeier P, Williams KA and Shaw LJ (2014). "Patient-centered imaging: shared decision making for cardiac imaging procedures with exposure to ionizing radiation." *Journal of the American College of Cardiology* 63(15): 1480-1489.

[Full-Text](#)

Department of Internal Medicine

The current paper details the recommendations arising from an NIH-NHLBI/NCI-sponsored symposium held in November 2012, aiming to identify key components of a radiation accountability framework fostering patient-centered imaging and shared decision-making in cardiac imaging. Symposium participants, working in 3 tracks, identified key components of a framework to target critical radiation safety issues for the patient, the laboratory, and the larger population of patients with known or suspected cardiovascular disease. The use of ionizing radiation during an imaging procedure should be disclosed to all patients by the ordering provider at the time of ordering, and reinforced by the performing provider team. An imaging protocol with effective dose $\leq 3\text{mSv}$ is considered very low risk, not warranting extensive discussion or written informed consent. However, a protocol effective dose $>20\text{mSv}$ was proposed as a level requiring particular attention in terms of shared decision-making and either formal discussion or written informed consent. Laboratory reporting of radiation dosimetry is a critical component of creating a quality laboratory fostering a patient-centered environment with transparent procedural methodology. Efforts should be directed to avoiding testing involving radiation, in patients with inappropriate indications. Standardized reporting and diagnostic reference levels for computed tomography and nuclear cardiology are important for the goal of public reporting of laboratory radiation dose levels in conjunction with diagnostic performance. The development of cardiac imaging technologies revolutionized cardiology practice by allowing routine, noninvasive assessment of myocardial perfusion and anatomy. It is now incumbent upon the imaging community to create an accountability framework to safely drive appropriate imaging utilization.

Eskandari M, **Li W**, **Rooney MT** and **Zhang PL** (2014). "Establishing a grading system of PAS staining for evaluation of acute tubular injury." *Laboratory Investigation* 94: 409A.

[Full-Text](#)

Department of Pathology

Background: Periodic Acid Schiff (PAS) is a stain routinely used in renal biopsies to identify acute tubular injury. Thus far, a standardized correlation between the degree of acute tubular injury (ATI) on PAS stained sections and renal dysfunction has not been established. In this study, we sought to determine PAS scoring system for ATI. Design: 25 renal biopsies from various renal diseases were randomly selected and evaluated for the degree of renal tubular brush border PAS staining as follows: [0] for intact brush borders (no injury), [1+] for scattered loss and minimally diminished brush border (mild injury), [2+] for diffuse loss with moderately diminished brush border (moderate injury), and [3+] for total loss of brush border (severe injury). In addition, all biopsies were stained for KIM-1 and graded from 0 to 3+, based on their staining intensity. PAS scores, KIM-1 scores, and sCr levels were statistically evaluated by linear regression analysis. Results: Ages ranged from 15 to 84 years old (12 male and 13 female). The sCr levels ranged from 0.63 to 15.3 mg/dl (mean = 4.55). KIM-1 scores (arbitrary units on X-axis) showed significant linear correlation with sCr (Y-axis) ($R = 0.632$, $P = 0.0007$) and the odds ratio between the two indices was 4.543 (95% confidence interval (CI) = 3.381 - 5.733), implying that for every unit of increased KIM-1 score, the odds of sCr increased by 4.543 mg/dl. Similarly, PAS scores (arbitrary units on X-axis) had statistically significant linear correlation with sCr (Y-axis) ($R = 0.543$, $P = 0.0051$) and the odds ratio was 4.536 (95% CI=3.282 - 5.832). There was also a significant linear correlation between KIM-1 score and PAS score ($R = 0.780$, $P = 0.0001$). Conclusions: The association of PAS scores with the sCr levels paralleled the association of KIM-1 scores with the sCr levels. Thus, we concluded that the current grading system of the PAS staining, developed in this study, can be a useful tool to confirm the degree of ATI.

Eskandari M, **Li W**, **Rooney MT** and **Zhang PL** (2014). "Establishing a grading system of PAS staining for evaluation of acute tubular injury." Modern Pathology 27: 409A.

[Full-Text](#)

Department of Pathology

Faia LJ (2014). "Gender differences in birdshot chorioretinopathy and the white dot syndromes: Do they exist?" Journal of Ophthalmology 2014. ePub Ahead of Print.

[Full-Text](#)

Department of Ophthalmology

Inflammatory conditions that affect the posterior pole are diverse. Specifically, birdshot chorioretinopathy and the white dot syndromes present with multiple white dots in the fundus. These diseases appear to affect similar age groups but there is question as to whether or not a difference exists between the genders. This review summarizes the current studies on birdshot chorioretinopathy and the white dot syndromes as they are related to gender, exploring the differences, if any, which may exist between prevalence, clinical presentation, and treatment response for these diseases. Though the specific etiology of these diseases remains unclear, future treatments may be guided as to how these diseases affect the sexes differently. © 2014 Lisa J. Faia.

Fawole A, Abonour R, **Stender M**, Shatavi S, **Gaikazian S**, Anderson J and **Jaiyesimi I** (2014). "Is it time for preemptive drug treatment of asymptomatic (smoldering) multiple myeloma?" Leukemia & Lymphoma. ePub Ahead of Print.

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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.

Fenton J, Veenstra M and **Bove P** (2014). "Angiosarcoma involving native abdominal aortic aneurysm sac after endograft repair." Annals of Vascular Surgery 28(2): 490.e491-490.e494.

[Request Form](#)

Department of Surgery

Primary angiosarcoma of the aorta is a rare malignancy that is characterized by rapid proliferation and propensity for metastasis. It has been reported only 35 times in the surgical literature. This case report presents a 66-year-old man diagnosed with angiosarcoma of his native aorta 7 years after endograft repair of an abdominal aortic aneurysm. We then reviewed the world surgical literature for occurrence, tumorigenic studies, prognosis, and management of aortic angiosarcoma. Because native aortic tissue is retained after endovascular repair of an abdominal aortic aneurysm, the treating physician should have an awareness of this pathology and entertain the diagnosis as appropriate. © 2014 Elsevier Inc. All rights reserved.

Fischer AC (2014). "Ovarian cancer in the pediatric population," In Farghaly SA (ed). Advances in Diagnosis and Management of Ovarian Cancer New York: Springer. pp: 137-153.

[Full-Text](#)

Department of Surgery

Fisher MM, Rosen DS, Ornstein RM, **Mammel KA**, Katzman DK, Rome ES, Callahan ST, Malizio J, Kearney S and Walsh BT (2014). "Characteristics of avoidant/restrictive food intake disorder in children and adolescents: A "New Disorder" in DSM-5." Journal of Adolescent Health. ePub Ahead of Print.

[Full-Text](#)

Department of Pediatrics

Purpose: To evaluate the DSM-5 diagnosis of Avoidant/Restrictive Food Intake Disorder (ARFID) in children and adolescents with poor eating not associated with body image concerns. Methods: A retrospective case-control study of 8-18-year-olds, using a diagnostic algorithm, compared all cases with ARFID presenting to seven adolescent-medicine eating disorder programs in 2010 to a randomly selected sample with anorexia nervosa (AN) and bulimia nervosa (BN). Demographic and clinical information were recorded. Results: Of 712 individuals studied, 98 (13.8%) met ARFID criteria. Patients with ARFID were younger than those with AN (n = 98) or BN (n = 66), (12.9 vs. 15.6 vs. 16.5 years), had longer durations of illness (33.3 vs. 14.5 vs. 23.5 months), were more likely to be male (29% vs. 15% vs. 6%), and had a percent median body weight intermediate between those with AN or BN (86.5 vs. 81.0 and 107.5). Patients with ARFID included those with selective (picky) eating since early childhood (28.7%); generalized anxiety (21.4%); gastrointestinal symptoms (19.4%); a history of vomiting/choking (13.2%); and food allergies (4.1%). Patients with ARFID were more likely to have a comorbid medical condition (55% vs. 10% vs. 11%) or anxiety disorder (58% vs. 35% vs. 33%) and were less likely to have a mood disorder (19% vs. 31% vs. 58%). Conclusions: Patients with ARFID were demographically and clinically distinct from those with AN or BN. They were significantly underweight with a longer duration of illness and had a greater likelihood of comorbid medical and/or psychiatric symptoms. © 2014 Society for Adolescent Health and Medicine.

Fishman MP, Budge MD, Moravek JE, Mayer M, **Kurziel MD**, **Baker KC** and **Wiater JM** (2014). "Biomechanical testing of small versus large lesser tuberosity osteotomies: Effect on gap formation and ultimate failure load." Journal of Shoulder and Elbow Surgery 23(4): 470-476.

[Full-Text](#)

Department of Surgery

Department of Orthopedic Surgery

Background: Subscapularis muscle dysfunction after total shoulder arthroplasty (TSA) can be a devastating complication. Recent biomechanical and clinical results suggest the superiority of lesser tuberosity osteotomy (LTO) over subscapularis tenotomy; however, disagreement over the best repair technique remains. This study aimed to characterize the strength of 2 novel repair techniques for LTO fixation compared with standard tenotomy and dual-row tuberosity osteotomies during TSA. Methods: Twenty fresh frozen cadaveric shoulders were dissected of all soft tissues except the humeri and attached subscapularis myotendinous unit. Humeri and subscapularis muscle belly were secured to a materials testing frame and subjected to cyclic loading, followed by load to failure for characterization of gap formation, ultimate failure load, and mechanism of failure. Repair techniques investigated were traditional subscapularis tenotomy and dual-row fleck LTO compared with novel techniques of single-cable and 2-suture large LTO repairs. Results: No significant difference in ultimate failure load was noted among the repair techniques (P= .565). The tenotomy repair (6.0(plus or minus)3.9mm) displayed significantly greater gapping in response to increasing load than LTO repair techniques (P<.05). No significant difference was noted between any LTO repairs at specific loads during cyclic testing (P>.05). Conclusion: Our study displayed superior repair integrity of LTO vs tenotomy repairs. The advantages of the 2-suture large LTO technique over other LTO techniques include its simple technique, with a minimum amount of suture, avoidance of metallic hardware, and greater access to the glenoid, while providing comparable repair stability. Further research is warranted to fully evaluate these new techniques. (copyright) 2014 Journal of Shoulder and Elbow Surgery Board of Trustees.

Franklin BA (2014). "Preventing exercise-related cardiovascular events: Is a medical examination more urgent for physical activity or inactivity." Circulation 129(10): 1081-1084.

[Full-Text](#)

Department of Internal Medicine

Friedman J, Braun-Courville D, Linares LO and Lorde-Rollins E (2014). "Factors associated with contraceptive satisfaction in adolescent women using the IUD." Journal of Pediatric and Adolescent Gynecology. ePub Ahead of Print.

[Request Form](#)

Department of Pediatrics

Fritz ML, Walker ED, **Yunker AJ** and Dworkin I (2014). "Daily blood feeding rhythms of laboratory-reared North American *Culex pipiens*." Journal of Circadian Rhythms 12(1): 1-9.

[Full-Text](#)

OUWB Medical Student Author

Garcia Perez A, Hernandez Lopez X, Valadez Jimenez VM, Minor Martinez A and **Ysunza PA** (2014). "Synchronous electrical stimulation of laryngeal muscles: An alternative for enhancing recovery of unilateral recurrent laryngeal nerve paralysis." Journal of Voice. ePub Ahead of Print.

[Full-Text](#)

Department of Physical Medicine and Rehabilitation

Background: Although electrical stimulation of the larynx has been widely studied for treating voice disorders, its effectiveness has not been assessed under safety and comfortable conditions. This article describes design, theoretical issues, and preliminary evaluation of an innovative system for transdermal electrical stimulation of the larynx. The proposed design includes synchronization of electrical stimuli with laryngeal neuromuscular activity. Objective: To study whether synchronous electrical stimulation of the larynx could be helpful for improving voice quality in patients with dysphonia due to unilateral recurrent laryngeal nerve paralysis (URLNP). Materials and Methods: A 3-year prospective study was carried out at the Instituto Nacional de Rehabilitacion in the Mexico City. Ten patients were subjected to transdermal current electrical stimulation synchronized with the fundamental frequency of the vibration of the vocal folds during phonation. The stimulation was triggered during the phase of maximum glottal occlusion. A complete acoustic voice analysis was performed before and after the period of electrical stimulation. Results: Acoustic analysis revealed significant improvements in all parameters after the stimulation period. Conclusion: Transdermal synchronous electrical stimulation of vocal folds seems to be a safe and reliable procedure for enhancing voice quality in patients with (URLNP). (copyright) 2014 The Voice Foundation.

Gillera J, Killinger KA, Bartley J, **Boura JA** and **Peters KM** (2014). "Does the interstitial cystitis symptom and problem index reliably measure overactive bladder symptoms?" Neurourology and Urodynamics 33(2): 223.

[Full-Text](#)

Department of Urology

Department of Biomedical Sciences (BHS)

Introduction and Objectives: The validated Interstitial Cystitis Symptom and Problem Index (ICSI-PI) reliably measures symptoms and associated bother in patients with interstitial cystitis. We evaluated whether the ICSI-PI reliably measures overactive symptoms in patients with OAB with/without incontinence (OAB wet/dry). Methods: Adults in our prospective observational neuromodulation study were evaluated. Inclusion criteria were OAB wet/dry and staged lead and generator implant. Subjects completed the ICSI-PI and Overactive Bladder Questionnaire- short form (OAB-q) at three, six and 12 months post implant. The ICSI-PI is comprised of a symptom index (IC-SI) and bother index (IC-PI), which assess voiding symptoms and pain. The OAB-q contains symptom severity (SS) and health related quality of life (HRQOL) scales. Descriptive statistics were performed for sample characteristics. At each time point, IC-SI and OAB-q SS responses, and IC-PI and OAB-q HRQOL responses were compared with Spearman's Correlations in patients that completed both measures. Results: Of 215 patients (mean age 65.1(plus or minus)14.2 years), 80% were female, 94% were caucasian, 67.4% had attended at least some college, 24.5% had an income >\$70,000/year and 84% had OAB wet. As shown in the table below, at each time point there was a strong correlation between IC-SI and OAB-q SS scores. Additionally, IC-PI and OAB-q QOL scores were strongly negatively correlated indicating that higher symptom bother negatively impacted HRQOL. Conclusions: Even though pain is not a component of the OAB syndrome, the ICSI-PI appears to reliably measure voiding symptoms and bother in patients with OAB. (Table Presented).

Goldin D, **Campbell J, Emerson S**, Bahoura L, George D, Reich S and **Savin MA** (2014). "Tumor-to-normal particle deposition ratio in primary versus secondary liver malignancies: Impact on tumor dose and radioembolization treatment planning." Journal of Vascular and Interventional Radiology 25(3): S89.

[Request Form](#)

Department of Diagnostic Radiology and Molecular Imaging

Purpose: Compare hepatic tumor-to-normal particle deposition ratio (PDR) and lung shunt fraction (LSF) in patients undergoing radioembolization for primary versus secondary malignancies. Materials and Methods: Retrospective analysis was performed of all radioembolization procedures at our institution between July 2009 to February 2013. Hepatic artery technetium macroaggregated albumin (TcMAA) infusions are used for treatment planning with single-photon emission computed tomography-computed tomography (SPECT-CT) along with 3D post-processing. PDR and LSF are assessed using TcMAA particles as measurements of relative tumor vascularity and lung shunt in treatment planning for yttrium-90 radioembolization. Different cancer types are compared using Wilcoxon two-sample rank-sum tests. Results: A total of 227 radioembolization procedures were performed. There are 121 patients with the required information for the analysis. Eleven cancer types were treated of which hepatocellular (38.8%), colorectal (30.6%), and neuroendocrine (12.4%) cancers were the majority. Mean PDR is 4.36 (SD=2.43) and median is 3.5 (range 2-19) for all cancers. The hepatocellular cancer PDR (mean 4.9, median 3.7) was significantly higher than for colorectal cancer (mean 3.5, median 3.2) ($p=.012$). Mean lung shunt fraction is 7.29 (SD=4.5) and median is 6.2 (range 1.3-28.5) in all cancers; there was no significant difference in LSF specifically between colorectal and hepatocellular cancers ($p=0.64$). Conclusion: Significantly higher hepatic tumor-to-normal particle deposition ratio in hepatocellular compared to colorectal cancer can result in higher tumor and lower liver dose which may impact radioembolization treatment planning. No significant difference in lung shunt fractions was observed for these two cancer types.

Goldstein J (2014). "Decompressing the left atrium to relieve the right ventricle." Catheterization and Cardiovascular Interventions 83(2): 323-324.

[Full-Text](#)

Department of Internal Medicine

Goldstein JA (2014). "Coronary artery spasm and thyrotoxicosis: the best index is that of suspicion." Coronary Artery Disease 25(2): 96-97.

[Full-Text](#)

Department of Internal Medicine

Goldstein JA (2014). "Transplant coronary atherosclerosis: Parallels with in-stent neoatherosclerosis." Catheterization and Cardiovascular Interventions 83(1): 78-79.

[Full-Text](#)

Department of Internal Medicine

Gonçalves LF (2014). "Re: Which factors are associated with trainees' confidence in performing obstetric and gynecological ultrasound examinations? M. G. Tolsgaard, M. B. Rasmussen, C. Tappert, M. Sundler, J. L. Sorensen, B. Ottesen, C. Ringsted and A. Tabor. Ultrasound Obstet Gynecol 2014; 43: 444-451." Ultrasound in Obstetrics and Gynecology 43(4): 363-364.

[Full-Text](#)

Department of Obstetrics and Gynecology

Gould DJ, Clarkson MJ, Hutchins B and Lambert HW (2014). "How neuroscience is taught to North American dental students: Results of the Basic Science Survey Series." Journal of Dental Education 78(3): 437-444.

[Request Form](#)

Department of Biomedical Sciences (OU)

The purpose of this study was to determine how North American dental students are taught neuroscience during their preclinical dental education. This survey represents one part of a larger research project, the Basic Science Survey Series for Dentistry, which covers all of the biomedical science coursework required of preclinical students in North American dental schools. Members of the Section on Anatomical Sciences of

the American Dental Education Association assembled, distributed, and analyzed the neuroscience survey, which had a 98.5 percent response from course directors of the sixty-seven North American dental schools. The eighteen-item instrument collected demographic data on the course directors, information on the content in each course, and information on how neuroscience content is presented. Findings indicate that 1) most neuroscience instruction is conducted by non-dental school faculty members; 2) large content variability exists between programs; and 3) an increase in didactic instruction, integrated curricula, and use of computer-aided instruction is occurring. It is anticipated that the information derived from the survey will help guide neuroscience curricula in dental schools and aid in identifying appropriate content.

Graner B, Van Houten N and **Balon H** (2014). "Scintigraphy of patient with hematochezia." Journal of Nuclear Medicine Technology 42(1): 79-80.

[Request Form](#)

Department of Diagnostic Radiology and Molecular Imaging

Gastrointestinal bleeding can result in significant morbidity. Scintigraphy plays an important role in detecting, localizing, and grading the bleed. Effective scintigraphic evaluation of gastrointestinal bleeding can be complicated by its intermittent nature and the patient's hemodynamic instability. Dynamic evaluation, delayed imaging, and an understanding of the labeling process are necessary tools to help improve detection rate and localization.

Grimsby GM, **Fischer AC** and Baker LA (2014). "Autologous buccal mucosa graft for repair of recurrent rectovaginal fistula." Pediatric Surgery International 30(5): 533-535.

[Full-Text](#)

Department of Surgery

Post-operative pediatric rectovaginal fistulas are rare, can be challenging to repair, and often recur. The versatility, ease of accessibility, vascularization, and likeness to native vaginal tissues make autologous buccal mucosal grafts a novel tissue substitute for the repair of a recurrent rectovaginal fistula after the surgical repair of anorectal malformations. (copyright) 2014 Springer-Verlag Berlin Heidelberg.

Grunberger G (2014). "Bromocriptine mesylate QR in treatment of Type 2 diabetes." Diabetes Management 4(2): 203-211.

[Request Form](#)

Department of Internal Medicine

SUMMARY There is a worldwide epidemic of Type 2 diabetes mellitus and practitioners everywhere are seeking optimal ways of approaching this complex and serious disease. Optimizing glycemic control to prevent long-term diabetic complications has been the holy grail of diabetes management. Bromocriptine mesylate QR is a sympatholytic dopamine D2 receptor agonist approved in the US for treatment of hyperglycemia in patients with Type 2 diabetes. It possesses a unique mode of action, acting centrally to enhance insulin sensitivity by resetting the circadian clock. In clinical trials it demonstrated lowering of A1c without the risks of hypoglycemia and weight gain. In addition, a possibility of cardiovascular benefit was raised in a large safety study. The major limitation of its use is the relatively high initial incidence of gastrointestinal events (nausea up to 30% and vomiting 8%). Among other adverse events, dizziness and headache were observed more commonly than in placebo-treated patients. (copyright) 2014 Future Medicine Ltd.

Hafron J, Pew S, Poushanchi B, **Hollander J**, Killinger KA, Coffey M and **Peters KM** (2014). "Exploring potential predictors of hernia after laparoscopic procedures such as robotic assisted radical prostatectomy (RARP)." Neurourology and Urodynamics 33(2): 254.

[Full-Text](#)

Department of Urology

Introduction and Objectives: The long term incidence of hernia as a consequence of laparoscopic procedures is not well known. We explored incidence and predictors of hernia after robotic assisted radical prostatectomy (RARP). Methods: Adult men that had RARP for prostate cancer between 2003 and 2012 were reviewed for medical/surgical data. Hernia type, location (body diagram) and repair were assessed via mailed survey. Hernia/no hernia groups were compared using Wilcoxon Rank Sum Test, Chi-square test and pooled

t tests. Results: Of 577 men (mean age 61.5(plus or minus)6.6 years; median body mass index-BMI 27.2), 450/570 (79%) had stage T2 cancer. Few had any intraoperative (13/577; 2.3%) or postoperative complications (63/577; 11%). At survey completion, time since RARP ranged from 0.6 to 10.6 years. Of 577, 93 (16.1%) reported one (n=82), two (n=9) or three (n=2) postoperative hernias at (range) three days to 9.06 years after RARP. In men that developed a hernia, 23 had a history of herniorrhaphy prior to RARP. 48/577 men (8%) had developed at least one hernia at an incisional site (34 men indicated the umbilical region) that was diagnosed at (median) 1.2 years after RARP. 42/577 (7%) developed at least one inguinal hernia. 57/93 men had surgical repair of 68 hernias; 23 umbilical, 36 inguinal, six other port and three null other location null hernias. Hernia/no hernia groups were compared on preoperative diabetes, smoking, prior abdominal surgery and herniorrhaphy, length of time since RARP, pathological stage, age, operative time, blood loss, drain type, intraoperative and postoperative complication and BMI, but no statistically significant differences were found. There was a tendency towards increasing hernia rates with worse ASA physical status classification score but this did not reach statistical significance (p=.062). However, men that developed a hernia had a larger median prostate weight than those that did not develop a hernia (43.5 vs. 38 grams; p<.001). When men were grouped by incisional hernia vs. no hernia, prostate weight was again significantly different (median 45 gm vs. 38 gm; p=.001). Conclusions: Although hernia is a known consequence of laparoscopic procedures including RARP and sacral colpopexy, this analysis of over 550 surgeries failed to demonstrate any association with predicted risk factors such as diabetes, smoking and BMI. Further study into the cause of hernia after robotic procedures needs to be undertaken.

Hajj Hussein I, Nourddine W, Soudani N and Zeidan A (2014). "Nitric oxide inhibits vascular remodeling by decreasing angiotensin II-induced RhoA translocation to caveolae and ROS formation." *The FASEB Journal* 28(1 Supplement): 867-866.

[Full-Text](#)

Department of Biomedical Sciences (OU)

Decreased production of nitric oxide (NO) leads to induce vascular smooth muscle cell (VSMC) hypertrophy via angiotensin II (AngII) receptors. However, the regulatory mechanism of NO activity on Ang II-mediated VSMC remodeling remains fully unclear. Here we hypothesized that caveolin-1 (cav1) and NO production are involved in the regulation of AngII-induced VSMC remodeling via inhibition of the RhoA translocation to caveolae. Rat aortic rings were cultured in the presence of AngII (1 nM) with or without the NO donor S-nitroso-nacetylpenicillamine (100 µM; SNAP), the ROCK inhibitor (10 µM; Y-27632), the RhoA inhibitor C3 exoenzyme (3 ng/ml; C3), or methyl-β-cyclodextrin (10 mM; MBCD). AngII-induced VSMC hypertrophy and protein synthesis were inhibited by pre-treatment with SNAP, Y-27632, C3 or MBCD. AngII-induced protein synthesis was associated with increased in ROS formation and expression of cav-1 (2 folds), NADPH oxidase1 (NOX1; 4 folds) and NOX3 (5 folds) and decreased NOX2 (2 folds) expression and NO activity (3 folds). Treatment of the aortic ring with AngII for 20 min increased caveolae-bound RhoA (4-folds), cofilin-2 phosphorylation (3 folds), and F- to G-actin ratio (2 folds), which were prevented by increased of NO production. These results will allow for the creation of pharmacological agents for the treatment of vascular hypertrophy due to AngII.

Hansma PA, **Zhang PL**, **Macknis JK**, **Li W** and **Rooney M** (2014). "Validating autolysis scores using hematoxylin and eosin (HE) staining and stem/progenitor cell marker CD133 expression in fetal kidneys." *Laboratory Investigation* 94: 7A.

[Full-Text](#)

Department of Pathology

Background: Assessment of antemortem acute tubule injury on postmortem exam has been a persistent problem for pathologists due to the autolysis in the kidney that results in tubule degenerative changes, making histological evaluation of acute tubular injury difficult. CD133 expresses diffusely in fetal renal tubules by immunofluorescent method (IF). This study was to investigate if our autolysis scoring system using conventional HE staining can be confirmed by CD133 staining (known to be durable to injury) in fetal renal tubules. Design: HE sections of 53 fetal autopsy kidneys (12 to 32 weeks) were scored for autolysis as following: 0, intact cytoplasm and clear hematoxylin nuclear staining; 1+, minimal autolysis with relatively intact cytoplasm and weakened hematoxylin nuclear staining; 2+, moderate autolysis with some degenerative cytoplasmic changes and some unstained nuclei by hematoxylin; and 3+, severe autolysis with

diffuse tubular cytoplasmic changes and diffuse unstained nuclei by hematoxylin. The fetal autopsy kidneys were immunohistochemically (IHC) stained for CD133 (monoclonal AC133) and its membranous staining along tubular lumen was scored from 0 to 3+. Results: Twenty-nine cases showed prominent autolysis (2 to 3+) and the remaining 24 fetal kidneys show no (0) to mild (1+) autolysis. There were 2-3+ CD133 staining in primordial glomeruli and 2+ diffuse expression of CD133 along luminal membranes of renal tubules mostly in corticomedullary junction. Autolysis scores significantly had a reversed correlation with CD133 expression scores along fetal renal tubules; more autolysis, less CD133 staining (r value = 0.695 and p < 0.0001 by linear regression analysis). Conclusions: Our IHC findings support progenitor marker CD133 expression in human fetal kidneys, implying a contribution of CD133 to both glomerular and tubular development. This reversed correlation between conventional autolysis scores and CD133 expression confirms that our conventional evaluation score system of autolysis, based on integrity of cytoplasm and nuclear preservation of hematoxylin, is accurate.

Hansma PA, **Zhang PL**, **Macknis JK**, **Li W** and **Rooney M** (2014). "Validating autolysis scores using hematoxylin and eosin (HE) staining and stem/progenitor cell marker CD133 expression in fetal kidneys" Modern Pathology 27: 7A.
[Full-Text](#)

Department of Pathology

Hanson I, **Trivax J** and **Hanzel G** (2014). "Snare removal of a deformed coronary stent via radial artery during percutaneous intervention for acute myocardial infarction." Journal of Invasive Cardiology 26(1): E5-E6.
[Request Form](#)

Department of Internal Medicine

A 49-year-old man underwent emergent coronary angiography for acute inferior myocardial infarction (MI). After balloon angioplasty of culprit right coronary artery (RCA) occlusion, a Promus Element stent would not advance to the target lesion. The proximal end of the stent became compressed against the tip of the guiding catheter, such that the stent could neither be advanced nor withdrawn. This case illustrates the technical aspects of snare removal of a severely deformed stent via the radial artery.

Harriott M and Yost C (2014). "Bugs and drugs: an integrated case-based microbiology pharmacology session on urinary tract infections (Peer Reviewed)." MedEdPortal Publication No. 9654

[Full-Text](#)

Department of Biomedical Sciences (OU)

This interactive case study session on urinary tract infections combines basic microbiology with pharmacology (antimicrobials). It is intended as a small group activity in which students discuss cases and corresponding questions followed by an instructor facilitated discussion for each case. Included in this submission is a web-based reading module on Urinary Tract Infections that can be utilized as preparatory reading prior to this session or may be used alone.

Hayek K, Zhuang Y, Mattson J and **Crisan D** (2014). "JAK2 mutation analysis in patients with abdominal venous thrombosis." Laboratory Investigation 94: 350A.

[Full-Text](#)

Department of Pathology

Background: Splanchnic vein thrombosis (SVT) is a heterogeneous disease which involves one or more abdominal veins including portal, mesenteric, splenic and hepatic veins, and it may be associated with a wide spectrum of underlying inherited and/or acquired disorders. The role of the JAK2 V617F mutation as a risk factor for SVT has been highlighted in recent years. SVT could represent one of the initial presentations of myeloproliferative neoplasms (MPNs). Patients without overt clinical MPN at the time of the splanchnic thrombotic events may later develop MPNs. JAK2 V617F mutation analysis in such patients is valuable in identifying latent MPNs. The aim of our study is to evaluate the prevalence of JAK2 mutation in patients presenting with SVT and its role in the detection of non-overt MPNs. Design: Retrospective study screened patients referred for thrombophilia testing at our institution between January 2000 and August 2013; we identified 73 patients with SVT and no clinical MPN's, representing the study group; 60 patients with deep vein thrombosis (DVT) and/or pulmonary emboli (PE), representing the control group. JAK2 mutation

analysis was performed using allele-specific PCR on DNA isolated from peripheral blood. Results: Nineteen patients had no evidence of inherited or acquired risk factors, consistent with idiopathic SVT. Twelve patients had inherited risk factors (Factor V Leiden, Prothrombin mutation, MTHFR mutation), 34 patients had acquired risk factors and 8 patients had both inherited and acquired risk factors. JAK2 mutation analysis was negative in all control group patients and in all patients with genetic risk factors and documented acquired risk factors for SVT. JAK2 mutation was positive in four out of the nineteen patients with idiopathic SVT (21%). Of the 4 JAK2 positive patients; one patient had no evidence of overt MPN for two years following presentation and then was lost to follow up, one patient diagnosed with MPN/ Essential thrombocythemia two years following SVT presentation by bone marrow biopsy and then managed accordingly, and two patients diagnosed at a very close time to presentation with MPN according to lab values and JAK 2 positivity and treated accordingly. Conclusions: The idiopathic SVT cases represented 26% of the study group. The observed prevalence of JAK2 mutation in our cases with idiopathic SVT is 21% comparable with literature reported prevalence. All control patients were negative for JAK2 mutation. Screening for this mutation appears indicated in cases of idiopathic SVT to detect non-overt MPNs.

Hayek K, Zhuang Y, Mattson J and **Crisan D** (2014). "JAK2 mutation analysis in patients with abdominal venous thrombosis." *Modern Pathology* 27: 350A.

[Full-Text](#)

Department of Pathology

Hopson LR, Burkhardt JC, Stansfield RB, Vohra T, **Turner-Lawrence D** and Losman ED (2014). "The Multiple Mini-Interview for emergency medicine resident selection." *Journal of Emergency Medicine* 46(4): 537-543.

[Full-Text](#)

Department of Emergency Medicine

Background The Multiple Mini-Interview (MMI) uses multiple, short-structured contacts to evaluate communication and professionalism. It predicts medical school success better than the traditional interview and application. Its acceptability and utility in emergency medicine (EM) residency selection are unknown. Objective We theorized that participants would judge the MMI equal to a traditional unstructured interview and it would provide new information for candidate assessment. Methods Seventy-one interns from 3 programs in the first month of training completed an eight-station MMI focused on EM topics. Pre- and post-surveys assessed reactions. MMI scores were compared with application data. Results EM grades correlated with MMI performance ($F[1, 66] = 4.18$; $p < 0.05$) with honors students having higher scores. Higher third-year clerkship grades were associated with higher MMI performance, although this was not statistically significant. MMI performance did not correlate with match desirability and did not predict most other components of an application. There was a correlation between lower MMI scores and lower global ranking on the Standardized Letter of Recommendation. Participants preferred a traditional interview (mean difference = 1.36; $p < 0.01$). A mixed format (traditional interview and MMI) was preferred over a MMI alone (mean difference = 1.1; $p < 0.01$). MMI performance did not significantly correlate with preference for the MMI. Conclusions Although the MMI alone was viewed less favorably than a traditional interview, participants were receptive to a mixed-methods interview. The MMI does correlate with performance on the EM clerkship and therefore can measure important abilities for EM success. Future work will determine whether MMI performance predicts residency performance. (copyright) 2014 Elsevier Inc.

Hsu ICJ, Yamada Y, Assimos DG, D'Amico AV, Davis BJ, Frank SJ, Gottschalk AR, **Gustafson GS**, McLaughlin PW, Nguyen PL, Rosenthal SA, Taira AV, Vapiwala N and Merrick G (2014). "ACR Appropriateness Criteria high-dose-rate brachytherapy for prostate cancer." *Brachytherapy* 13(1): 27-31.

[Request Form](#)

Department of Radiation Oncology

Purpose: High-dose-rate (HDR) brachytherapy plays a potential curative role in the treatment of prostate cancer. An expert panel was convened to review the recent literature and reach a consensus on its appropriate clinical applications. Methods and Materials: The American College of Radiology Appropriateness Criteria are evidence-based guidelines for specific clinical conditions that are reviewed every 2 years by a multidisciplinary expert panel. The guideline development and review include an extensive analysis of current medical literature from peer-reviewed journals and the application of a well-established

consensus methodology (modified Delphi) to rate the appropriateness of imaging and treatment procedures by the panel. In those instances where evidence is lacking or not definitive, expert opinion may be used to recommend imaging or treatment. Results: A summary of HDR brachytherapy's clinical applications and recent literature review was completed. Three clinical variants were developed to address common HDR dose, fractionations, and indications for its use in definitive therapy for primary and local recurrent prostate cancer. The panel reached a consensus on the specific treatment approaches with numerical rating and commentary. Conclusions: In combining available medical literature and expert opinion, this manuscript may serve as an aid for other practitioners in the appropriate application of HDR brachytherapy for prostate cancer. © 2014 American College of Radiology.

Hulten E, Villines TC, Cheezum MK, Berman DS, Dunning A, Achenbach S, Al-Mallah M, Budoff MJ, Cademartiri F, Callister TQ, Chang HJ, Cheng VY, **Chinnaiyan K**, Chow BJW, Cury RC, Delago A, Feuchtner G, Hadamitzky M, Hausleiter J, Kaufmann PA, Kim YJ, Leipsic J, Lin FY, Maffei E, Plank F, **Raff GL**, Shaw LJ and Min JK (2014). "Calcium score, coronary artery disease extent and severity, and clinical outcomes among low Framingham risk patients with low vs high lifetime risk: Results from the CONFIRM registry." *Journal of Nuclear Cardiology* 21(1): 29-37.

[Request Form](#)

Department of Internal Medicine

Background: Short-term risk scores, such as the Framingham risk score (FRS), frequently classify younger patients as low risk despite the presence of uncontrolled cardiovascular risk factors. Among patients with low FRS, estimation of lifetime risk is associated with significant differences in coronary arterial calcium scores (CACS); however, the relationship of lifetime risk to coronary atherosclerosis on coronary CT angiography (CCTA) and prognosis has not been studied. Methods and Results: We evaluated asymptomatic 20-60-year-old patients without diabetes or known coronary artery disease (CAD) within an international CT registry who underwent ≥ 64 -slice CCTA. Patients with low FRS ($< 10\%$) were stratified as low ($< 39\%$) or high ($\geq 39\%$) lifetime CAD risk, and compared for the presence and severity of CAD and prognosis for death, myocardial infarction, and late coronary revascularization (> 90 days post CCTA). 1,863 patients of mean age of 47 years were included, with 48% of the low FRS patients at high lifetime risk. Median follow-up was 2.0 years. Comparing low-to-high lifetime risk, respectively, the prevalence of any CAD was 32% vs 41% ($P < .001$) and $\geq 50\%$ stenosis was 7.4% vs 9.6% ($P = .09$). For those with CAD, subjects at low vs high lifetime risk had lower CACS (median 12 [IQR 0-94] vs 38 [IQR 0.05-144], $P = .02$) and less purely calcified plaque, 35% vs 45% ($P < .001$). Prognosis did not differ due to low number of events. Conclusion: Assessment of lifetime risk among patients at low FRS identified those with the increase in CAD prevalence and severity and a higher proportion of calcified plaque. © 2014 American Society of Nuclear Cardiology.

Hung BT, Traylor KS and **Wong CYO** (2014). "Revisiting morphine-augmented hepatobiliary imaging for diagnosing acute cholecystitis: the potential pitfall of high false positive rate." *Abdominal Imaging*: 1-5. ePub Ahead of Print.

[Full-Text](#)

Department of Diagnostic Radiology and Molecular Imaging

Purpose: The aim of this retrospective study was to investigate the efficacy of morphine-augmented hepatobiliary imaging (MAHBI) for diagnosing acute cholecystitis (AC). Methods: Sixty-eight patients (Male:Female = 36:32, age = 54 ± 17 years) referred for diagnosis of AC by 30-min post-morphine MAHBI after the standard 1-h imaging were recruited. Non-visualization of gallbladder on 30-min post-morphine images by visual analysis was considered positive. Final diagnosis of pathological examination for all patients was used as the gold standard. Results: There was significant correlation of AC and MAHBI ($p < 0.05$). There were 45 true positive (TP), 19 false positive (FP), 4 true negative (TN), and no false negative (FN) cases using gallbladder visualization by 30-min post-morphine as the criteria, with a high false positive rate of 83%. The sensitivity, specificity, accuracy, positive and negative predictive values of MAHBI in detecting AC were 100%, 17%, 72%, 70%, and 100%, respectively. Conclusions: MAHBI is sensitive but may not specific for diagnosing AC due to the potential pitfall of high false positive rate. Correlation with other clinical findings is recommended for optimal patient management. © 2014 The Author(s).

Hussein IH, Hankin M, Dany M, **Wasserman J** and Jurjus A (2014). "Perception and emotional impact of dissection on medical students." *FASEB Journal* 28(Supplement 1): LB13.

[Full-Text](#)

Department of Biomedical Sciences (OU)

Dissection contributes significantly to anatomical knowledge and the development of professionalism for medical students. This study assessed student emotional stress and coping in the anatomy lab and the perception of dissection on learning. A survey of Medicine I students (n=100) assessed: demographics, emotions and stress of the first dissection, anxiety, coping, and learning. With a response rate of 40%, our findings include: positive attitude towards the first dissection (n=33) although some students still found it stressful (n=17); cultural views impacted the lab experience (n=24); some used spirituality (n=10) or humor (n=6) to cope; most agreed that dissection enhanced understanding of anatomy (n=31) and the connection of between theoretical and applied knowledge (n=37); promoted teamwork (n=35); and highlighted respect for the human body (n=31) and the spirit of organ donation (n=28). While some have assumed that students have a negative attitude towards human dissection, our study showed that the majority of students reported a positive impact on various aspects of professionalism and humanism. We conclude that dissection is useful for students to establish not only technical skills and knowledge of the body, but also qualities associated with inter-professional teamwork and a humanistic attitude, without posing significant emotional stress.

Iacco A, Adeyemo A, Riggs T and **Janczyk R** (2014). "Single institutional experience using biological mesh for abdominal wall reconstruction." [American Journal of Surgery](#). ePub Ahead of Print.

[Full-Text](#)

Department of Surgery

Background: Complex ventral hernias remain a challenge. We present a study evaluating outcomes of complex ventral hernia repair using human-derived acellular dermal matrix (AlloDerm) and porcine-derived acellular dermal sheet (Permacol). Methods: A retrospective review of 251 patients undergoing complex hernia repair was performed. Primary outcome was hernia recurrence; and secondary outcomes included early and late complications and mortality. Results: Recurrence for Permacol versus AlloDerm was 32% versus 47% (P = .02). There was a difference in early complications (48% vs 30%, P = .007) and also late complications (30% vs 21%, P = .16) of Permacol versus AlloDerm. Overall survival was 85% for the Permacol group versus 78% for the AlloDerm group (P = .23). Recurrence for Permacol versus AlloDerm for underlay technique was 19% versus 22% and that for bridging technique was 44% versus 57%. Conclusion: There exists a high complication rate from both Permacol and AlloDerm in complex ventral hernia repair especially when used as a fascial bridge. © 2014 Elsevier Inc. All rights reserved.

Jaurigue MM and **Cappell MS** (2014). "Therapy for alcoholic liver disease." [World Journal of Gastroenterology](#) 20(9): 2143-2158.

[Full-Text](#)

Department of Internal Medicine

Alcoholism results in about 2.5 million deaths annually worldwide, representing 4% of all mortality. Although alcoholism is associated with more than 60 diseases, most mortality from alcoholism results from alcoholic liver disease (ALD). ALD includes alcoholic steatosis, alcoholic hepatitis, and alcoholic cirrhosis, in order of increasing severity. Important scoring systems of ALD severity include: Child-Pugh, a semi-quantitative scoring system useful to roughly characterize clinical severity; model for end-stage liver disease, a quantitative, objective scoring system used for prognostication and prioritization for liver transplantation; and discriminant function, used to determine whether to administer corticosteroids for alcoholic hepatitis. Abstinence is the cornerstone of ALD therapy. Psychotherapies, including twelve-step facilitation therapy, cognitive-behavioral therapy, and motivational enhancement therapy, help support abstinence. Disulfiram decreases alcohol consumption by causing unpleasant sensations after drinking alcohol from accumulation of acetaldehyde in serum, but disulfiram can be hepatotoxic. Adjunctive pharmacotherapies to reduce alcohol consumption include naltrexone, acamprosate, and baclofen. Nutritional therapy helps reverse muscle wasting, weight loss, vitamin deficiencies, and trace element deficiencies associated with ALD. Although reduced protein intake was previously recommended for advanced ALD to prevent hepatic encephalopathy, a diet containing 1.2-1.5 g of protein/kg per day is currently recommended to prevent muscle wasting. Corticosteroids are firstline therapy for severe alcoholic hepatitis (discriminant function (greater-than or equal to) 32), but proof of their efficacy in decreasing mortality remains elusive. Pentoxifylline is an alternative therapy. Complications of advanced ALD include ascites, spontaneous bacterial peritonitis, esophageal variceal bleeding, hepatic encephalopathy, hepatorenal syndrome,

hepatopulmonary syndrome, and portopulmonary hypertension. Alcoholic cirrhotics have increased risk of developing hepatomas. Liver transplantation is the ultimate therapy for severe ALD, but generally requires 6 mo of proven abstinence for eligibility. Alcoholic cirrhotics who maintain abstinence generally have a relatively favorable prognosis after liver transplantation. (copyright) 2014 Baishideng Publishing Group Co., Limited. All rights reserved.

Jaurigue MM, Manickam P, **Amin M** and **Cappell MS** (2014). "GI bleeding and obstructive jaundice caused by osteoclast-like giant cell tumor of the head of the pancreas eroding into the duodenum." [Gastrointestinal Endoscopy](#) 79(4): 675-676.

[Full-Text](#)

Department of Pathology

Department of Internal Medicine

Jaurigue MM, Snyder M and **Cannon M** (2014). "Recurrent upper GI bleeding secondary to coil migration in a patient with known NSAID-induced peptic ulcer disease." [Gastrointestinal Endoscopy](#). ePub Ahead of Print.

[Full-Text](#)

Department of Internal Medicine

Jolepalem P, Hwang JY and **Wong CYO** (2014). "Radiation therapy-induced phrenic neuropathy mimicking metastasis to the diaphragmatic crus on 18F-FDG PET/CT." [Journal of Nuclear Medicine Technology](#) 42(1): 68-69.

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Department of Diagnostic Radiology and Molecular Imaging

Benign unilateral uptake in the diaphragmatic crus is a relatively uncommon finding on (18)F-FDG PET/CT that can mimic the appearance of malignancy in patients with known cancer, as illustrated in this patient with neuroendocrine carcinoma. It is important for the PET interpreter to recognize this finding and attribute it to benign uptake based on the patient's history and symptoms at the time of the scan. Correlation with the findings of other available imaging modalities is also important to characterize focal uptake in unusual locations.

Jolepalem P, McLean KZ and **Oliver Wong CY** (2014). "Atypical presentation of sarcoidosis on 18F-FDG PET/CT." [Journal of Nuclear Medicine Technology](#). ePub Ahead of Print.

[Request Form](#)

Department of Diagnostic Radiology and Molecular Imaging

On 18F-FDG PET, inflammatory processes can be one of the most confounding factors for interpretation, particularly when the presentation of the process is atypical, as it was in the case of sarcoidosis reported here. Clinicians should be aware that sarcoidosis may mimic lung malignancies and lymphomas, regardless of typical or atypical appearance on 18F-FDG PET.

Jolepalem P and **Wong C-YO** (2014). "Neurocysticercosis on 18F-FDG PET/MRI: co-registered Images." [Clinical Nuclear Medicine](#) 39(1): e110-e113.

[Full-Text](#)

Department of Diagnostic Radiology and Molecular Imaging

This is a case of a 32-year-old female patient who presented with new onset partial complex seizures. MRI of the brain demonstrated a suspicious ring-enhancing lesion in the right temporal lobe. This finding was felt to be a primary brain malignancy or less likely an infectious process. (18)F-FDG PET of the brain was able to exclude malignancy and provided evidence to support neurocysticercosis in the mesial temporal lobe as the cause for the patient's seizures. Neurocysticercosis is a neurologic infection caused by *Taenia solium*. It is rare in the United States and difficult to diagnose.

Jongen JLM, Hans G, Benzon HT, Huygen F and **Hartrick CT** (2014). "Neuropathic pain and pharmacological treatment." [Pain Practice](#) 14(3): 283-295.

[Full-Text](#)

Department of Anesthesiology

Neuropathic pain is a serious chronic condition strongly affecting quality of life, which can be relieved but

cannot be cured. Apart from symptomatic management, treatment should focus on the underlying disorder. The estimated prevalence is at least 1% to 5% of the general population. Neuropathic pain is characterized both by spontaneous and evoked pain. A diagnosis of neuropathic pain can usually be established based solely on history and neurological examination. Ancillary investigations may include EMG and computerized tomography/magnetic resonance imaging scans, depending on the localization of the suspected lesion. A limited number of agents, primarily directed at symptom control, are currently approved for use in neuropathic pain. A mechanism-based approach to pharmacological intervention supports the use of polypharmacy in neuropathic pain. © 2013 World Institute of Pain.

Kashani AH, Learned D, Nudleman E, **Drenser KA, Capone A and Trese MT** (2014). "High prevalence of peripheral retinal vascular anomalies in family members of patients with familial exudative vitreoretinopathy." Ophthalmology 121(1): 262-268.

[Full-Text](#)

Department of Ophthalmology

Objective To describe the prevalence and severity of familial exudative vitreoretinopathy (FEVR) in asymptomatic relatives of known symptomatic FEVR patients. **Design** Uncontrolled and retrospective case series at a single tertiary referral vitreoretinal practice. **Participants** A total of 148 eyes of 74 subjects were studied. **Methods** A retrospective chart review was conducted of patients with a diagnosis of FEVR between January 2011 and January 2013 at a single tertiary care retina practice. Data were collected from patient charts, including sex, gestational age at birth, age at presentation, referring diagnosis, family history, prior ocular surgery, clinical presentation, and diagnostic imaging in each eye. Inclusion criteria included confirmed clinical diagnosis of FEVR in patients referred to our clinic for evaluation of decreased vision. Patients were excluded if a definitive diagnosis of FEVR could not be made. **Main Outcome Measures** Clinical and angiographic findings. **Results** A total of 74 subjects from 17 separate families met the inclusion criteria for this study. There were an average of 4.4 subjects per family included in this study. The cohort was 55% male and included 17 patients and 57 family members who agreed to undergo genotyping, examination, and diagnostic imaging. Forty-three percent of FEVR patients had detectable mutations in FZD4, NDP, or TSPAN12. Only 8% of the cohort reported a positive family history of FEVR in a first-degree relative. Among the index patients, 76% had clinical stage 3, 4, or 5 FEVR and 24% had stage 1 or 2 FEVR. Among the asymptomatic family members screened, 58% demonstrated clinical or angiographic findings consistent with stage 1 or 2 FEVR and 21% demonstrated clinical or angiographic findings consistent with stage 3, 4, or 5 FEVR. **Conclusions** Asymptomatic family members of FEVR patients frequently have early manifestations of FEVR (stage 1 or 2). Early-stage FEVR may progress to more advanced stages, which can result in vision loss. These data support the use of angiographic screening and clinical examination in immediate relatives of patients with symptomatic FEVR. © 2014 by the American Academy of Ophthalmology.

Kassier A and **Atallah PC** (2014). "Immunoglobulin G4-related disease constrictive pericarditis with pericardial effusion: A novel entity." Journal of the American College of Cardiology 63(12): A710.

[Full-Text](#)

Department of Internal Medicine

Background: Immunoglobulin G4-related disease (IgG4-RD) is a recently recognized systemic fibroinflammatory disease. It is associated with elevated serum levels of IgG-4 and pericardial involvement. Here we report a case of constrictive pericarditis histologically consistent with IgG4-RD with associated pericardial effusion in the setting of normal serum IgG-4 levels. **Methods:** A 75-year-old male presented for evaluation of scrotal swelling and edema. Physical examination was notable for tachycardia and 2+ lower extremity edema. There was no pulsus paradoxus. An electrocardiogram revealed atrial flutter. **Results:** Transthoracic echocardiography revealed a pericardial effusion with calcification and thickening of the pericardium. Cardiac magnetic resonance imaging was ordered to further assess the pericardium. It revealed diffuse inflammation and thickening of the visceral and parietal surfaces with delayed hyperenhancement consistent with a sub-acute pericardial inflammatory process. Cardiac catheterization was performed for hemodynamic assessment. Right and left heart filling pressures were elevated and equalized consistent with constrictive physiology. The patient underwent radical pericardiectomy. His symptoms improved and he was discharged. Surgical pathology revealed reactive pericarditis with surface fibrin deposition, hyalinizing fibrosis, and prominent chronic inflammation with increased IgG-4 positive plasma cells. Abdominal and

pelvic computed tomography was negative for retroperitoneal fibrosis. Serum IgG-4 levels were found to be 62 mg/dL (normal 10-100 mg/dL). Conclusions: This is the first case of IgG4-RD manifesting as constrictive pericarditis associated with pericardial effusion and normal serum IgG-4 levels reported in the literature. IgG4-RD is rare and at present time understanding is limited. Little is known regarding cardiovascular complications. It is corticosteroid-responsive and immunosuppressive agents have been used in refractory disease, however, treatment data is limited. Increased awareness of this novel disease entity could potentially reduce diagnostic testing, mitigate morbidity, and improve outcomes.

Kennedy AS, Ball D, Cohen SJ, Cohn M, Coldwell DM, Drooz A, Ehrenwald E, Kanani S, Moeslein FM, Nutting CW, Putnam SG, Rose SC, **Savin M**, Schirm S, Sharma NK and Wang E (2014). "Pre-90Y hepatic radiotherapy hemoglobin and liver functions to predict overall survival in unresectable, chemotherapy-refractory metastatic colorectal cancer." *Journal of Clinical Oncology* 32(Supplement 3): 292.

[Request Form](#)

Department of Diagnostic Radiology and Molecular Imaging

Background: Patients with liver metastases from colorectal cancers (mCRC) can benefit from 90Y resin microsphere radioembolization (RE) administered via the hepatic arteries. This study investigated which standard laboratory tests may assist in improving treatment outcomes by identifying potentially correctable pre-radiation abnormalities prior to delivery of RE. Methods: A database containing retrospective review of 606 mCRC patients treated consecutively from July 2002 to December 2011 at 11 US institutions was used. Data collected included background characteristics, prior chemotherapy, surgery/ablation, radiotherapy, vascular procedures, 90Y treatment, subsequent adverse events and survival. Kaplan-Meier estimates compared survival of patients across lines (0-(greater-than or equal to)4) of chemotherapy. The following values were obtained within 10 days prior to treatment: hemoglobin, albumin, alkaline phosphatase, AST, ALT, total bilirubin and creatinine. CTCAE v3.0 grade was assigned to each parameter and analyzed for impact on survival by line of chemotherapy. Where applicable, Consensus Guidelines were used to establish the abnormal limits for RE. Results: 606 patients (370 Male; 236 Female) were studied with a median follow-up of 8.5 months (IQR 4.3-15.6) after RE. Fewer than 11% of patients were treated outside recommended guidelines, with grade 2 albumin (<3-2.0 g/dL) being the most common (10.5%) at time of RE. Abnormal parameters (grade >0) were associated with statistically significantly decreased median survivals ($p < 0.05$) and this was consistent across most lines of prior chemotherapy. Compared to patients with grade 0, those with grade 2 albumin decreased median survival by 67%; for grade 2 total bilirubin, by 63%; and grade 1 hemoglobin, by 66%. Conclusions: Review of pre-RE laboratory parameters may aid in improving median survivals if correctable grade >0 values are addressed prior to radiation delivery. Hemoglobin <10 g/dL is a well-known negative factor in radiation response and is easily corrected. Improving other parameters is more challenging. These efforts are important in optimizing treatment response to liver radiotherapy.

Kenton K, Stoddard A, Zyczynski H, Rickey L, Wai C, Albo M, Norton P, **Sirls L**, Kraus S and Richter H (2014). "5-year outcomes after retropubic and transobturator midurethral sling." *Journal of Urology* 191(4): e493.

[Request Form](#)

Department of Urology

INTRODUCTION AND OBJECTIVES: To compare 5-year continence rates, complication rates and pelvic floor outcomes after retropubic (RMUS) and transobturator (TMUS) midurethral slings. METHODS: Women in Trial of Midurethral Slings (TOMUS) who did not undergo surgical retreatment for SUI were approached for extended follow-up (E-TOMUS). Participants completed annual in-person visits, including pelvic examination and QOL questionnaires. Treatment success was defined as no retreatment for SUI and no self-reported SUI symptoms on MESA. Time to failure and log rank test assessed differences in success between treatment arms. RESULTS: 404 of 597 (68%) of TOMUS subjects participated in E-TOMUS. All women randomized in TOMUS were included in Kaplan Meier time to event analysis (Figure 1). There was no difference in success rates between RMUS and TMUS groups over time ($p = 0.09$). Treatment success for RMUS is 7.9% higher than TMUS (51.3% vs 43.4%, 95% CI -1.4, 17.2) and did not meet criteria for equivalence (Figure 2). There were no differences in the proportion of women who experienced complications ($p = 0.17$) including mesh erosions requiring surgery, RMUS (3) and TMUS (4). Urinary symptoms increased and QOL declined (as measured by UDI and IIQ) significantly over time ($p < 0.001$) with TMUS having better urinary QOL scores than RMUS

($p=0.02$). Sexual function significantly declined over time in both groups ($p=0.004$), but more so in the RMUS group ($p=0.001$). A higher percentage of women in the TMUS group report being 'very much better' or 'much better' than in the RMUS group (88% vs. 77%, $p=.01$). Overall satisfaction was similar between RMUS and TMUS at 5 years (78.9%, RMUS vs 84.7%, TMUS, $p=.15$); however, proportion who were completely or mostly satisfied decreased significantly over time in both groups (from 93% at 6 mo to 79% at 5 yr in RMUS and 92% at 6 mo to 85% at 5 yr in TMUS, $p= 0.0001$). CONCLUSIONS: 5-year- continence rates declined after RMUS & TMUS, and did not meet pre-specified criteria for equivalence; however, satisfaction remains high.(Figure Presented).

Kestin L, **Grills I**, Guckenberger M, Belderbos J, Hope AJ, Werner-Wasik M, Sonke JJ, Bissonnette JP, Xiao Y and **Yan D** (2014). "Dose-response relationship with clinical outcome for lung stereotactic body radiotherapy (SBRT) delivered via online image guidance." *Radiotherapy and Oncology* 110(3): 499-504.

[Full-Text](#)

Department of Radiation Oncology

Purpose: To examine potential dose-response relationships with various non-small-cell lung cancer (NSCLC) SBRT fractionation regimens delivered with online CT-based image guidance. Methods: 505 tumors in 483 patients with clinical stage T1-T2N0 NSCLC were treated with SBRT using on-line cone-beam-CT-based image guidance at 5 institutions (1998-2010). Median maximum tumor dimension was 2.6 cm (range 0.9-8.5 cm). Dose fractionation prescription was according to each institution's protocol with the most common schedules of 18-20 GyX3, 12 GyX4, 12 GyX5, 12.5 GyX3, 7.5 GyX8 (median = 54 Gy, 3 fractions). Median prescription (Rx) BED10 = 132 Gy (50.4-180). Median values (Gy) of 3D planned doses for BED10 were GTVmin = 164.1, GTVmean = 188.4, GTVmax = 205.9, PTVmin = 113.9, PTV D99 = 123.9, PTVmean = 164.7, PTV D1 = 197.3, PTVmax = 210.7. Mean follow-up = 1.6 years. Results: 26 cases (5%) had local recurrence (LR) for a 2-year rate of 6% and 3-year rate of 9%. All BED10 GTV&PTV endpoints were associated with LR as continuous variables on univariate analysis ($p < 0.05$). Rx and PTVmean dose appeared to have the highest correlation with LR with area under ROC curve of 0.69 and 0.65 respectively and optimal cut points of 105 and 125 Gy, respectively. 2-year LR was 4% for PTVmean \geq 125 vs 17% for $<$ 125 Gy ($p < 0.01$) with sensitivity = 84% and specificity = 57% for predicting LR. 2-year LR for Rx BED10 \geq 105 was 4% vs 15% for $<$ 105 Gy ($p < 0.01$). Longer treatment duration (≥ 11 elapsed days) demonstrated a 2-year LR of 14% vs 4% for ≤ 10 days ($p < 0.01$). GTV size was associated with LR on univariate analysis as a continuous variable ($p = 0.02$) with 2-year LR = 3% for $<$ 2.7 cm vs 9% for ≥ 2.7 cm ($p = 0.03$). BED10 ($p = 0.01$) and elapsed days during RT ($p = 0.05$) were independent predictors on multivariate analysis as continuous variables. Conclusions: There is a substantial dose-response relationship for local control of NSCLC following image-guided SBRT with optimal PTVmean BED10 \geq 125 Gy. Shorter treatment duration was also associated with better local control in this dataset. © 2014 Elsevier Ireland Ltd. All rights reserved.

Khan M, Caoili EM, Davenport MS, **Poznanski A**, Francis IR, Giordano T and Dunnick NR (2014). "CT imaging characteristics of oncocytic adrenal neoplasms (OANs): Comparison with adrenocortical carcinomas." *Abdominal Imaging* 39(1): 86-91.

[Full-Text](#)

Department of Biomedical Sciences (OU)

Objective: Oncocytic adrenal neoplasms (OANs) are rare, but are an important subtype of adrenal tumors that is being diagnosed with increasing frequency. Unfortunately, the imaging characteristics of this tumor have not been well described. Our purpose was to identify CT features to differentiate OANs from adrenocortical carcinomas (ACC). Materials and methods: From 1991 to 2012, 18 patients with OANs were identified from our institution's pathology database. Twelve had CT examinations available for review. CT characteristics of five benign and seven malignant OANs were reviewed by two abdominal radiologists, and compared to ACC ($n = 10$). Morphologic characteristics and density measurements were recorded for each imaging phase. Absolute contrast washout was calculated and compared. Results: Benign OANs were smaller [mean size 3.7 cm (range 2.6-5.3)] and more homogeneous than malignant OANs and demonstrated greater washout [mean washout percentage 72.3% (range 61-88)]. Malignant OANs demonstrated features similar to ACCs, including size [mean 9.4 cm (range 5.2-9.8)] and internal necrosis ($n = 6$). Mean enhancement washout percentage for malignant OANs was 12% (range -8 to 32). Conclusion: Benign OANs (oncocytomas) may be distinguished from lipid-rich adenomas on non-contrast CT but may be indistinguishable from lipid-poor

adenomas. Malignant oncocytic neoplasms can demonstrate features similar to ACCs, including larger size, internal necrosis, and lower percentage enhancement washout. © 2013 Springer Science+Business Media New York.

Khayyata S and Farver C (2014). "Parainfluenza virus," In Fraire AE, Woda BA, Welsh RM and Kradin RL (ed). Viruses and the Lung: Springer Berlin Heidelberg. pp: 87-93.

[Full-Text](#)

Department of Pathology

Kim J, Lu W and **Zhang T** (2014). "Dual source and dual detector arrays tetrahedron beam computed tomography for image guided radiotherapy." Physics in Medicine and Biology 59(3): 615-630.

[Full-Text](#)

Department of Radiation Oncology

Cone-beam computed tomography (CBCT) is an important online imaging modality for image guided radiotherapy. But suboptimal image quality and the lack of a real-time stereoscopic imaging function limit its implementation in advanced treatment techniques, such as online adaptive and 4D radiotherapy.

Tetrahedron beam computed tomography (TBCT) is a novel online imaging modality designed to improve on the image quality provided by CBCT. TBCT geometry is flexible, and multiple detector and source arrays can be used for different applications. In this paper, we describe a novel dual source-dual detector TBCT system that is specially designed for LINAC radiation treatment machines. The imaging system is positioned in-line with the MV beam and is composed of two linear array x-ray sources mounted aside the electrical portal imaging device and two linear arrays of x-ray detectors mounted below the machine head. The detector and x-ray source arrays are orthogonal to each other, and each pair of source and detector arrays forms a tetrahedral volume. Four planer images can be obtained from different view angles at each gantry position at a frame rate as high as 20 frames per second. The overlapped regions provide a stereoscopic field of view of approximately 10-15 cm. With a half gantry rotation, a volumetric CT image can be reconstructed having a 45 cm field of view. Due to the scatter rejecting design of the TBCT geometry, the system can potentially produce high quality 2D and 3D images with less radiation exposure. The design of the dual source-dual detector system is described, and preliminary results of studies performed on numerical phantoms and simulated patient data are presented. © 2014 Institute of Physics and Engineering in Medicine.

Kizilbash SH, Ward KC, Liang JJ, **Jaiyesimi I** and Lipscomb J (2014). "Survival outcomes in patients with early stage, resected pancreatic cancer - a comparison of gemcitabine- and 5-fluorouracil-based chemotherapy and chemoradiation regimens." International Journal of Clinical Practice 68(5): 578-589.

[Full-Text](#)

Department of Internal Medicine

PURPOSE: We conducted a comparative survival analysis between patients with resected pancreatic cancer who received adjuvant treatment with either gemcitabine- or 5-fluorouracil-based chemotherapy and chemoradiation regimens. **PATIENTS AND METHODS:** The Surveillance, Epidemiology and End Results (SEER)-Medicare database was used to identify patients with pancreatic cancer diagnosed from 1998 to 2005 who received curative surgery and adjuvant chemotherapy with either 5-fluorouracil or gemcitabine. These groups were subdivided by treatment with radiotherapy. Patients were followed until death, study end-point or a maximum of 5 years after diagnosis. **RESULTS:** Three hundred and fifty-nine patients received 5-fluorouracil and 346 received gemcitabine. Compared with chemoradiation with 5-fluorouracil, outcomes for patients who received chemoradiation with gemcitabine did not differ. Patients who received gemcitabine without radiation had increased hazards (poorly differentiated tumours: HR = 1.50, p = 0.01; moderately differentiated tumours, HR = 1.28, p = 0.11). However, outcomes of patients who received 5-fluorouracil without radiation varied with tumour grade. In moderately differentiated tumours, patients had better outcomes with 5-fluorouracil when compared with chemoradiation with 5-fluorouracil (HR = 0.42, p = 0.02). In poorly differentiated tumours, the opposite was true (HR 2.10, p = 0.09). **CONCLUSION:** Patients with low-grade resected pancreatic cancer may have better outcomes with 5-fluorouracil-based chemotherapy without radiation when compared with 5-fluorouracil with radiation.

Kooiman J, Seth M, **Dixon S**, Wohns D, Lalonde T, Rao SV and Gurm HS (2014). "Risk of acute kidney injury after percutaneous coronary interventions using radial versus femoral vascular access: insights from the Blue Cross Blue Shield of Michigan Cardiovascular Consortium." Circulation: Cardiovascular Interventions 7(2): 190-198.

[Full-Text](#)

Department of Internal Medicine

BACKGROUND: Transradial percutaneous coronary intervention (PCI [TRI]) does not involve catheter manipulation in the descending aorta, whereas transfemoral PCI (TFI) does. Therefore, the risk of acute kidney injury (AKI) after PCI might be influenced by vascular access site. We compared risks of AKI and nephropathy requiring dialysis (NRD) among patients treated with TRI and TFI. METHODS AND RESULTS: We included patients across 47 hospitals in Michigan. Primary end point was AKI (serum creatinine increase ≥ 0.5 mg/dL). Secondary end points were NRD and postprocedural bleeding. Odds ratios (OR) for study end points were calculated for the entire and propensity-matched population, reported as crude, and values adjusted for preprocedural calculated AKI risk. Between 2010 and 2012, a total of 82 225 PCI procedures were performed, of which 8915 were TRI. After adjustment, TRI was associated with a reduction in AKI (OR, 0.76, 95% confidence intervals [0.62-0.92]) and bleeding with a trend toward lower NRD risk. The propensity-matched population consisted of 8857 procedures per group. In this population, TRI was associated with lower adjusted odds of AKI (OR, 0.74; 95% confidence intervals [0.58-0.96]), and bleeding (OR, 0.47; 95% confidence intervals [0.36-0.63]), but no difference in NRD was observed. Although postprocedural bleeding was independently associated with AKI (OR, 2.86; 95% confidence intervals [1.75-4.66]) in the propensity-matched population, the lower odds of AKI was not mediated by a reduction in bleeding with TRI. Sensitivity analysis demonstrated that the observed association between access site and AKI could potentially be explained by a moderately strong unknown confounder. CONCLUSIONS: The risk of AKI was significantly lower after TRI compared with TFI. This finding needs to be evaluated in randomized controlled trials.

Kooiman J, Seth M, Share D, **Dixon S** and Gurm HS (2014). "The association between contrast dose and renal complications post PCI across the continuum of procedural estimated risk." PLoS One 9(3): e90233.

[Full-Text](#)

Department of Internal Medicine

Background: Prior studies have proposed to restrict the contrast volume (CV) to $<3\times$ calculated creatinine clearance (CCC), to prevent contrast induced nephropathy (CIN) post percutaneous coronary interventions (PCI). The predictive value of this algorithm for CIN and therefore the benefit of this approach in high risk patients has been questioned. The aim of our study was to assess the association between contrast dose and the occurrence of CIN in patients at varying predicted risks of CIN and baseline CCC following contemporary PCI. Methods: Consecutive patients undergoing PCI between 2010-2012 were included. Baseline risk of CIN was calculated using a previously validated risk tool. High contrast dose was defined as $CV/CCC > 3$. Likelihood ratio tests were used to evaluate whether the effect of a high contrast dose on the risk of CIN and nephropathy requiring dialysis (NRD) varied across the spectrum of baseline predicted risk. Results: Of the 82,120 PCI included in our analysis, 25% were performed using a high contrast dose. Patients treated with a high compared with a low contrast dose were at increased risks of CIN and NRD, throughout the entire range of baseline predicted risk and CCC in our population. The effect size of a high contrast dose on risks of both outcomes varied significantly with baseline predicted CIN risk and CCC (CIN $p = 0.004$, NRD $p < 0.001$ for adding interactions), and was largest for patients with predicted CIN risk $< 10\%$ and pre-existing chronic kidney disease. Conclusions: The use of a high contrast dose is associated with increased risks of CIN and NRD across the continuum of baseline predicted risk and CCC. Efforts to reduce contrast dose may therefore be effective in preventing renal complications in all patients undergoing PCI. (copyright) 2014 Kooiman et al.

Kotsopoulos J, Lubinski J, Moller P, Lynch HT, Singer CF, Eng C, Neuhausen SL, Karlan B, Kim-Sing C, Huzarski T, Gronwald J, McCuaig J, Senter L, Tung N, Ghadirian P, Eisen A, Gilchrist D, Blum JL, **Zakalik D**, Pal T, Sun P and Narod SA (2014). "Timing of oral contraceptive use and the risk of breast cancer in BRCA1 mutation carriers." Breast Cancer Research and Treatment 143(3): 579-586.

[Full-Text](#)

Department of Internal Medicine

It is not clear if early oral contraceptive use increases the risk of breast cancer among young women with a breast cancer susceptibility gene 1 (BRCA1) mutation. Given the benefit of oral contraceptives for the prevention of ovarian cancer, estimating age-specific risk ratios for oral contraceptive use and breast cancer is important. We conducted a case-control study of 2,492 matched pairs of women with a deleterious BRCA1 mutation. Breast cancer cases and unaffected controls were matched on year of birth and country of residence. Detailed information about oral contraceptive use was collected from a routinely administered questionnaire. Conditional logistic regression was used to estimate the odds ratios (OR) and 95 % confidence intervals (CI) for the association between oral contraceptive and breast cancer, by age at first use and by age at diagnosis. Among BRCA1 mutation carriers, oral contraceptive use was significantly associated with an increased risk of breast cancer for women who started the pill prior to age 20 (OR 1.45; 95 % CI 1.20-1.75; P = 0.0001) and possibly between ages 20 and 25 as well (OR 1.19; 95 % CI 0.99-1.42; P = 0.06). The effect was limited to breast cancers diagnosed before age 40 (OR 1.40; 95 % CI 1.14-1.70; P = 0.001); the risk of early-onset breast cancer increased by 11 % with each additional year of pill use when initiated prior to age 20 (OR 1.11; 95 % CI 1.03-1.20; P = 0.008). There was no observed increase for women diagnosed at or after the age of 40 (OR 0.97; 95 % CI 0.79-1.20; P = 0.81). Oral contraceptive use before age 25 increases the risk of early-onset breast cancer among women with a BRCA1 mutation and the risk increases with duration of use. Caution should be taken when advising women with a BRCA1 mutation to take an oral contraceptive prior to age 25. (copyright) 2014 Springer Science+Business Media New York.

Krass J, Hahn Y, Karami K, **Babu S** and **Pieper DR** (2014). "Endoscopic assisted resection of prepontine epidermoid cysts." *Journal of Neurological Surgery, Part A: Central European Neurosurgery* 75(2): 120-125.

[Request Form](#)

Department of Surgery

Department of Neurosurgery

Objective/Background To describe an innovative endoscopic technique to treat prepontine epidermoid cysts. These cysts are typically resected in a microsurgical fashion and can be associated with significant risks and complications. This report is the first description of an endoscopic-assisted removal of an epidermoid cyst without the use of the operative microscope and evaluates the operative findings, technique, and postoperative course. **Study Design** Retrospective review at tertiary referral center. **Methods** Two patients, one with rapidly progressive headache and ataxia, and another with trigeminal neuralgia were found to have mixed-intensity cystic lesions of the prepontine region consistent with an epidermoid cyst. A detailed description of the preoperative preparation, surgical approach, intraoperative technique, pre- and post-operative imaging findings and monitoring outcomes are emphasized. **Results** Both patients underwent resection of the epidermoid cyst using an endoscope-assisted technique. The procedures were 3 and 4 hours in duration with an estimated blood loss of 50 cc in both operations. No intraoperative complications occurred. The patients were discharged from the hospital on postoperative days 2 and 3, respectively. Postoperative imaging revealed no edema of the cerebellum and complete resolution of the cyst. Neurological examination revealed improvement of preoperative symptoms with complete resolution of headache and ataxia of case 1, with resolution of trigeminal neuralgia in case 2. Case 2 did develop an ipsilateral cranial nerve (CN) VI paresis postoperatively that resolved over a 3-week period. The patient from case 1 remains symptom free after 24-months with magnetic resonance imaging (MRI) consistent with gross-total resection of the epidermoid cyst. Case 2 has continued resolution of trigeminal neuralgia and CN VI palsy with 12-month follow-up MRI consistent with gross total resection. **Conclusions** The use of the endoscope as the sole means to access the posterior fossa to treat prepontine cystic lesions affords the surgeon excellent visualization with minimal cerebellar retraction and can be done in a safe and effective manner with little to no morbidity. © 2014 Georg Thieme Verlag KG Stuttgart, New York.

Krauss DJ, Amin M, Stone B, Ye H, Hayek S, **Cotant M, Hafron J** and **Brabbins DS** (2014). "Chromogranin a staining as a prognostic variable in newly diagnosed Gleason score 7-10 prostate cancer treated with definitive radiotherapy." *Prostate* 74(5): 520-527.

[Full-Text](#)

Department of Radiation Oncology

Department of Pathology

Department of Internal Medicine

Department of Urology

PURPOSE To demonstrate the association of neuroendocrine differentiation, as identified by chromogranin A (CgA) staining, with clinical outcomes in newly diagnosed prostatic adenocarcinoma treated with definitive radiotherapy (RT). MATERIALS/METHODS Patients with Gleason score ≥ 7 adenocarcinoma were identified from our outcomes database. RT consisted of external beam, brachytherapy, or external beam with brachytherapy boost. Biopsy specimens were stained for neuroendocrine differentiation with CgA. Results were interpreted by a single pathologist. CgA staining was quantified as 0%, <1%, 1-10%, or >10% of tumor cells. Clinical outcomes were blinded at the time of pathologic evaluation. RESULTS CgA staining was performed on 289 patients. 149 patients had Gleason score 7, and 140 were Gleason score 8-10. Median follow-up was 6.5 years. For patients with <1% versus >1% CgA staining, pretreatment characteristics were well-balanced. CgA staining was detected in 90 cases (31%). 58 patients had focal positive (<1%) CgA staining, and 32 cases had >1% of tumor cells CgA positive. Patients with >1% CgA staining had inferior biochemical control, clinical failure, distant metastases (DM), and cause-specific survival (CSS) rates. Ten-year rates of DM were 8% versus 48% for patients with <1% versus >1% CgA positive cells, respectively ($P < 0.001$). CSS at 10 years was 95% versus 76%, respectively ($P < 0.001$). Local control was equivalent in the two patient cohorts. Patients with <1% CgA staining had similar outcomes to those patients with 0% staining. CONCLUSIONS Neuroendocrine differentiation involving >1% of tumor cells on prostate cancer biopsies is a predictor of DM and CSS in patients treated with primary RT. *Prostate* 74:520-527, 2014. © 2013 Wiley Periodicals, Inc. © 2013 Wiley Periodicals, Inc.

Krug E and **Kavanagh M** (2014). "Ethical challenges faced by medical students (Peer Reviewed)." *MedEdPortal* Publication No. 9679

[Full-Text](#)

Department of Biomedical Sciences (OU)

Clinical Skills Training and Simulation Center

Medical students face a number of ethical issues during their clinical rotations in the hospital arising from the reality that they: (1) are at the lowest level of authority on the medical team, (2) wish to become competent physicians, (3) wish to use the knowledge they have to help others, and (4) desire good evaluations on their clinical clerkships. An article published in the *British Medical Journal* in 2001 by three house officers and a medical student (Lisa K. Hicks et al.) at the University of Toronto was entitled "Understanding the clinical dilemmas that shape medical students' ethical development: questionnaire survey and focus group study." These investigators interviewed 108 medical students at the end of their first clinical year and discovered three categories of ethical dilemmas for these students: (1) conflict between medical education and patient care, (2) responsibility exceeding student's capabilities, and (3) involvement in care perceived to be substandard. Thus, we created four scenarios to place a medical student in a situation where a decision must be made about how to proceed when confronted with an ethical dilemma. Dr. Richard Mayer has written about the value of multimedia learning, in which he describes the science behind its value in meeting instructional objectives. We decided to pair the use of brief video vignettes with small group discussion to highlight some key ethical principles and present strategies for dealing with ethical conundrums medical students are likely to face.

Kule A, **Hang B** and **Bahl A** (2014). "Preventing the collapse of a peripheral vein during cannulation: An evaluation of various tourniquet techniques on vein compressibility." *Journal of Emergency Medicine* 46(5): 659-666.

[Full-Text](#)

Department of Emergency Medicine

Background: Venous access can occasionally be difficult to obtain secondary to near-complete compressibility of peripheral veins in some patients. Objective: This study utilizes ultrasound to assess vein compressibility with different tourniquet techniques commonly available in the emergency department. Methods: After approval by the Institutional Review Board, a prospective single-center study was conducted assessing the compressibility of basilic veins with ultrasound. Compressibility was assessed at baseline, use of one proximal tourniquet, two tourniquets (one distal and one proximal), and a proximal blood pressure cuff inflated to 150 mm Hg. Vein compressibility was rated as complete, moderate, or mild after light pressure was applied with the ultrasound probe. Results: One hundred healthy patients were recruited into the study.

Ninety-eight subjects had completely compressible basilic veins at baseline. When one tourniquet and two tourniquets were applied, 62 and 31 participants, respectively, demonstrated completely compressible veins. Fisher's exact test comparing one vs. two tourniquets revealed no difference between these two techniques ($p = 0.4614$). Only two participants continued to have a completely compressible vein after application of the blood pressure cuff with statistical significance by Fisher's exact test compared to both tourniquet groups ($p < 0.0001$). Conclusions: Both tourniquets and blood pressure cuffs can decrease the compressibility of peripheral veins. Although no difference was identified between one and two tourniquets, utilization of blood pressure cuffs significantly decreased compressibility. The findings of this study can be utilized in the emergency department when attempting to obtain peripheral venous access, specifically supporting the use of blood pressure cuffs to decrease compressibility. © 2013 Elsevier Inc. All rights reserved.

Kuo HC, Liu HT, Chuang YC, Birder LA and **Chancellor MB** (2014). "Pilot study of liposome-encapsulated onabotulinumtoxinA for patients with overactive bladder: A single-center study." *European Urology* 65(6): 1117-1124.

[Full-Text](#)

Department of Urology

Background: Intradetrusor onabotulinumtoxinA (BoNT-A) injection benefits overactive bladder (OAB) patients, but increased postvoid residual (PVR) urine volume and urinary tract infection (UTI) remain risks. Intravesical instillation of liposomal BoNT-ONA instead of injection could prevent such adverse events. Objective: To evaluate instillation of liquid liposomal BoNT-A (Lipotoxin) for the treatment of OAB and to determine its mechanism of action. Design, setting, and participants: A double-blind randomized parallel controlled pilot trial in 24 OAB patients at a single tertiary center. Intervention: Patients were randomly assigned to intravesical instillation of Lipotoxin containing 80 mg liposomes and 200 U BoNT-A or normal saline (N/S). Patients were retreated with Lipotoxin 1 mo later if they failed the first treatment. Outcome measurement and statistical analysis: Voiding diaries, OAB symptom scores, urodynamic studies, and adverse events were monitored. The primary end point was change of total urinary frequency per 3 d at 1 mo after treatment. Immunohistochemistry and Western blotting for synaptic vesicle glycoprotein 2A (SV2A) and synaptosomal-associated protein, 25 kDa (SNAP25) were performed at baseline and 3 mo after treatment. The Wilcoxon rank sum test and Wilcoxon signed rank test were used for statistical analysis. Results and limitations: At 1 mo after treatment, the change of urinary frequency per 3 d significantly improved in the Lipotoxin group ($n = 12$; median: -6.50; interquartile range [IQR]: -18.3 to -0.25; $p = 0.008$) but not in the N/S group ($n = 12.0$; IQR: -7.75 to 8.0; $p = 0.792$). Urgency episodes also showed a significant decrease in the Lipotoxin group (-12.0; IQR: -20.3 to -2.75; $p = 0.012$) but not in the N/S group (-1.0; IQR: -11.0 to 2.5; $p = 0.196$). SV2A and SNAP25 were expressed in urothelial cells and suburothelial tissues. However, the protein expression did not significantly differ between responders and nonresponders at 3 mo after treatment. Conclusions: Intravesical Lipotoxin instillation effectively reduced frequency episodes 1 mo after treatment in OAB patients without any increase in PVR or risk of UTI. Patient summary: We demonstrated that intravesical Lipotoxin instillation reduced frequency episodes at 1 mo in overactive bladder patients. This procedure is safe, without an increase in postvoid residual or the risk of urinary tract infection. © 2014 European Association of Urology.

Laban MM (2014). "Lessons learned through leadership: how to avoid looking like an onion with your head stuck in the ground and your feet above." *PM & R: Journal of Injury, Function & Rehabilitation* 6(4): 298-301.

[Full-Text](#)

Department of Physical Medicine and Rehabilitation

Lake AMG, Moalli P, E. Richter H, Kim HY, Nager CW, **Sirls L**, Brubaker L, Kusek JW and Chai TC (2014). "Comparison of ROC curves for preoperative VLPP, MUCP and urinary NTx as predictors for midurethral sling outcomes." *Neurourology and Urodynamics* 33(2): 166.

[Full-Text](#)

Department of Urology

Introduction: Receiver operating characteristic (ROC) curves for pre-operative Valsalva leak point pressure (VLPP) and maximum urethral closure pressure (MUCP) showed poor sensitivity and specificity for midurethral sling (MUS) surgical outcomes. Recently, we showed that lower pre-operative urinary NTx (N-terminal telopeptide of crosslinked Type 1 collagen, a marker of collagen turnover) was associated with

lower odds of MUS failure (OR 0.49, $p=0.03$). We compare ROC curves generated from preoperative VLPP, MUCP, and NTx values obtained from two Urinary Incontinence Treatment Network trials, Trial of Mid-Urethral Slings (TOMUS) and The Value of Urodynamic Evaluation (ValUE). Methods: nullSuccessnullwas defined at 12months post-operatively as a subject having: a 70% decrease in Urogenital Distress Inventory (UDI) score, a score of 1 or 2 on Patient Global Impression of Improvement, and a negative stress test. Preoperative VLPP and MUCP's were measured in 427 TOMUS subjects; preoperative NTx value was measured in 150 ValUE subjects. ROC curves for VLPP, MUCP and NTx were generated and areas under the curve (AUC) were compared by largesample test method. Results: Comparison of subject characteristics from TOMUS versus ValUE revealed several significant differences. TOMUS subjects were 2.5 years older ($p=0.01$), 1.4 kg/m² heavier ($p=0.01$) and scored 6.7 points higher on UDI ($p=0.001$) than ValUE subjects. These factors may have contributed to TOMUS subjects having a lower success rate compared to ValUE subjects (66.3% versus 76.0%, $p=0.03$). ROC curves for VLPP, MUCP and NTx are shown in Figures 1A-1C, with AUC of 0.542, 0.561 and 0.702, respectively. The AUC for NTx was significantly higher than VLPP ($p=0.02$) and MUCP ($p=0.03$). Conclusion: Urinary NTx, a non-invasive test, performed superiorly to VLPP and MUCP as a prognostic tool for post- MUS surgical outcome. AUC values for VLPP andMUCP fall into the nullfailnullor nullFnullcategory (0.50-0.60), whereas the AUC value for NTx falls into nullfairnullor nullCnullcategory (0.70-0.80). Understanding the pathophysiology associated with how urinary NTx correlates to surgical outcomes represents the next phase to possibly improve surgical management of SUI. (Table Presented).

Lanni TB, **Brown E, Kuwajerwala N, Stromberg J, Gustafson G**, Wood R, Parzuchowski J and **Akhtar A** (2014). "Implementation of an oncology exercise and wellness rehabilitation program to enhance survivorship: the Beaumont Health System experience." The Journal of Community and Supportive Oncology 12(3): 87-91.

[Full-Text](#)

Department of Surgery

Department of Radiation Oncology

Department of Internal Medicine

Lauter CB (2014). "Idiopathic capillary leak syndrome." Journal of Allergy and Clinical Immunology 133(2): AB28.

[Full-Text](#)

Department of Internal Medicine

Lerner EB, Willenbring BD, Pirralo RG, Brasel KJ, Cady CE, Colella MR, **Cooper A**, Cushman JT, Gourlay DM, Jurkovich GJ, Newgard CD, Salomone JP, Sasser SM, Shah MN, **Swor RA** and Wang SC (2014). "A consensus-based criterion standard for trauma center need." Journal of Trauma and Acute Care Surgery 76(4): 1157-1163.

[Full-Text](#)

Department of Emergency Medicine

Background: In civilian trauma care, field triage is the process applied by prehospital care providers to identify patients who are likely to have severe injuries and immediately need the resources of a trauma center. Studies of the efficacy of field triage have used various measures to define trauma center need because no "criterion standard" exists, making cross-study comparisons difficult. This study aimed to develop a consensus-based functional criterion standard definition of trauma center need. Methods: Local and national experts were recruited for participation. Blinded key informant interviews were conducted in order of availability until no new themes emerged. Themes identified during the interviews were used to develop a Modified Delphi survey, which was electronically delivered via Survey Monkey. The trauma center need criteria were refined iteratively based on participant responses. Participants completed additional surveys until there was at least 80% agreement for each criterion. Results: Fourteen experts were recruited. Five participated in key informant interviews. A Modified Delphi survey was administered five times (four modifications based on the expert's responses). After the fifth round, there was at least 82% agreement on each criterion. The final definition included 10 time-specific indicators: major surgery, advanced airway, blood products, admission for spinal cord injury, thoracotomy, pericardiocentesis, cesarean delivery, intracranial pressure monitoring, interventional radiology, and in-hospital death. Conclusion: We developed a consensus-based functional criterion standard definition of needing the resources of a trauma center, which may help to standardize field triage research and quality assurance in trauma systems as well as allow for cross study comparisons. © 2014 2014 Lippincott Williams & Wilkins.

Lucia V, Stefaniak J, **Wunderlich T** and **Szura J** (2014). "Increasing awareness of food insecurity among medical students: A service-learning project." Medical Science Educator 24(1): 19-21.

[Full-Text](#)

Department of Biomedical Sciences (OU)

Department of Medical Education

To reinforce information learned during medical school and provide awareness of the importance of physician involvement in the healthcare team that addresses nutritional issues, a service-learning project was implemented in a prevention/public health course. Students identified the importance of physician awareness and patient advising when working with food-insecure populations.

Madder R, Abbas A and **Safian R** (2014). "First-in-man use of intravascular near-infrared spectroscopy in the carotid arteries to characterize atherosclerotic plaque prior to carotid stenting." Journal of the American College of Cardiology 63(12): A1831.

[Full-Text](#)

Department of Internal Medicine

Abstract: Lipid-core plaque (LCP) detected by intracoronary near-infrared spectroscopy (NIRS) is associated with acute coronary syndromes and predicts complications during coronary stenting. To our knowledge, NIRS has never been applied in the carotid arteries and it is unknown whether NIRS can detect carotid LCP. This study was performed to demonstrate the feasibility of NIRS in the carotid arteries. Methods: NIRS was performed in the carotid arteries of patients with severe carotid stenosis after distal filter placement but prior to stenting. LCP at the stenosis site was quantified by the lipid-core burden index (LCBI) and the maximum LCBI in any 4-mm segment (maxLCBI4mm). The LCBI is defined as the fraction of pixels indicating lipid multiplied by 1000. Results: We performed NIRS imaging in the carotid arteries of 2 symptomatic and 8 asymptomatic patients (age 67 (plus or minus) 12). There were no neurological complications. Both symptomatic patients and 5 of 8 asymptomatic patients had LCP in the carotid artery by NIRS. Among the 7 patients with LCP, the LCBI and maxLCBI4mm were 229 (plus or minus)136 and 340 (plus or minus) 169, respectively. After stenting, NIRS often demonstrated a reduction in lipid content (Figure). Conclusion: We describe first-in-man use of NIRS imaging within the carotid arteries and demonstrate its feasibility. Future studies are needed to determine if NIRS can determine the risk of stent-related complications, influence the selection of patients for stenting or endarterectomy, or predict future neurologic events. (Figure Presented).

Maisels MJ, Ramaswamy D and Kring EA (2014). "Does phototherapy cause benign skin rashes in newborn infants?" Acta Paediatrica, International Journal of Paediatrics 103(3): e133-e135.

[Full-Text](#)

Department of Pediatrics

Maltese JT, Jr., **Laban MM**, Gorab K and Maltese JC (2014). "Particle disease osteolysis of the pelvis and the hip after hip arthroplasty." American Journal of Physical Medicine and Rehabilitation 93(5): 453-454.

[Full-Text](#)

Department of Physical Medicine and Rehabilitation

Manickam P, Jaurigue M, **Batke M** and **Cappell MS** (2014). "Letter to the editor: Recurrent ischemic colitis associated with oral contraceptive therapy." Journal of Digestive Diseases 15(6): 331-333.

[Full-Text](#)

Department of Internal Medicine

Manuballa V, **Amin M** and **Cappell MS** (2014). "Clinical presentation and comparison of surgical outcome for segmental resection vs. Whipple's procedure for solid pseudopapillary tumor: Report of six new cases & literature review of 321 cases." Pancreatology 14(1): 71-80.

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Department of Pathology

Department of Internal Medicine

Aim: Report 6 new cases of solid-pseudopapillary-pancreatic-tumor, comprehensively review 321 cases

reported in American literature, and compare outcomes for segmental resection vs. Whipple's procedure. Methods: Cases of solid-pseudopapillary-tumor at William Beaumont Hospital, 1999-2011, identified by computerized analysis of pathology reports. Comprehensive review of all American cases identified by computerized literature review. Segmental resection includes open/laparoscopic central pancreatectomy and anatomic distal pancreatectomy, but excludes enucleation. Results: Six cases of solid-pseudopapillary-pancreatic-tumors (0.5% of all solid pancreatic lesions), occurred during 1999-2011 at the hospital. Mean age at diagnosis = 27.7 years. All 6 were female. All patients had abdominal pain. Mean symptom duration = 10.0 days. All patients had normal routine blood tests. Mean APACHE II score at diagnosis = 1.8. All six patients had single heterogeneous lesions, with cystic/solid components. All patients underwent surgery: segmental resection-4, Whipple's procedure-2. Tumors were uniformly diagnosed by surgically resected tissue. Mean tumor size = 5.7 cm. Mean postoperative length of stay = 4.0 days for segmental resection (N = 4) vs. 14.0 days for Whipple's procedure (N = 2). All 6 patients are alive and well to-date, without evident local recurrence or metastasis. In a literature review, 45 patients undergoing Whipple's procedure versus 34 patients undergoing segmental resection, had significantly longer mean postoperative hospitalization (16.4 vs. 43 days, P = 0.01), and had increased unadjusted mortality (202% vs. 2.2%, p = 0.018). However, this mortality difference became insignificant when adjusting for longer mean follow-up of Whipple's procedure patients (Kaplan Meier-survival-curve, p = 0.75). Conclusions: This work suggests segmental resection of these pancreatic tumors localized to the body/tail may have a better surgical outcome than Whipple's procedure for tumors localized to the pancreatic head. Further studies are necessary. Copyright (C) 2013, IAP and EPC. Published by Elsevier India, a division of Reed Elsevier India Pvt. Ltd. All rights reserved.

Marina O, **Gustafson GS**, Kestin LL, **Brabbins DS**, **Chen PY**, Ye H, Martinez AA, Ghilezan MI, Wallace M and **Krauss DJ** (2014). "Comparison of dose-escalated, image-guided radiotherapy vs. dose-escalated, high-dose-rate brachytherapy boost in a modern cohort of intermediate-risk prostate cancer patients." *Brachytherapy* 13(1): 59-67.

[Request Form](#)

Department of Radiation Oncology

Purpose: We compared outcomes in intermediate-risk prostate cancer patients treated with dose-escalated adaptive image-guided radiation therapy (IGRT) or dose-escalated high-dose-rate brachytherapy boost (HDR-B). Methods and Materials: Patients with intermediate-risk prostate cancer by National Comprehensive Cancer Network criteria were treated with either CT-based off-line adaptive IGRT (n= 734) or HDR-B (n= 282). IGRT was delivered with 3D-conformal or intensity-modulated radiation therapy with a median dose of 77.4Gy. For HDR-B, the whole pelvis received a median 46Gy, and the prostate 2 implants of 9.5Gy (n= 71), 10.5Gy (n= 155), or 11.5Gy (n= 56). Results: Median followup was 3.7years for IGRT and 8.0years for HDR-B (p < 0.001). Eight-year biochemical control was 86% for IGRT and 91% for HDR-B (p= 0.22), disease-free survival 67% for IGRT and 79% for HDR-B (p= 0.006), and overall survival 75% for IGRT and 86% for HDR-B (p= 0.009). Cause-specific survival (8-year, 100% vs. 99%), freedom from distant metastases (98% vs. 97%), and freedom from local recurrence (98% vs. 98%) did not differ (p > 0.50 each). A worse prognosis group was defined by percent positive prostate biopsy cores >50%, perineural invasion, or stage T2b-c, encompassing 260 (35%) IGRT and 171 (61%) HDR-B patients. These patients evidenced a 5-year biochemical control of 96% for HDR-B and 87% for IGRT (p= 0.002). Conclusions: Dose-escalated IGRT and HDR-B both yield excellent clinical outcomes for patients with intermediate-risk prostate cancer. Improved biochemical control with HDR-B for patients with worse pretreatment characteristics suggests that a subgroup of intermediate-risk prostate cancer patients may benefit from dual-modality treatment. (copyright) 2014 American Brachytherapy Society.

Marina O, Warner J, Ye H, **Grills IS**, Shah C, Wallace M, **Gustafson GS**, **Brabbins DS**, Martinez AA and **Krauss DJ** (2014). "An age-corrected matched-pair study of erectile function in patients treated with dose-escalated adaptive image-guided intensity-modulated radiation therapy vs. high-dose-rate brachytherapy for prostate cancer." *Brachytherapy* 13(2): 163-168.

[Request Form](#)

Department of Radiation Oncology

Purpose: To compare erectile dysfunction (ED) after adaptive dose-escalated image-guided intensity-modulated radiotherapy (IG-IMRT) and high-dose-rate interstitial brachytherapy (HDR)

monotherapy. Methods and Materials: Low- and intermediate-risk prostate cancer patients treated with IG-IMRT or HDR were matched on pretreatment ED, age, Gleason score, T-stage, and prostate specific antigen. Patients who received androgen deprivation therapy were excluded. ED was graded by Common Terminology Criteria for Adverse Events v4. Actuarial rates of ED were computed by the Kaplan-Meier method. Results: There were 384 patients with median followup of 2.0 years (0.5-6.1) for IG-IMRT and 2.0 years (0.5-8.7) for HDR. The median IG-IMRT dose was 75.6Gy and HDR dose 38Gy in four fractions. For patients with no pretreatment ED, actuarial rates of requiring intervention (Grade (greater-than or equal to)2 ED) at 3 years were 31% for IG-IMRT and 19% for HDR (p=0.23), and impotence despite medical intervention (Grade 3) were 0% for IG-IMRT and 6% for HDR (p=0.06). For patients with Grade 1 pretreatment ED, Grade (greater-than or equal to)2 ED at 3 years were 47% for IG-IMRT and 34% for HDR (p=0.79), and Grade 3 ED were 15% in both groups (p=0.59). For patients with Grade 2 pretreatment ED, Grade 3 ED at 3 years were 22% for IG-IMRT and 37% for HDR (p=0.70). No variables were predictive of Grade (greater-than or equal to)2 ED following treatment. Conclusions: Rates of ED requiring medical intervention for both IG-IMRT and HDR are low and equivalent. Even patients with ED before treatment are likely to maintain potency with medication use at 3 years following treatment. (copyright) 2014 American Brachytherapy Society.

Marmagkiolis K, Hakeem A, **Choksi N**, Al-Hawwas M, Edupuganti MMR, Leesar MA and Cilingiroglu M (2014). "12-month primary patency rates of contemporary endovascular device therapy for femoro-popliteal occlusive disease in 6024 patients: Beyond balloon angioplasty." Catheterization and Cardiovascular Interventions. ePub Ahead of Print.

[Full-Text](#)

Department of Internal Medicine

Background: Endovascular approach to superficial femoral artery (SFA) disease, the most common cause of symptomatic PAD, remains fraught with high failure rates. Newer devices including second-generation nitinol stents, drug-coated stents, drug-coated balloons, covered stents, cryo-therapy, LASER and directional atherectomy, have shown promising results. Clinical equipoise still persists regarding the optimal selection of devices, largely attributable to the different inclusion criteria, study population, length of lesions treated, definition of "patency" and "restenosis" and follow-up methods in the pivotal trials. Methods: A prospective protocol was developed. We performed a literature search using PubMed from January 2006 – November 2013. Published articles including endovascular interventions in SFA or popliteal arteries with reported 12-month "primary patency" or "binary restenosis" rates as endpoints were included. Results: We identified 6024 patients in 61 trials reporting 12-month primary patency rates in patients with femoropopliteal disease. Primary patency rates were (weighted average) 77.2% for nitinol stents, 68.8% for Covered stents, 84% for Drug eluting stents, 78.2% for DEB, 60.7% for cryoballoon, 51.1% for LASER atherectomy, 63.5% for directional atherectomy and 70.2% with a combination of endovascular devices. Conclusion: The most frequently used endovascular devices yielded various 12-month primary patency rates ranging from 51% to 85%. The increased variation in inclusion criteria, length and complexity of lesions between studies does not allow direct comparison between them. Larger randomized trials in specific patient populations comparing those modalities is needed before we can make safe recommendation of the superiority of one device over the other. © 2014 Wiley Periodicals, Inc.

Martin LM, **Marples B**, Lynch TH, Hollywood D and Marignol L (2014). "Exposure to low dose ionising radiation: Molecular and clinical consequences " Cancer Letters. ePub Ahead of Print.

[Full-Text](#)

Department of Radiation Oncology

This review article provides a comprehensive overview of the experimental data detailing the incidence, mechanism and significance of low dose hyper-radiosensitivity (HRS). Important discoveries gained from past and present studies are mapped and highlighted to illustrate the pathway to our current understanding of HRS and the impact of HRS on the cellular response to radiation in mammalian cells. Particular attention is paid to the balance of evidence suggesting a role for DNA repair processes in the response, evidence suggesting a role for the cell cycle checkpoint processes, and evidence investigating the clinical implications/relevance of the effect. (copyright) 2014 Elsevier Ireland Ltd. All rights reserved.

Masterson L, Thibodeau BJ, Fortier LE, Geddes TJ, Pruetz BL, **Malhotra R, Keidan R** and **Wilson GD** (2014). "Gene expression differences predict treatment outcome of Merkel cell carcinoma patients." *Journal of Skin Cancer*. ePub Ahead of Print.

[Full-Text](#)

Department of Pathology

Department of Surgery

Department of Radiation Oncology

Due to the rarity of Merkel cell carcinoma (MCC), prospective clinical trials have not been practical. This study aimed to identify biomarkers with prognostic significance. While sixty-two patients were identified who were treated for MCC at our institution, only seventeen patients had adequate formalin-fixed paraffin-embedded archival tissue and followup to be included in the study. Patients were stratified into good, moderate, or poor prognosis. Laser capture microdissection was used to isolate tumor cells for subsequent RNA isolation and gene expression analysis with Affymetrix GeneChip Human Exon 1.0 ST arrays. Among the 191 genes demonstrating significant differential expression between prognostic groups, keratin 20 and neurofilament protein have previously been identified in studies of MCC and were significantly upregulated in tumors from patients with a poor prognosis. Immunohistochemistry further established that keratin 20 was overexpressed in the poor prognosis tumors. In addition, novel genes of interest such as phospholipase A2 group X, kinesin family member 3A, tumor protein D52, mucin 1, and KIT were upregulated in specimens from patients with poor prognosis. Our pilot study identified several gene expression differences which could be used in the future as prognostic biomarkers in MCC patients. (copyright) 2014 Loren Masterson et al.

May JG, **Shah P**, Sachdeva L, **Micale M**, Kruper GJ, Sheyn A and Coticchia JM (2014). "Potential role of biofilms in deep cervical abscess." *International Journal of Pediatric Otorhinolaryngology* 78(1): 10-13.

[Full-Text](#)

Department of Biomedical Sciences (BHS)

Department of Pathology

Objectives: Deep neck abscesses are complex head & neck problems that can lead to significant complications including life threatening infections. It is understood that the pathology of these infections is primarily polymicrobial. Although broad spectrum antibiotics can be effective for small abscesses, larger abscesses can be recalcitrant and difficult to treat with antibiotics. It has been demonstrated for several infectious diseases, including some of head & neck, that biofilm phenotypes present a unique model for recurrence and chronicity of infectious diseases. It is suspected that biofilm phenotypes could play a crucial role in the recalcitrance of large deep neck abscesses. This study presents initial evidence indicating the presence of polymicrobial biofilms in deep neck space infections. Methods: Fourteen samples obtained via biopsy of abscess walls from deep neck spaces of patients undergoing surgical drainage. Eight patients were male and 6 were female. All but one patient were pediatric with ages ranging from 18 months to 32 years. All samples were processed and analyzed with scanning electron microscopy. Results: Electron micrographs of 12 out of 14 specimens showed discrete biofilm architecture with individual bacteria, both rods and cocci, embedded within the matrix. This was starkly different from tissue surfaces devoid of biofilms. Conclusions: This initial evidence suggests that biofilm phenotypes could play a role in the pathogenesis and recalcitrance of deep neck infections, particularly in larger abscesses. (copyright) 2013 Elsevier Ireland Ltd.

McLean SA, Ulirsch JC, Slade GD, Soward AC, **Swor RA**, Peak DA, Jones JS, Rathlev NK, Lee DC, Domeier RM, Hendry PL, Bortsov AV and Bair E (2014). "Incidence and predictors of neck and widespread pain after motor vehicle collision among US litigants and nonlitigants." *Pain* 155(2): 309-321.

[Full-Text](#)

Department of Emergency Medicine

Debate continues regarding the influence of litigation on pain outcomes after motor vehicle collision (MVC). In this study we enrolled European Americans presenting to the emergency department (ED) in the hours after MVC (n = 948). Six weeks later, participants were interviewed regarding pain symptoms and asked about their participation in MVC-related litigation. The incidence and predictors of neck pain and widespread pain 6 weeks after MVC were compared among those engaged in litigation (litigants) and those not engaged in litigation (nonlitigants). Among the 859 of 948 (91%) participants completing 6-week follow-up, 711 of 849 (83%) were nonlitigants. Compared to nonlitigants, litigants were less educated and

had more severe neck pain and overall pain, and a greater extent of pain at the time of ED evaluation. Among individuals not engaged in litigation, persistent pain 6 weeks after MVC was common: 199 of 711 (28%) had moderate or severe neck pain, 92 of 711 (13%) had widespread pain, and 29 of 711 (4%) had fibromyalgia-like symptoms. Incidence of all 3 outcomes was significantly higher among litigants. Initial pain severity in the ED predicted pain outcomes among both litigants and nonlitigants. Markers of socioeconomic disadvantage predicted worse pain outcomes in litigants but not nonlitigants, and individual pain and psychological symptoms were less predictive of pain outcomes among those engaged in litigation. These data demonstrate that persistent pain after MVC is common among those not engaged in litigation, and provide evidence for bidirectional influences between pain outcomes and litigation after MVC. © 2013 International Association for the Study of Pain. Published by Elsevier B.V. All rights reserved.

Meints L, Peterson S, Harrison R, Cordoba M, Zeb A and **Bahado-Singh R** (2014). "Intra-amniotic infection predicts some, not all, adverse neonatal/ child outcomes." *Reproductive Sciences* 21(3): 260A-261A.

[Full-Text](#)

Department of Obstetrics and Gynecology

INTRODUCTION: Past studies have linked intra-amniotic infection (IAI) with preterm labor (PTL), preterm birth, and histological signs of chorioamnionitis. Few data exist regarding possible relationships between IAI and adverse neonatal/child outcomes. Our aim was to quantify this latter relationship. **METHODS:** Our IRB-approved study is a retrospective cohort including all women with singleton gestations undergoing amniocentesis for PTL, preterm premature rupture of membranes (PPROM), and cervical insufficiency at a single institution between 2000-2012. Maternal age (greater-than or equal to) 35 years and congenital anomaly cases were excluded to minimize the chances that AC was performed for genetic reasons. Maternal characteristics such as age, race, clinical signs of chorioamnionitis, tobacco use, results of urine drug screen, and pre-existing conditions such as maternal diabetes and hypertension were assessed and controlled for. Neonatal characteristics such as gender, gestational age at delivery, birth weight, cord pH were also assessed and controlled for. IAI was diagnosed based on positive culture results. Correlations between IAI, placental histology, and adverse neonatal/child outcomes were determined. Adjusted relative risks (aRR) were calculated for the development of adverse neonatal/child outcomes. **RESULTS:** There were a total of 362 women and 359 children included. IAI was significantly associated with intraventricular hemorrhage (IVH) (RR 2.48, $p < 0.0001$, 95% CI 1.70-3.62), even after controlling for neonatal characteristics (aRR 1.47, $p = 0.015$, 95% CI 1.08-2.01). IAI correlated with necrotizing enterocolitis (NEC), neonatal sepsis, retinopathy but was not significantly associated after controlling for neonatal characteristics. **CONCLUSIONS:** These data show a significant relationship between IAI and IVH, but not NEC, neonatal sepsis, or retinopathy. Future work is needed to better characterize the relationship between IAI and IVH.

Meints L, Peterson S, Harrison R, Cordoba M, Zeb A and **Bahado-Singh R** (2014). "Placental findings associated with intra-amniotic inflammation." *American Journal of Obstetrics and Gynecology* 210(1): S224.

[Full-Text](#)

Department of Obstetrics and Gynecology

OBJECTIVE: Intra-amniotic inflammation (IAIN) is more common than intra-amniotic infection and has been independently associated with preterm birth and adverse neonatal outcomes. Our aim was to investigate the relationship between markers of IAIN and placental histology and to determine which marker(s) of inflammation correlated most strongly with placental chorioamnionitis and funisitis in a cohort of symptomatic women. **STUDY DESIGN:** This IRB-approved study is a retrospective cohort including all women with singleton gestations undergoing amniocentesis for preterm labor, preterm premature rupture of membranes, and cervical insufficiency at a single institution between 2000-2012. Maternal age (greater-than or equal to) 35 years and congenital anomaly cases were excluded to minimize the chances that amniocentesis was performed for genetic reasons. Maternal characteristics including age, race, tobacco use, results of urine drug screen, and pre-existing conditions such as maternal diabetes and hypertension were assessed as potential confounders. Adjusted relative risks (aRR) were calculated for the development of histological chorioamnionitis and funisitis. IAIN was defined as amniotic-fluid (AF) IL-6 > 11.3 ng/dl, AF glucose < 14 , and AF WBC > 50 individually, and defined as a composite variable (any one of AF IL-6 > 11.3 ng/dl, AF glucose < 14 , and AF WBC > 50 making the composite positive). **RESULTS:** There were a total of 362 women and 359 children included. Mean gestational age at amniocentesis was 32.38 weeks, and mean

gestational age at delivery was 34.81 weeks. Histologic chorioamnionitis occurred in 42% of placentas, and funisitis in 24.5%. Key results are in the table below. CONCLUSION: Among definitions of IAIN, both AF glucose < 14 and AF WBC > 50 were most associated with placental chorioamnionitis, whereas WBC > 50 was most associated with funisitis. (Table presented).

Menezes AR, Lavie CJ, Forman DE, Arena R, Milani RV and **Franklin BA** (2014). "Cardiac rehabilitation in the elderly." Progress in Cardiovascular Diseases. ePub Ahead of Print.

[Full-Text](#)

Department of Internal Medicine

Coronary heart disease (CHD) is the leading cause of death worldwide. Advanced age is associated with a higher prevalence of CHD as well as increased morbidity and mortality. One key vulnerability relates to the fact that older individuals are generally among the least fit, least active cohort and at increased risk of complications after an acute cardiac event and/or major surgery. There is ample evidence to demonstrate the beneficial effects of exercised-based cardiac rehabilitation (CR) programs on improving functional capacity and other indices of cardiovascular (CV) health. Although the predominant number of studies is in middle-aged patients, there is an escalating amount of new information that establishes the cardioprotective role of CR and, in particular, structured exercise therapy (ET) among the elderly. The present review summarizes the current data available regarding CR and ET and its salutary impact on today's growing population of older adults with CHD. (copyright) 2014 Elsevier Inc. All rights reserved.

Mi M and **Gould D** (2014). "Wiki technology enhanced group project to promote active learning in a neuroscience course for first-year medical students: an exploratory study." Medical Reference Services Quarterly 33(2): 125-135.

[Full-Text](#)

Medical Library

Department of Biomedical Sciences (OU)

A wiki group project was integrated into a neuroscience course for first-year medical students. The project was developed as a self-directed, collaborative learning task to help medical students review course content and make clinically important connections. The goals of the project were to enhance students' understanding of key concepts in neuroscience, promote active learning, and reinforce their information literacy skills. The objective of the exploratory study was to provide a formative evaluation of the wiki group project and to examine how wiki technology was utilized to enhance active and collaborative learning of first-year medical students in the course and to reinforce information literacy skills.

Min JK, Labounty TM, Gomez MJ, Achenbach S, Al-Mallah M, Budoff MJ, Cademartiri F, Callister TQ, Chang HJ, Cheng V, **Chinnaiyan KM**, Chow B, Cury R, Delago A, Dunning A, Feuchtner G, Hadamitzky M, Hausleiter J, Kaufmann P, Kim YJ, Leipsic J, Lin FY, Maffei E, **Raff G**, Shaw LJ, Villines TC and Berman DS (2014). "Incremental prognostic value of coronary computed tomographic angiography over coronary artery calcium score for risk prediction of major adverse cardiac events in asymptomatic diabetic individuals." Atherosclerosis 232(2): 298-304.

[Full-Text](#)

Department of Internal Medicine

Background: Coronary artery disease (CAD) diagnosis by coronary computed tomographic angiography (CCTA) is useful for identification of symptomatic diabetic individuals at heightened risk for death. Whether CCTA-detected CAD enables improved risk assessment of asymptomatic diabetic individuals beyond clinical risk factors and coronary artery calcium scoring (CACS) remains unexplored. Methods: From a prospective 12-center international registry of 27,125 individuals undergoing CCTA, we identified 400 asymptomatic diabetic individuals without known CAD. Coronary stenosis by CCTA was graded as 0%, 1-49%, 50-69%, and ≥70%. CAD was judged on a per-patient, per-vessel and per-segment basis as maximal stenosis severity, number of vessels with ≥50% stenosis, and coronary segments weighted for stenosis severity (segment stenosis score), respectively. We assessed major adverse cardiovascular events (MACE) - inclusive of mortality, nonfatal myocardial infarction (MI), and late target vessel revascularization ≥90 days (REV)- and evaluated the incremental utility of CCTA for risk prediction, discrimination and reclassification. © 2013 Elsevier Ireland Ltd.

Miranda RN, Aladily TN, Prince HM, Kanagal-Shamanna R, de Jong D, Fayad LE, **Amin MB**, Haideri N, Bhagat G, Brooks GS, Shifrin DA, O'Malley DP, Cheah CY, Bacchi CE, Gualco G, Li S, Keech JA, Jr., Hochberg EP, Carty MJ, Hanson SE, Mustafa E, Sanchez S, Manning JT, Jr., Xu-Monette ZY, Miranda AR, Fox P, Bassett RL, Castillo JJ, Beltran BE, de Boer JP, Chakhachiro Z, Ye D, Clark D, Young KH and Medeiros LJ (2014). "Breast implant-associated anaplastic large-cell lymphoma: Long-term follow-up of 60 patients." *Journal of Clinical Oncology* 32(2): 114-120.

[Request Form](#)

Department of Pathology

Purpose Breast implant-associated anaplastic large-cell lymphoma (ALCL) is a recently described clinicopathologic entity that usually presents as an effusion-associated fibrous capsule surrounding an implant. Less frequently, it presents as a mass. The natural history of this disease and long-term outcomes are unknown. **Patients and Methods** We reviewed the literature for all published cases of breast implant-associated ALCL from 1997 to December 2012 and contacted corresponding authors to update clinical follow-up. **Results** The median overall survival (OS) for 60 patients was 12 years (median follow-up, 2 years; range, 0-14 years). Capsulectomy and implant removal was performed on 56 of 60 patients (93%). Therapeutic data were available for 55 patients: 39 patients (78%) received systemic chemotherapy, and of the 16 patients (28%) who did not receive chemotherapy, 12 patients opted for watchful waiting and four patients received radiation therapy alone. Thirty-nine (93%) of 42 patients with disease confined by the fibrous capsule achieved complete remission, compared with complete remission in 13 (72%) of 18 patients with a tumor mass. Patients with a breast mass had worse OS and progression-free survival (PFS; $P = .052$ and $P = .03$, respectively). The OS or PFS were similar between patients who received and did not receive chemotherapy ($P = .44$ and $P = .28$, respectively). **Conclusion** Most patients with breast implant-associated ALCL who had disease confined within the fibrous capsule achieved complete remission. Proper management for these patients may be limited to capsulectomy and implant removal. Patients who present with a mass have a more aggressive clinical course that may be fatal, justifying cytotoxic chemotherapy in addition to removal of implants.

Mogrovejo E, Manickam P, **Amin M** and **Cappell MS** (2014). "Characterization of the syndrome of acute liver failure caused by metastases from breast carcinoma." *Digestive Diseases and Sciences* 59(4): 724-736.

[Full-Text](#)

Department of Pathology

Department of Internal Medicine

Aim: To characterize syndrome of acute liver failure (ALF) from metastatic breast cancer to promote premortem diagnosis. Up to now, only 25 % of the reported 32 cases of this syndrome were diagnosed premortem. **Methods:** Cases identified by computerized literature review and review of files maintained by senior investigator. **Results:** Among 32 cases, average age at presentation was 47.9 ± 9.9 years. Common signs include jaundice, hepatomegaly, shifting dullness, and bilateral leg edema. Mean serum level of AST was 296.4 ± 204.0 U/L, ALT, 183.2 ± 198.9 U/L; alkaline phosphatase, 641.5 ± 610.1 ; and total bilirubin, 8.6 ± 8.3 mg/dL. Twenty-seven patients (84 %) have known prior breast cancer (mean diagnosis = $4.1 + 4.8$ years earlier). Abdominal ultrasound findings ($N = 10$) include hepatomegaly in three cases, heterogeneous/multifocal hepatic lesions in three, ascites in three, and other in two. Abdominal CT findings ($N = 16$) include heterogeneous/multifocal hepatic lesions in six cases, ascites in five, hepatomegaly in three, cirrhosis in three, fatty liver in two, other in two. Hepatic metastases may not be suspected when abdominal CT shows no hepatic lesions. The diagnosis is made postmortem in 24 cases and antemortem in eight, with a statistically significant trend of increasing premortem diagnosis since 2000 (0 % before 2000 vs. 50 % after 2000; $p = .001$, 95 %-ORCI ≥ 2.86 , Fisher's exact test). A new case of ALF from breast cancer is reported with notable features: abdominal CT revealed no discrete hepatic lesions despite widespread hepatic metastases demonstrated by liver biopsy; hepatic metastases occurred 21 years after original breast primary; and original diagnosis of lobular breast cancer in primary lesion was corrected to mixed ductal and lobular carcinoma, based on immunohistochemistry, performed 21 years afterward. **Conclusions:** This review characterizes the clinical presentation and natural history of this syndrome to promote liver biopsy for premortem diagnosis and appropriate therapy. © 2013 Springer Science+Business Media.

Morden P, **Sokhandon F, Miller L, Savin M, Kirsch M, Farah M and Silbergleit R** (2014). "The role of saline flush injection rate in displacement of CT-injectable peripherally inserted central catheter tip during power injection of contrast material." [American Journal of Roentgenology](#) 202(1): W13-W18.

[Request Form](#)

Department of Diagnostic Radiology and Molecular Imaging

Department of Internal Medicine

OBJECTIVE. The purpose of this article is to determine the rate and the cause of displacement of CT power-injectable peripherally inserted central catheters (CT-PICCs) during contrast material and saline flush injection and to modify CT-scanning protocols to decrease the frequency of displacement. MATERIALS AND METHODS. In the laboratory setting, in vitro modeling of CT-PICC displacement during power injection was examined while varying the initial rate of injection of the saline flush. In the clinical setting, the CT images of all patients at a large academic hospital for one calendar year who underwent power injection of CT contrast media were reviewed for CT-PICC displacement. A retrospective comparison of the rate of displacement during the 8 months before implementing a protocol with a lower initial rate of saline flush and the rate of displacement for the 4 months after the protocol change was performed. RESULTS. Laboratory modeling showed dramatic movement of the CT-PICC at higher rates of saline flush. This movement was attributed to differences in viscosity between contrast media and saline. The clinical arm of the study found that 8.2% of the 243 examinations performed before implementing the new protocol resulted in displacement, in comparison with 2.2% of the 138 examinations performed afterward. This difference was considered statistically significant ($p = 0.023$). CONCLUSION. Initiation of saline flush at high injection rates correlates with a higher rate of CT-PICC displacement. The use of a slower initial rate of saline flush injection significantly reduces the rate of displacement. © American Roentgen Ray Society.

Msangi G and **Peters KM** (2014). "Neuromodulation: PTNS," In Badlani GH (ed). [Minimally Invasive Therapy for Urinary Incontinence and Pelvic Organ Prolapse](#) New York: Springer. pp: 171-176.

[Full-Text](#)

Department of Urology

Overactive bladder (OAB) is a syndrome characterized by urinary urgency with or without urge incontinence. Patients suffer significantly, affecting multiple areas of their lives and reducing their quality of life. OAB has significant economic impact, with first-line therapies (behavioral modification and anticholinergics) showing poor compliance due to significant side effects, treatment failures, and high costs. Surgical interventions for OAB result in significant perioperative and long-term morbidity. Percutaneous tibial nerve stimulation (PTNS) offers a minimally invasive, nonsurgical and reversible means to treat OAB with minimal side effects. Stimulation of the nerve inhibits bladder activity by depolarizing somatic sacral and lumbar afferents with central nervous system effects. Through prospective double-blind and sham-controlled studies, there is ample data to show efficacy of PTNS on OAB. Patients tolerate the procedure very well, with very minor discomfort and no significant side effects reported thus far. PTNS is a safe, effective, and well-tolerated therapy for OAB. This chapter will focus on the history of PTNS, the concept of neuromodulation, review of the literature supporting the effect of PTNS, patient selection, and technique for administering PTNS.

Nagar S, Ahmed S, Peeples C, Urban N, **Boura J, Thibodeau B, Akervall J, Wilson G, Long G and Czako P** (2014). "Evaluation of genetic biomarkers for distinguishing benign from malignant thyroid neoplasms." [American Journal of Surgery](#) 207(4): 596-601.

[Full-Text](#)

Department of Biomedical Sciences (BHS)

Department of Radiation Oncology

Department of Surgery

Background Fine-needle aspiration (FNA) aids in the diagnosis of thyroid nodules. The expression of previously implicated genes was examined to potentially discriminate between benign and malignant thyroid samples. Methods Patients included for study had cytology demonstrating follicular cells of undetermined significance, atypical cells of undetermined significance, follicular neoplasm, or suspicion of malignancy with one of the following postoperative diagnoses: follicular thyroid adenomas, follicular thyroid carcinomas, or follicular variant of papillary thyroid carcinomas (FV-PTCs). FNA and tumor expression of human telomerase reverse transcriptase (hTERT), high-mobility group A2 (HMGA2), and trefoil factor 3/3-galactoside-binding

lectin (T/G ratio) were analyzed. Results T/G ratios were not significantly different in the malignant and benign groups. HMGA2 was overexpressed in carcinoma states; however, only FV-PTCs were significant (P = .006). Tumor hTERT expression was detected in 25% of follicular thyroid carcinomas, whereas 5% of FV-PTCs and 10% of follicular thyroid adenomas had expression. FNA aspirates showed similar results. Conclusions Although HMGA2 and hTERT showed differential expression, they did not consistently differentiate benign from malignant. Further study based on global gene expression is needed to identify markers that could serve as a diagnostic tool. nullnull 2014 Elsevier Inc. All rights reserved.

Nandyala SV, Marquez-Lara A, **Park DK**, Hassanzadeh H, Sankaranarayanan S, Noureldin M and Singh K (2014). "Incidence, risk factors, and outcomes of postoperative airway management after cervical spine surgery." Spine 39(9): E557-E563.

[Full-Text](#)

Department of Orthopedic Surgery

STUDY DESIGN: Retrospective database analysis. OBJECTIVE: To identify the incidence and risk factors for a prolonged intubation or an unplanned reintubation after cervical spine surgery (CSS). SUMMARY OF BACKGROUND DATA: Patients who undergo CSS occasionally require prolonged mechanical ventilation or an unplanned reintubation for airway support. Despite the potential severity of these complications, there are limited data in the published literature addressing this issue. METHODS: The American College of Surgeons National Surgical Quality Improvement Program database was queried to identify patients who underwent a CSS. Patients who required a prolonged intubation more than 48 hours or an unplanned reintubation after CSS were compared with those without airway compromise. Preoperative patient characteristics, intraoperative variables, hospital length of stay, 30-day complication rates, and mortality were compared between the cohorts. An alpha ≤ 0.001 denoted statistical significance. A multivariate regression model was used to identify independent predictors for a prolonged intubation and an unplanned reintubation. RESULTS: A total of 8648 cervical spine procedures were identified from 2006 to 2011 of which 54 patients (0.62%) required prolonged ventilation and 56 patients (0.64%) underwent a postoperative reintubation. Patients who required postoperative airway management were older and demonstrated a greater comorbidity burden (P < 0.001). In addition, the affected cohorts demonstrated a significantly greater rate of readmissions, reoperations, postoperative complications, and mortality (P < 0.001). Regression analysis identified the independent predictors for prolonged ventilation to include a history of cardiac disease and dialysis along with a low preoperative albumin level (P < 0.05). Similarly, the independent risk factors for a postoperative reintubation included a history of recent weight loss more than 10%, recent operation within 30 days, low preoperative hematocrit, and a high serum creatinine (P < 0.05). CONCLUSION: Postoperative airway management is a rare complication after CSS. A prolonged intubation and an unplanned reintubation carry a greater rate of postoperative complications and mortality. High-risk patients should be identified prior to surgery to mitigate the risk factors for postoperative airway compromise. Level of Evidence: 3.

Norton P, Brubaker L, Nager C, Stoddard A, **Sirls L**, Lemack G, Zyczynski H, Rickey L and Varner RE (2014). "Pelvic organ prolapse in a cohort of women treated for stress urinary incontinence." Journal of Minimally Invasive Gynecology 21(2): S1.

[Request Form](#)

Department of Urology

Objectives: The aim of our study was to observe pelvic organ prolapse (POP) over time, treated and untreated, in a group of highly characterized women being followed subjectively and objectively over 5-7 years following continence surgery. Materials and methods: We measured baseline prolapse symptoms (pelvic floor distress inventory, any POP response of "somewhat," "moderately," or "quite a bit") and anatomic prolapse (POPQ performed by blinded observers) in subjects enrolled in a large multicenter trial of incontinence surgery, and measured these same parameters annually for 5 to 7 years after the index surgery. Additional information was collected annually about subsequent treatment for POP. This analysis focuses on stage 2 prolapse (within 1 cm of the hymenal ring), as there is more uncertainty as to whether these patients should undergo prolapse surgery. All participating sites obtained institutional review board approval for this randomized trial. Results: Five hundred ninety-seven women were randomized to one of two mid-urethral sling procedures in the index trial; concomitant vaginal procedures for POP were allowed at the surgeon's

discretion. Stage 2 POP was present at baseline in 291 of subjects (49%); of these, 246 (85%) involved the anterior wall and 174 (60%) were limited to the anterior wall. Symptoms of POP were reported in 67 (25%) while 223 (75%) were asymptomatic. Of the asymptomatic women, 34/223 (15%) underwent a concomitant POP repair at the time of index sling surgery; most (189/223 [85%]) did not. Prolapse progression in women with asymptomatic, unoperated stage 2 POP over the next 72 months was infrequent and occurred in only 3 of 189 subjects (2%); none underwent surgery for POP. Most symptomatic women (47/67 [70%]) underwent a concomitant repair for POP at the index sling surgery, and 20 (30%) did not. Three of the 47 women who had undergone concomitant repair for symptomatic stage 2 POP underwent repeat POP surgery (two at 36 months and one at 48 months). Conclusion: In this cohort of well characterized women undergoing continence surgery, we found that unoperated stage 2 POP was unlikely to progress over the ensuing 5-7 years and very unlikely to go on to surgery. Similarly, treated stage 2 POP was unlikely to require additional surgery over time. This is in contrast to the advice often given to repair all prolapse defects at the time of surgery, and to studies using national databases (Anger et al 2008) to project that a significant number of women undergoing surgery for continence will require additional POP surgery within 12 months. We conclude that for patient populations similar to the populations in this multicenter trial, surgeons may counsel women with asymptomatic stage 2 POP that their prolapse is unlikely to require surgery in the next 5-7 years.

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

[Full-Text](#)

Department of Internal Medicine

Objectives: To evaluate the periprocedural characteristics and outcomes of patients supported with Impella 2.5 prior to percutaneous coronary intervention (pre-PCI) versus those who received it after PCI (post-PCI) in the setting of cardiogenic shock (CS) complicating an acute myocardial infarction (AMI). Background: Early mechanical circulatory support may improve outcome in the setting of CS complicating an AMI. However, the optimal timing to initiate hemodynamic support has not been well characterized. Methods: Data from 154 consecutive patients who underwent PCI and Impella 2.5 support from 38 US hospitals participating in the USpella Registry were included in our study. The primary end-point was survival to discharge. Secondary end-points included assessment of patients' hemodynamics and in-hospital complications. A multivariate regression model was used to identify independent predictors for mortality. Results: Both groups were comparable except for diabetes (P=0.02), peripheral vascular disease (P=0.008), chronic obstructive pulmonary disease (P=0.05), and prior stroke (P=0.04), all of which were more prevalent in the pre-PCI group. Patients in the pre-PCI group had more lesions (P=0.006) and vessels (P=0.01) treated. These patients had also significantly better survival to discharge compared to patients in the post-PCI group (65.1% vs.40.7%, P=0.003). Survival remained favorable for the pre-PCI group after adjusting for potential confounding variables. Initiation of support prior to PCI with Impella 2.5 was an independent predictor of in-hospital survival (Odds ratio 0.37, 95% confidence interval: 0.17-0.79, P=0.01) in multivariate analysis. The incidence of inhospital complications included in the secondary end-point was similar between the 2 groups. Conclusions: The results of our study suggest that early initiation of hemodynamic support prior to PCI with Impella 2.5 is associated with more complete revascularization and improved survival in the setting of refractory CS complicating an AMI. (*J Interven Cardiol* 2014;27:1-11). nullnull nullnull 2013 The Authors.

Page TP (2014). "Intraoperative aberrometry-assisted toric IOL exchange following unexpected surgically induced astigmatism." *JCRS Online Case Reports* 2(1): e25-e29.

[Full-Text](#)

Department of Ophthalmology

A 74-year-old man with a preoperative manifest refraction of $-3.00 +1.00 \times 25$ had cataract extraction and implantation of a toric intraocular lens (IOL). Although the IOL power was chosen according to the surgical records and accurately aligned on the target axis at the follow-up examination, the incision apparently induced enough surgically induced astigmatism (SIA) to make the cornea spherical. The patient was dissatisfied with the resulting flipped axis and 20/60 uncorrected acuity. Intraoperative aberrometry confirmed that the cornea was now spherical. An IOL exchange was performed with placement of a 22.0

diopter nontoric IOL. The second surgery was complicated by early capsule phimosis. Because it can measure true aphakic corneal astigmatism intraoperatively, intraoperative aberrometry can be useful in preventing IOL exchanges due to anomalous SIA. The author has no financial or proprietary interest in any material or method mentioned.

Parasuraman R, Wolforth SC, **Wiesend WN, Dumler F, Rooney MT, Li W and Zhang PL** (2014). "Contribution of polyclonal free light chain deposition to tubular injury." *American Journal of Nephrology* 38(6): 465-474.

[Request Form](#)

Department of Pathology

Department of Internal Medicine

Introduction: Excretion of monoclonal free light chains (MFLC) beyond the renal threshold can cause kidney injury, but evidence for polyclonal free light chains (PFLC)-mediated injury is limited. We aimed to study the degree of PFLC deposition in the proximal tubules of chronic kidney disease (CKD) and hypothesized that excess deposition may contribute to tubular injury. Methods: In this retrospective study, immunohistochemical staining to assess the degree of FLC deposition, periodic acid-Schiff staining for the degree of tubular brush border injury and trichrome staining for interstitial fibrosis were evaluated. Normal renal parenchyma from tumor nephrectomy specimens (control group I, n = 39), minimal change disease controls (group II, n = 13), renal biopsies from CKD and proteinuria (polyclonal study group III, n = 33) and monoclonal light chain nephropathy (group IV, n = 37) were studied. The results of the study including serum creatinine were compared between groups. Results: Both polyclonal and monoclonal groups (groups III and IV) had significantly higher light chain deposition and brush border injury by periodic acid-Schiff scores compared to control groups (groups I and II). When the first three polyclonal groups (groups I-III) were analyzed together, polyclonal light chain deposition was significantly correlated with serum creatinine levels, brush border injury and interstitial fibrosis. Conclusion: The results of our study suggest that in CKD patients with proteinuria, excess PFLC deposition in the proximal tubules may cause acute tubular injury akin to monoclonal gammopathy and lead to renal chronicity. © 2013 S. Karger AG, Basel.

Parkin-Joseph CA, **Akay B**, Shanti C and Angelilli M (2014). "Failure to thrive in burns suspicious for child abuse." *Journal of Burn Care and Research* 35: S123.

[Full-Text](#)

Department of Surgery

Introduction: Many risk factors for burns due to child abuse have been previously identified. Failure to thrive has not previously been reported as a risk factor for abusive burns. This study determines whether more abusive burns occur in smaller children when compared to children of average size. Methods: A chart review was undertaken and studied variables included age, gender, type of insurance, weight, height, weight-for-height, and growth trend. Cases reported to Child Protective Services (CPS) served as a proxy for abusive burns. Failure to thrive was defined as weight or weight-for-height < 5th %ile or patients who had fallen by 2 major percentile lines on the weight growth curve. Insurance type was used as a proxy for socioeconomic status. Statistical analysis was performed using Chi-squared test and logistic regression. Results: Data from 387 burn patients were analyzed. Median age is 28 months and ranges from 1 to 211 months. Fifty-eight % are African-American, 23.8% white, 10.3% Arabic, and 13% Hispanic. Seventy-two % have Medicaid and 21% have commercial insurance. Although there was no difference in rate of failure to thrive by insurance type, there were significantly more CPS referrals from the Medicaid group. There was no significant difference in the percentages of CPS referral between race/ethnic groups when corrected for poverty. There was a significant increase in the percentage of CPS referrals in the group with weight < 5th %ile (p=0.025). There was not a significant difference in the groups with weight-for-length < 5th %ile (p=0.329) or falling off the weight growth curve (p=0.369). Conclusions: This study indicated that smaller children are more likely to have burns suspicious for abuse. This observation is only true for low weight, and not for other criteria for failure to thrive. It is known that prematurity makes a child more vulnerable to abuse. In our study group, the age at the time of burn was rarely less than one year (56 (14.5%)), and these patients should have had significant catch up growth by the age the burn was sustained. There is also a possibility that the children who sustain abusive burns may also be experiencing neglect and, therefore, are smaller.

Pe'er J and **Folberg R** (2014). "Conjunctival and corneal tumors: Melanoma," In Pe'er J and Singh AD (ed). [Clinical Ophthalmic Oncology](#). New York: Springer. pp: 185-194.

[Full-Text](#)

Administration

Conjunctival nevi, conjunctival primary acquired melanosis (PAM), and conjunctival melanomas all arise from melanocytes that migrate from the neural crest to reside in the conjunctival epithelium. Conjunctival melanoma may arise de novo or from preexisting conjunctival nevus or PAM. In the medical literature, conjunctival melanoma is sometimes labeled together with uveal melanoma as "ocular melanoma." The clinical behavior, molecular biology, and the histopathologic features of conjunctival and uveal melanoma are clearly different; therefore, conjunctival melanoma should be approached as an entity separate from uveal melanoma.

Pe'er J and **Folberg R** (2014). "Eyelid tumors: Cutaneous melanoma," In Pe'er J and Singh AD (ed). [Clinical Ophthalmic Oncology](#). Springer Berlin Heidelberg. pp: 63-68.

[Full-Text](#)

Administration

Cutaneous melanoma of the eyelid is a rare tumor, representing fewer than 1 % of all malignant neoplasms of the eyelid skin [1], 1 % of all skin melanomas [2], and 7 % of cutaneous malignant melanomas of the head and neck region [3]. Many primary melanomas of the eyelid involve the mucosal surfaces of the palpebral and bulbar conjunctiva, and in these cases, one must manage not only the eyelid but also the conjunctival component of the lesion. One may argue reasonably that primary conjunctival melanomas may affect the eyelid secondarily.

Perez-Cruet MJ, Hussain NS, White GZ, Begun EM, Collins RA, **Fahim DK**, Hiremath GK, Adbi FM and Yacob SA (2014). "Quality-of-life outcomes with minimally invasive transforaminal lumbar interbody fusion based on long-term analysis of 304 consecutive patients." [Spine](#) 39(3): E191-E198.

[Full-Text](#)

Department of Neurosurgery

STUDY DESIGN.: This was a prospective clinical study that took place in an outpatient spine clinic. OBJECTIVE.: To demonstrate the short-/long-term outcomes from a large cohort of patients undergoing minimally invasive transforaminal lumbar interbody fusion (MITLIF). SUMMARY OF BACKGROUND DATA.: Long-term prospective outcomes in patients undergoing minimally invasive spinal fusion for debilitating back pain has not been well studied. METHODS.: Presenting diagnosis was determined from clinical findings and radiographical (radiograph, magnetic resonance image, computed tomographic scan) evaluations preoperatively. Patients were assessed with outcome measures preoperatively, and postoperatively at 2 weeks, 3 months, 6 months, 12 months, 24 months, and annually 2 to 7 years (mean follow-up: 47 mo) final follow-up. The rate of postoperative complications and reoperations at the initial level of MITLIF and adjacent level(s) were followed. Fusion rates were assessed blinded and independently by radiograph. RESULTS.: Visual analogue scale scores decreased significantly from 7.0 preoperatively to 3.5 at mean 47-month follow-up. Oswestry Disability Index scores declined from 43.1 preoperatively to 28.2 at mean 47-month follow-up. Short-Form 36 mental component scores increased from 43.8 preoperatively to 49.7 at 47-month follow-up. Short-Form 36 physical component scores increased from 30.6 preoperatively to 39.6 at 47-month follow-up (P < 0.05). CONCLUSION.: This prospectively collected outcomes study shows long-term statistically significant clinical outcomes improvement after MITLIF in patients with clinically symptomatic spondylolisthesis and degenerative disc disease with or without stenosis. MITLIF resulted in a high rate of spinal fusion and very low rate of interbody fusion failure and/or adjacent segment disease requiring reoperation while reducing postoperative complications. Level of Evidence: © 2014 Lippincott Williams and Wilkins.

Peters KM, Dmochowski RR, Carr LK, Robert M, Kaufman MR, **Sirls LT**, Herschorn S, Birch C, Kultgen PL and **Chancellor MB** (2014). "Autologous muscle derived cells for treatment of stress urinary incontinence in women." [Journal of Urology](#). ePub Ahead of Print.

[Request Form](#)

Department of Urology

PURPOSE: To assess 12-month safety and potential efficacy of Autologous Muscle Derived Cells for Urinary Sphincter Repair (AMDC-USR; Cook MyoSite, Incorporated, Pittsburgh, PA) in women with stress urinary incontinence (SUI). **MATERIALS AND METHODS:** Pooled data from 2 phase I/II studies with identical patient selection criteria and outcome measures were analyzed. Enrolled patients had SUI refractory to prior treatment and no symptom improvement over the past 6 months. Patients received intrasphincteric injection of 10 (n=16), 50 (n=16), 100 (n=24), or 200 x 10⁶ (n=24) AMDC-USR, derived from biopsies of each patient's quadriceps femoris. The primary outcome measure was safety, determined by incidence and severity of adverse events. Potential efficacy was measured by changes in 3-day voiding diaries, 24-hour pad tests, and UDI-6 and IIQ-7 scores. **RESULTS:** A total of 80 patients underwent AMDC-USR injection; 72 patients completed diaries and pad tests at 12-month follow-up. No adverse events attributed to AMDC-USR product were reported. Higher dose groups tended to have greater percentages of patients with at least 50% reduction in stress leaks and pad weight at 12-month follow-up. All dose groups had statistically significant improvement in UDI-6 and IIQ-7 scores at 12-month follow-up compared to baseline. **CONCLUSIONS:** AMDC-USR at doses of 10, 50, 100, and 200 x 10⁶ cells appears safe. Efficacy data suggest a potential dose response with a greater percentage of patients responsive to higher doses.

Peters KM, Killinger KA, **Boura JA**, **Gillera J** and Bartley J (2014). "Pudendal vs sacral neuro modulation for urinary retention." *Neurourology and Urodynamics* 33(2): 250.

[Full-Text](#)

Department of Urology

Department of Biomedical Sciences (BHS)

Introduction and Objectives: Although sacral neuromodulation improves idiopathic retention, outcomes after stimulating the sacral roots via pudendal afferent pathways are unclear. We compared pudendal vs. sacral neuromodulation in patients with urinary retention. **Methods:** Adults in our prospective observational neuromodulation study were evaluated. Inclusion criteria were primary or secondary urinary retention and staged lead and generator implant. Catheter use, voids/day and voided volume were evaluated with diaries between stages and at three, six, 12 and 24 months. Symptoms were also assessed with validated Interstitial Cystitis Symptom/Problem Indices (ICSI-PI) and Global Response Assessments (GRA). Data were examined with Pearson's Chi-square, Fisher's Exact and Wilcoxon rank tests, and repeated measures analyses. **Results:** Of 45 patients (80% female), 15 (33.3%) had a pudendal and 30 (66.7%) had a sacral lead placed. Demographics were similar between groups; 10/15 (66.7%) pudendal patients had previously failed sacral stimulation. Almost all in both pudendal and sacral groups reported prior intermittent and/or indwelling catheter use (14/15 and 35/45; p=0.13); the proportions still catheterizing at each follow up were similar between groups. Average voids/day and voided volume did not change significantly over 24 months but groups' scores were comparable at each time point except for between stages where voids/day were lower in pudendal vs. sacral patients (6.2(plus or minus)3.6 vs. 8.7(plus or minus)3.0; p=0.039). On the GRA, although the number of patients were small at each follow up, similar proportions reported moderate/marked improvement in bladder symptoms, except at 12 months where 2/7 (28.6%) of pudendal and 13/16 (81.3%) of sacral reported this level of improvement (p=0.026). Composite ICSI-PI scores were also comparable between groups at each time point except for at 12 months where scores were significantly worse in the pudendal group (19.4(plus or minus)8.0 vs. 9.7(plus or minus)6.2; p=0.015). Over time, both pudendal and sacral groups had significant improvements in ICSI-PI composite scores (p=0.0326 and p<0.0001, respectively) and at each time point the majority in each group indicated satisfaction with treatment. **Conclusions:** Even after prior sacral failure, patients with urinary retention may benefit from pudendal lead placement. More study of the impact of pudendal vs. sacral stimulation on urinary retention in larger samples is needed.

Peters KM, Killinger KA, **Boura JA**, **Gillera J** and Bartley J (2014). "Pudendal vs sacral neuro modulation for pelvic pain." *Neurourology and Urodynamics* 33(2): 249-250.

[Full-Text](#)

Department of Urology

Department of Biomedical Sciences (BHS)

Introduction and Objectives: Chronic pelvic pain (CPP) can improve after sacral neuromodulation, but lead implant at the pudendal nerve may be more effective because of increased afferent stimulation. We

evaluated CPP/voiding in patients implanted with a pudendal vs. sacral lead for chronic neuromodulation. Methods: Adults in our prospective observational neuromodulation study were evaluated. Inclusion criteria were pre-implant CPP (greater-than or equal to) 4 (0-10; none to severe) on visual analog scale (VAS) and successful staged lead and generator implant. Post-implant, VAS pain scores were reported at three, six, 12 and 24 months. Changes in voiding were measured with Validated Interstitial Cystitis Symptom/ProblemIndices (ICSI- PI). Global Response Assessment (GRA) evaluated overall bladder symptoms. Data were examined with Pearson's Chi- square, Fisher's Exact and Wilcoxon rank tests, and repeated measures analyses. Results: Of 82 patients (90%female), 22 (26.8%) had a pudendal and 60 (73.2%) had a sacral lead placed. Demographics were similar between groups; 14 (64%) pudendal patients had previously failed sacral stimulation. A higher proportion of pudendal had primary diagnosis of CPP (18.2% vs. 5.1%; $p=0.022$) and a lower proportion had urge urinary incontinence (9.1% vs. 30.5%; $p=0.024$). In the pudendal/sacral groups respectively, baseline VAS scores were 7.3(plus or minus)1.9 and 6.8(plus or minus)1.8 ($p=0.31$). In those providing three month data, a significantly higher proportion of pudendal patients still reported pain (19/20 vs. 32/48; $p=0.014$) and VAS scores were also significantly higher (6.0 vs. 3.3; $p=0.004$). However, VAS scores did not differ between pudendal/sacral groups at any other time point and improved significantly over time in both ($p=0.003$ and <0.0001 , respectively). ICSI-PI scores did not differ between groups at any time point and both also improved over time ($p<0.0001$ for both). On the GRA, a lower proportion of pudendal patients reported moderately/markedly improved bladder symptoms at six months (6/15 vs. 31/ 43; $p=0.026$) but no significant differences were seen between groups at any other measured time point. Conclusions: The majority of pudendal patients were refractory to sacral stimulation and had pain as their primary diagnosis. Although initially pain improved to a lesser degree in the pudendal group, both groups improved over time suggesting that pudendal neuromodulation may be effective for pelvic pain in the refractory patient.

Petruska JC, Barker DF, Garraway SM, Trainer R, Fransen JW, Seidman PA, **Soto RG**, Mendell LM and Johnson RD (2014). "Organization of sensory input to the nociceptive-specific cutaneous trunk muscle reflex in rat, an effective experimental system for examining nociception and plasticity." *Journal of Comparative Neurology* 522(5): 1048-1071. [Full-Text](#)

Department of Anesthesiology

Detailed characterization of neural circuitries furthers our understanding of how nervous systems perform specific functions and allows the use of those systems to test hypotheses. We have characterized the sensory input to the cutaneous trunk muscle (CTM; also cutaneus trunci [rat] or cutaneus maximus [mouse]) reflex (CTMR), which manifests as a puckering of the dorsal thoracolumbar skin and is selectively driven by noxious stimuli. CTM electromyography and neurogram recordings in naive rats revealed that CTMR responses were elicited by natural stimuli and electrical stimulation of all segments from C4 to L6, a much greater extent of segmental drive to the CTMR than previously described. Stimulation of some subcutaneous paraspinal tissue can also elicit this reflex. Using a selective neurotoxin, we also demonstrate differential drive of the CTMR by *trkA*-expressing and nonexpressing small-diameter afferents. These observations highlight aspects of the organization of the CTMR system that make it attractive for studies of nociception and anesthesiology and plasticity of primary afferents, motoneurons, and the propriospinal system. We use the CTMR system to demonstrate qualitatively and quantitatively that experimental pharmacological treatments can be compared with controls applied either to the contralateral side or to another segment, with the remaining segments providing controls for systemic or other treatment effects. These data indicate the potential for using the CTMR system as both an invasive and a noninvasive quantitative assessment tool providing improved statistical power and reduced animal use. (copyright) 2013 Wiley Periodicals, Inc.

Pifer MA, **Maerz T**, **Baker KC** and **Anderson K** (2014). "Matrix metalloproteinase content and activity in low-platelet, low-leukocyte and high-platelet, high-leukocyte platelet rich plasma (PRP) and the biologic response to PRP by human ligament fibroblasts." *American Journal of Sports Medicine*. ePub Ahead of Print.

[Full-Text](#)

Department of Surgery

Department of Orthopedic Surgery

BACKGROUND:Recent work has shown the presence of catabolic cytokines in platelet-rich plasma (PRP), but little is known about endogenous catabolic proteases such as matrix metalloproteinases (MMPs).Hypothesis/

PURPOSE:To quantify MMP content in 2 commercially available PRP preparation systems: Arthrex Double Syringe System autologous conditioned plasma (ACP) and Biomet GPS (GPS). The hypothesis was that MMPs are actively secreted from PRP immediately after preparation. **STUDY DESIGN:**Controlled laboratory study. **METHODS:**PRP was prepared using either ACP (low platelet, low leukocyte) or GPS (high platelet, high leukocyte). MMP-2, MMP-3, and MMP-9 concentrations were measured using multiplex enzyme-linked immunosorbent assays for up to 6 days in 2 donors, and MMP activity was measured in 3 donors using kinetic activity kits able to detect the enzymatic cleavage of a fluorogenic peptide. Human ligament fibroblasts were cultured and exposed to both ACP and GPS from 1 donor each. MMP-2, -3, and -9 concentrations were assayed in culture media at 24 and 48 hours after exposure. **RESULTS:**GPS exhibited higher total MMP-2, -3, and -9 concentrations for up to 144 hours of release, while ACP had higher platelet-normalized MMP-2 and MMP-3 concentrations. GPS had significantly higher total and endogenous MMP-2 activity ($P = .004$ and $.014$, respectively), MMP-3 activity ($P = .020$ and $.015$, respectively), and MMP-9 activity ($P = .004$ and $.002$, respectively) compared with ACP. Once normalized to platelet count, differences in MMP activity were not significant between ACP and GPS. Compared with controls, cells stimulated with interleukin-1 beta (IL-1beta) and treated with ACP showed significantly higher fold changes of MMP-2 ($P = .001$) and MMP-3 ($P = .003$) concentrations at 24 hours than did cells treated with GPS. Total MMP-9 content was higher in the media of GPS-treated, IL-1beta-stimulated cells compared with ACP-treated cells ($P = .001$). At 48 hours, IL-1beta-stimulated cells treated with GPS exhibited higher fold changes of MMP-2 concentration ($P = .002$) compared with controls, but no difference in MMP-3 concentration was found. At 48 hours, there was a significantly higher concentration of MMP-9 in the cell culture media of ACP-treated cells compared with GPS-treated cells ($P = .003$). **CONCLUSION:**PRP prepared as both ACP and GPS contains MMP-2, -3, and -9, which is released over a period of at least 6 days. Furthermore, a large proportion of these MMPs are in their active form, and MMP activity is dependent on platelet count within the PRP preparation. Once exposed to ligament fibroblasts, both ACP and GPS cause the fibroblasts to release MMPs, most notably 24 hours after PRP exposure, and this release is dependent on prior IL-1beta stimulation. **CLINICAL RELEVANCE:**The results of this study demonstrate that PRP therapy delivers ng/mL-range concentrations of catabolic proteases, which could perpetuate inflammation and inhibit tissue healing.

Pokan R, Ocenasek H, Hochgatterer R, Miehl M, Vonbank K, Von Duvillard SP, **Franklin B**, Würth S, Volf I, Wonisch M and Hofmann P (2014). "Myocardial dimensions and hemodynamics during 24-h ultraendurance ergometry." *Medicine and Science in Sports and Exercise* 46(2): 268-275.

[Full-Text](#)

Department of Internal Medicine

Purpose: This study aimed to evaluate cardiorespiratory and hemodynamic responses during 24 h of continuous cycle ergometry in ultraendurance athletes. **Methods:** Eight males (mean \pm SD; age = 39 ± 8 yr, height = 179 ± 7 cm, body weight [Wt] = 77.1 ± 6.0 kg) were monitored during 24 h at a constant workload, ~25% below the first lactate turn point at 162 ± 23 W. Measurements included Wt, HR, oxygen consumption (VO_2), cardiac output (Q), and stroke volume (SV) determined by a noninvasive rebreathing technique (InnocorTM; Innovision, Odense, Denmark). Myocardial dimensions were evaluated using a two-dimensional echocardiogram. [M-mode measurement]-left atrial (LAD), ventricular enddiastolic (LVEDD), and end-systolic diameters (LVESD) were obtained over the left parasternal area. Venous blood samples were analyzed for hematocrit (Hct%), albumin (g/L), aldosterone (pg/mL), CK, CK-MB (U/L), and N-terminal pro-brain natriuretic peptide (NT-proBNP) (pg/mL). **Results:** HR (bpm) significantly increased ($P < 0.01$) from 1 h (132 ± 11) to 6 h (143 ± 10) and significantly decreased ($P < 0.001$) from 6 to 24 h (116 ± 10). VO_2 and Q were unchanged during the 24 h. Wt (76.6 ± 5.6 vs 78.7 ± 5.4), SV (117 ± 13 vs 148 ± 19), LVEDD (4.9 ± 0.3 vs 5.6 ± 0.2), and LAD (3.6 ± 0.5 vs 4.3 ± 0.7) significantly increased between 6 and 24 h ($P < 0.001$). No significant changes were observed for LVESD. Hct (45.1 ± 1.3 vs 41.3 ± 1.2) significantly decreased ($P < 0.05$) and CK ($181 \pm 60/877 \pm 515$), aldosterone (48 ± 17 vs 661 ± 172), and NT-proBNP (23 ± 13 vs 583 ± 449) significantly increased ($P < 0.05$). The increase in SV (Δ SV) was significantly related to changes in Wt (Δ Wt), and HR (Δ HR) and Δ Wt were significantly related to Δ LAD and Δ LVEDD. **Conclusion:** Our findings suggest that the decrease in HR during 24 h of ultraendurance exercise was due to hypervolemia and the associated ventricular loading, increasing left ventricular diastolic dimensions because of increased SV and LVEDD, resulting in an increase in NT-proBNP. Copyright © 2013 by the American College of Sports Medicine.

Pu J, Mintz GS, Biro S, Lee JB, Sum ST, Madden SP, Burke AP, **Zhang P**, He B, **Goldstein JA**, Stone GW, Muller JE, Virmani R and Maehara A (2014). "Insights into echo-attenuated plaques, echolucent plaques, and plaques with spotty calcification: Novel findings from comparisons among intravascular ultrasound, near-infrared spectroscopy, and pathological histology in 2294 human coronary artery segments." Journal of the American College of Cardiology. ePub Ahead of Print.

[Full-Text](#)

Department of Pathology

Department of Internal Medicine

OBJECTIVES: Three intravascular ultrasound (IVUS) signatures have been associated with coronary artery disease instability: echo-attenuation, intraplaque echolucent zone, and spotty calcification. We sought to investigate the substrates responsible for these IVUS signatures in a relatively large series of postmortem human coronary samples. **BACKGROUND:** The exact mechanisms and pathologic correlates underlying echo-attenuation, an intraplaque echolucent zone, and spotty calcification remain poorly understood. **METHODS:** IVUS was compared to near-infrared spectroscopy (NIRS) detection of lipid core plaque (LCP) and histopathology in 2294 vessel segments from 151 coronary specimens from 62 patients at necropsy using the modified American Heart Association classification. **RESULTS:** IVUS detected echo-attenuated plaques in 18.3% segments, echolucent plaques in 10.5% segments, and spotty calcification in 14.4% segments. Histopathologically, 91.4% echo-attenuated plaques corresponded to either a fibroatheroma with a necrotic core or pathologic intimal thickening with a lipid pool; almost all segments with superficial echo-attenuation indicated the presence of a fibroatheroma with an advanced necrotic core. Echolucent plaques indicated the presence of a relatively smaller lipid/necrotic core compared to echo-attenuated plaques (thickness: 0.51 [interquartile range (IQR): 0.35-0.64] vs. 0.70 [IQR: 0.54-0.92] mm, $p < 0.001$; arc: 74.5 degrees [IQR: 59.0 degrees -101.0 degrees] vs. 90 degrees [IQR: 70.0 degrees -112.0 degrees], $p < 0.001$), although 82.8% of superficial echolucent zones indicated a necrotic core-containing fibroatheroma. IVUS spotty calcification, especially superficial in location (72.6%), was often associated with a fibroatheroma with calcium deposits and had smaller arcs of calcium in the setting of fibroatheroma versus fibrocalcific plaques (37.5 degrees [IQR, 23.0 degrees -53.0 degrees] vs. 59.0 degrees [IQR, 46.0 degrees -69.0 degrees], $p < 0.001$). Comparisons between IVUS and NIRS revealed that echo-attenuated plaques contained the highest probability of NIRS-derived LCP followed by echolucent plaques and spotty calcifications. **CONCLUSIONS:** This study demonstrated that echo-attenuated plaque, especially superficial echo-attenuation, was the most reliable IVUS signature for identifying a high-risk plaque, ie, a fibroatheroma containing a large necrotic core.

Rajaganapathy BR, Jayabalan N, **Tyagi P**, Kaufman J and **Chancellor MB** (2014). "Advances in therapeutic development for radiation cystitis." LUTS: Lower Urinary Tract Symptoms 6(1): 1-10.

[Full-Text](#)

Department of Urology

Radiation treatment for pelvic malignancies is typically associated with radiation injury to urinary bladder that can ultimately lead to radiation cystitis (RC). The late sequelae of radiation therapy may take many years to develop and include bothersome storage symptoms such as hematuria, which may be life-threatening in severe cases of hemorrhagic cystitis. Although no definitive treatment is currently available, various interventions are used for radiation and hemorrhagic cystitis including blood transfusion, bladder irrigation, intravesical instillation of substances such as alum, silver nitrate, prostaglandins or formalin, and fulguration of intravesical bleeding sites and surgery options such as suprapubic urinary diversions and cystectomy. Effects of non-surgical treatments for radiation and hemorrhagic cystitis are of modest success and studies are lacking to control the effects caused by RC. When such measures have proven ineffective, use of bladder botulinum toxin injection has been reported. New therapy, such as intravesical immunosuppression with local tacrolimus formulation is being developed for the treatment of radiation hemorrhagic cystitis. © 2013 Wiley Publishing Asia Pty Ltd.

Riaz N, Baschnagel A, Adkins D, Rao S, **Huang J**, **Chen P**, Ley J, **Krauss D**, Thorstad W and Lee N (2014). "Multi-institution analysis of concurrent chemoradiation therapy with cisplatin (CDDP) versus cetuximab (C225) in locally advanced squamous cell carcinoma of the head and neck (LAHNSCC): Can HPV help decide which agent?" International Journal of Radiation Oncology Biology Physics 88(2): 472.

[Full-Text](#)

Department of Pathology

Department of Radiation Oncology

Purpose/Objective(s): Multiple institutions have reported that patients with LA-HNSCC treated with concurrent C225-based radiation therapy (RT) have worse outcomes than those treated with concurrent CDDP. HPV's influence on the treatment efficacy of these two agents is unclear. In the metastatic setting, HPV- patients treated with Panitumumab had improved overall survival (OS), while no difference was found in HPV+ patients. We sought to investigate whether the previously reported differences in outcomes in LA-HNSCC between C225 and CDDP were influenced by HPV Status. Materials/Methods: We reviewed 147 consecutive patients with LAHNSCC treated with definitive chemo-RT at one of our 3 institutions with known HPV status. Patients with NPC, oral cavity cancer, or distant metastasis at presentation were excluded. Further, patients who received induction or additional concurrent chemotherapy were excluded. At MSKCC, HPV Status was determined by p16 or HPV ISH; at Beaumont by PCR or p16; and at Washington Univ. by p16 or non-keratinizing histology. Smoking status was divided by those with a 10+ pack-yr history vs those without. Actuarial curves were created and multi-variate Analysis (MVA) was performed with a Cox-regression model. Results: Median follow up in surviving patients was 43 months. 92 (63%) patients were treated with CDDP and 55 (37%) with C225. T-stage, Nstage, smoking, and alcohol consumption were well balanced between the two groups. There were more patients greater than 70 yrs of age in the C225 group (22% vs 6%, $p < 0.001$) and more HPV- patients (44% vs 25%, $p=0.03$). The 2-year cumulative incidence of loco-regional failure (LRF) was significantly higher with C225 compared to CDDP (41.9% vs 12.6%, $p < 0.001$). Subgroup analysis of patients by HPV status revealed increased 2-yr LRF with C225 in HPV+ patients (33.6% vs 10.4%, $p = 0.02$) and in HPV- patients (52.6% vs 20.3%, $p=0.02$). MVA of LRF adjusting for HPV, T Stage, and N Stage continued to show improved outcomes with CDDP (HR=0.26, $p =0.002$). The 2-year DFS was also significantly worse with C225 compared to CDDP (38.6% vs 82.6%, $p < 0.001$). Subgroup analysis by HPV revealed worse 2-yr DFS with C225 in HPV+ (46.4% vs 84.8%, $p < 0.001$) and HPV- patients (29.2 vs 74.9%, $p < 0.001$). MVA of DFS adjusting for HPV, Age, T stage, N Stage, and smoking demonstrated improved DFS with CDDP (HR = 0.31, $p < 0.001$). Results for OS were similar. Conclusions: Loco-regional control and DFS are significantly improved with concurrent cisplatin as compared to cetuximab in definitive RT for HNSCC. Both HPV+ and HPV- patients benefit from CDDP-based concurrent therapy in LA-HNSCC.

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

[Full-Text](#)

Department of Surgery

Department of Orthopedic Surgery

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

Rovner E, **Chancellor M**, Corbell C, Ni Q, Globe D and Chartier-Kastler E (2014). "Patients with neurogenic detrusor overactivity treated with onabotulinumtoxinA achieve their treatment goals." *Neurourology and Urodynamics* 33(2): 177-178.

[Full-Text](#)

Department of Urology

Introduction and Objectives: Patient-reported goals for treatment of urinary incontinence (UI) due to neurogenic detrusor overactivity (NDO) are not well documented. The objectives of our analysis were to identify the treatment goals of patients (pts) with UI due to NDO and determine whether pts achieved their goals following onabotulinumtoxinA (onabotA) treatment. Methods: Data from two phase 3,

placebo-controlled, doubleblind, randomized studies were pooled for analysis of treatment goals (at study baseline), and to determine the proportions of pts who achieved their goals 6 weeks after treatment with onabotA 200U. Eligible pts had NDO ((greater-than or equal to)14UI episodes/wk) due to multiple sclerosis (MS) or spinal cord injury (SCI) and were not adequately managed by anticholinergics. Our study population consisted of all pts who received onabotA 200U at study entry. At study entry, pts were asked to list their top 1 or 2 primary goals for treatment of their overactive bladder. Qualitative responses were then grouped into symptom-and quality of life-related categories. Six weeks after onabotA treatment, pts were asked to rate how effectively onabotA helped them achieve their stated goals (pt response of significant progress toward or complete achievement of goals). We analyzed the frequency distribution of goals at study entry and the percent of pts who achieved their goals stratified by neurological disease. Results: Of the study population (N=221), 128 (57.9%) were MS pts and 93 (42.1%) were SCI pts. A total of 219 pts (99.1% of study population) enumerated their treatment goals at baseline. Most common treatment goals were null to be dry null (37.0% of pts), null to reduce UI therapies null (19.6%) and null to improve bladder control null (15.1%). Overall, 60.7% of pts achieved at least 1 of their treatment goals 6 weeks after onabotA 200U treatment; 50.6% achieved their goal of being dry, 44.2% achieved their goal of reducing UI therapies and 66.7% achieved their goal of improved bladder control. There were no major differences in the overall percent of pts who achieved at least one of their treatment goals by neurological disease (62.7% for MS vs 58.1% for SCI). Conclusion: A majority of pts with UI due to NDO achieved their goals following onabotA 200U treatment. Identification of individual treatment goals may allow clinicians to more effectively evaluate therapy, inform patient treatment decision making, and enhance patient satisfaction and treatment benefit.

Sabo D, Jahr J, Pavlin J, Philip B, Shimode N, Rowe E, Woo T and **Soto R** (2014). "The increases in potassium concentrations are greater with succinylcholine than with rocuronium-sugammadex in outpatient surgery: a randomized, multicentre trial." Canadian Journal of Anesthesia/Journal Canadien d'Anesthésie. ePub Ahead of Print.
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Department of Anesthesiology

Background Succinylcholine provides rapid onset of neuromuscular blockade and short duration of action, but its administration may be associated with hyperkalemia. Rocuronium is not known to increase potassium concentration, has fast onset of activity, and can be rapidly reversed by sugammadex. This study evaluated changes in plasma potassium concentrations in patients randomized either to rocuronium followed by sugammadex reversal or to succinylcholine in ambulatory surgery. Methods In this multicentre randomized active-controlled study, adult patients undergoing short surgical procedures in an outpatient setting received either rocuronium 0.6 mg(middle dot)kg⁻¹ for intubation with sugammadex 4.0 mg(middle dot)kg⁻¹ for reversal (n = 70) or succinylcholine 1.0 mg(middle dot)kg⁻¹ with spontaneous recovery (n = 80). Blood potassium concentrations were assessed at baseline (before study drug administration) and at intervals up to 15 min after rocuronium, sugammadex, and succinylcholine. Results At the primary endpoint, five minutes post-administration, the changes in potassium concentrations from baseline were significantly smaller in patients treated with rocuronium than in those given succinylcholine [mean (SD): -0.06 (0.32) vs 0.30 (0.34) mmol(middle dot)L⁻¹, respectively; P < 0.0001]. At baseline, potassium concentrations were similar in both groups, but they were greater at two, five, ten, and 15 min after succinylcholine than after rocuronium (P < 0.0001) for all time points. After sugammadex administration, there were no significant changes in mean potassium concentration from the pre-rocuronium baseline. No adverse effects related to hyperkalemia were observed. Conclusion Succinylcholine was associated with a modest increase in potassium concentration; these changes were not seen after rocuronium or sugammadex (Clinical trial registration number: NCT00751179). (copyright) 2014 Canadian Anesthesiologists' Society.

Safian RD (2014). "Arterial access for limb salvage for critical limb ischemia: How low (and how small) can we go?" Catheterization and Cardiovascular Interventions 83(1): 130-131.

[Full-Text](#)

Department of Internal Medicine

Safian RD (2014). "Carotid endarterectomy versus carotid artery stenting: Case closed...Now what!?" JACC: Cardiovascular Interventions 7(2): 169-170.

[Full-Text](#)

Department of Internal Medicine

Safian RD (2014). "Complications and solutions with carotid stenting." Interventional Cardiology Clinics 3(1): 105-113.

[Request Form](#)

Department of Internal Medicine

Complications of carotid stenting can be classified as neurologic, cardiovascular, death, carotid, access site, device malfunctions, and general and late complications. The risk of most complications is related to readily identifiable patient and anatomic factors. Management and outcome of complications require immediate recognition and a team-based approach to patient care. © 2014 Elsevier Inc.

Safian RD (2014). "Vascular complications during TAVR: The cost of doing business." Catheterization and Cardiovascular Interventions 83(3): 465-466.

[Full-Text](#)

Department of Internal Medicine

Safian RD and **Goldstein JA** (2014). "Expert consensus statement on FFR, IVUS, and OCT: Focus on physiology and luminology." Catheterization and Cardiovascular Interventions 83(4): 519-520.

[Full-Text](#)

Department of Internal Medicine

Sánchez Fernández I, Abend NS, **Arndt DH**, Carpenter JL, Chapman KE, Cornett KM, Dlugos DJ, Gallentine WB, Giza CC, Goldstein JL, Hahn CD, Lerner JT, Matsumoto JH, McBain K, Nash KB, Payne E, Sánchez SM, Williams K and Loddenkemper T (2014). "Electrographic seizures after convulsive status epilepticus in children and young adults: A retrospective multicenter study." Journal of Pediatrics 164(2): 339-346.e332.

[Full-Text](#)

Department of Pediatrics

Objective To describe the prevalence, characteristics, and predictors of electrographic seizures after convulsive status epilepticus (CSE). **Study design** This was a multicenter retrospective study in which we describe clinical and electroencephalographic (EEG) features of children (1 month to 21 years) with CSE who underwent continuous EEG monitoring. **Results** Ninety-eight children (53 males) with CSE (median age of 5 years) underwent subsequent continuous EEG monitoring after CSE. Electrographic seizures (with or without clinical correlate) were identified in 32 subjects (33%). Eleven subjects (34.4%) had electrographic-only seizures, 17 subjects (53.1%) had electroclinical seizures, and 4 subjects (12.5%) had an unknown clinical correlate. Of the 32 subjects with electrographic seizures, 15 subjects (46.9%) had electrographic status epilepticus. Factors associated with the occurrence of electrographic seizures after CSE were a previous diagnosis of epilepsy ($P = .029$) and the presence of interictal epileptiform discharges ($P < .0005$). The median (p 25-p75) duration of stay in the pediatric intensive care unit was longer for children with electrographic seizures than for children without electrographic seizures (9.5 [3-22.5] vs 2 [2-5] days, Wilcoxon test, $Z = 3.916$, $P = .0001$). Four children (4.1%) died before leaving the hospital, and we could not identify a relationship between death and the presence or absence of electrographic seizures. **Conclusions** After CSE, one-third of children who underwent EEG monitoring experienced electrographic seizures, and among these, one-third experienced entirely electrographic-only seizures. A previous diagnosis of epilepsy and the presence of interictal epileptiform discharges were risk factors for electrographic seizures.

Sawarynski K, Thomas D, Collins B and Weebadde P (2014). "Molecular and cellular biology adaptive virtual learning environment." FASEB Journal 28(Supplement 1): 618.632.

[Full-Text](#)

Department of Biomedical Sciences (OU)

Molecular and cell biology is a constantly evolving area of science that encompasses many diagnostic as well as treatment plans within the medical field. Obtaining a robust ability to comprehend and analyze molecular

medicine techniques is paramount for future physicians' success within this rapidly developing arena. Due to several factors, hands-on biology laboratories often are not present in a medical school curriculum. Although these topics are often covered in a lecture setting, the critical thinking and conceptual understanding of the molecular tools themselves are frequently only cursorily taught. We have developed an adaptable platform designed to help learners develop a deeper understanding of topics related to complicated, clinically relevant experiments and prepare them to be better able to transfer the knowledge to their future medical careers. Students will be required to make virtual experimental plan choices, which will each have an impact on their final result just as occurs in reality. To support independent learning, platform administrators scaffold learning with curated resource modules that are designed to support deep learning. The administration of an adaptable virtual learning environment will serve to enhance the understanding of complicated molecular medicine techniques, and promote the development of more capable physicians within the intricate molecular and biology field.

Sawyer KN, Kurz MC and Elswick RK, Jr. (2014). "An investigation of a hypothermic to ischemic ratio in patients following out-of-hospital cardiac arrest presenting with a shockable rhythm." [Therapeutic Hypothermia and Temperature Management](#). ePub Ahead of Print.

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Department of Emergency Medicine

Targeted temperature management (TTM) improves outcome after out-of-hospital cardiac arrest (OHCA). We hypothesized that there may be a significant relationship between the dose of hypothermia, the time to return of spontaneous circulation (ROSC), and survival to discharge. Retrospective pilot investigation on 99 consecutive OHCA patients with initial shockable rhythm, surviving to admission, and undergoing TTM between 2008 and 2011. Dose of hypothermia was defined as the sum of the induction interval (time to target temperature [from ROSC to 33 degrees C]); the controlled hypothermia interval (from reaching 33 degrees C until rewarming); and the rewarming interval (from 33 degrees C to 37 degrees C). Time to ROSC was measured from pulselessness or 911 call time to ROSC. The ratio between the two was termed the hypothermic to ischemic ratio. Purposeful variable selection for logistic regression modeling was used to assess the influence of the hypothermic/ischemic ratio on survival. Odds ratios (OR) were used to examine the effects of predictor variables on survival. Of 99 patients, eight were excluded for deviation from protocol, death during protocol, or missing data. From the univariate models, survivors were more likely to be younger, have a shorter time to ROSC, and have a larger hypothermic/ischemic ratio. Survivors also had a nonsignificant trend toward a longer time to target temperature. In multivariable modeling, the hypothermic/ischemic ratio was the most significant predictor for survival (OR 2.161 [95% confidence interval 1.371, 3.404]). In this pilot study, the hypothermic to ischemic ratio was significantly associated with survival to discharge for patients with an initial shockable rhythm. Further investigation of the relationship between the dose of hypothermia and time to ROSC for postresuscitation TTM is needed.

Sawyer KN and Lundbye JB (2014). "History of smoking: A form of ischemic preconditioning? Implications for surviving cardiac arrest." [Resuscitation](#) 85(1): 13-14.

[Full-Text](#)

Department of Emergency Medicine

Scruggs RT and **Black EH** (2014). "Granular cell tumor masquerading as a chalazion: A case report." [Ophthalmic Plastic and Reconstructive Surgery](#). ePub Ahead of Print.

[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.

Seeley AH, Durham MA, **Micale MA**, Wesolowski J, Foerster BR and Martin DM (2014). "Macrocerbellum, epilepsy, intellectual disability, and gut malrotation in a child with a 16q24.1-q24.2 contiguous gene deletion." [American Journal of Medical Genetics, Part A](#). ePub Ahead of Print.

[Full-Text](#)

Department of Pathology

Macrocerbellum is a rare condition characterized by enlargement of the cerebellum with conservation of the overall shape and cytoarchitecture. Here, we report on a child with a distinctive constellation of clinical features including macrocerbellum, epilepsy, apparent intellectual disability, dysautonomia, gut malrotation, and poor gut motility. Oligonucleotide chromosome microarray analysis identified a 16q24.1-q24.2 deletion that included four OMIM genes (FBXO31, MAP1LC3B, JPH3, and SLC7A5). Review of prior studies describing individuals with similar or overlapping 16q24.1-q24.2 deletions identified no other reports of macrocerbellum. These observations highlight a potential genetic cause of this rare disorder and raise the possibility that one or more gene(s) in the 16q24.1-q24.2 interval regulate cerebellar development. © 2014 Wiley Periodicals, Inc.

Setty P, Volkov AA, D'Andrea KP and **Pieper DR** (2014). "Endoscopic vascular decompression for the treatment of trigeminal neuralgia: Clinical outcomes and technical note." [World Neurosurgery](#) 81(3-4): 603-608.

[Full-Text](#)

Department of Neurosurgery

Objective This study sought to describe the operative technique and clinical outcomes in a series of 57 patients with trigeminal neuralgia treated with endoscopic vascular decompression (EVD) alone without the use of microscopy at any point. **Methods** A prospective observational study was performed on 57 consecutive patients treated with EVD alone for trigeminal neuralgia from October 2005 to October 2010. Patient outcomes were evaluated with respect to pain abatement, complication rate, length of hospital stay, and overall operative time. Pain outcome was graded using the Barrow Neurological Institute pain intensity score (BNI), with BNI 1 considered an excellent result and BNI 2 or 3 considered a good result. Follow-up ranged from 12 to 72 months, with a mean of 32 months. In addition to reporting these cases, our operative technique for EVD is described in detail. **Results** All 57 patients reported severe preoperative pain (BNI 5); 100% of patients achieved immediate postoperative pain control or complete pain relief (BNI 1 to 3), with 82% obtaining an excellent result of BNI 1, and 18% of patients reported good results of BNI 2 or 3. At follow-up, 56 of 57 patients (98%) reported complete relief or well controlled pain (BNI 1 to 3), with 75% obtaining an excellent result of BNI 1; 23% of patients obtained a good result of BNI 2 or 3. The complication rate was 4%, with no mortality. Mean length of hospital stay was 1.6 days, with a range of 1 to 5 days; mean operative time was 133 minutes. **Conclusions** EVD is a safe and highly effective alternative to the more traditional open microvascular decompression or the more recently developed endoscopically assisted microvascular decompression.

Shah C, Julian TB, Wilkinson JB, Shaitelman SF, **Khan A**, Finkelstein S and Vicini FA (2014). "Is excision alone adequate for low-risk DCIS of the breast treated with breast conserving therapy: Reevaluating the role of adjuvant radiation therapy." [Journal of Radiation Oncology](#) 3(1): 21-28.

[Request Form](#)

Department of Diagnostic Radiology and Molecular Imaging

Background: Ductal carcinoma in situ (DCIS) represents a quarter of newly diagnosed breast neoplasms, with the majority of cases detected on routine screening mammography in asymptomatic women. Currently, most women with newly diagnosed DCIS are eligible for breast conserving therapy (BCT); however, significant controversy exists regarding whether or not to add radiation treatment (RT) after surgical excision in low-risk patients. **Results:** While four older prospective randomized clinical trials have shown that the addition of RT after lumpectomy reduces the risk of ipsilateral breast tumor recurrence (IBTR) by approximately 50 %, recent studies have continued to attempt to identify a subset of patients with favorable risk DCIS who are at a sufficiently low-risk of IBTR that omitting RT might be reasonable. While a number of smaller studies have shown promising results, recent prospective data have consistently affirmed the increased risk of IBTR with the omission of RT, with no subset of patients consistently identified that can be safely observed without RT. While radiation after lumpectomy remains the "standard of care," even in these low-risk patients, future directions include improvements in genetic assays to better identify low-risk patients

and new RT techniques and schedules that can potentially reduce the duration of therapy and toxicity while improving quality of life for patients. Conclusion: Based on the data available, we continue to recommend radiation therapy for low-risk patients with DCIS as no discernible subset has been identified that does not benefit from radiation therapy. (copyright) 2013 Springer-Verlag Berlin Heidelberg.

Shah D, Kumar R and **Gaikazian S** (2014). "A rare case of acquired haemophilia in a patient with chronic myelomonocytic leukaemia successfully treated with decitabine." *Haemophilia* 20(1): E92-E94.

[Full-Text](#)

Department of Internal Medicine

Shah DJ and Dronca RS (2014). "Latest advances in chemotherapeutic, targeted, and immune approaches in the treatment of metastatic melanoma." *Mayo Clinic Proceedings* 89(4): 504-519.

[Full-Text](#)

Department of Internal Medicine

Melanoma is the most dangerous form of skin cancer owing to its metastatic potential and is an important public health concern. The melanoma incidence has been increasing worldwide. Although potentially curable when diagnosed early, metastatic melanoma carries a poor prognosis. Until recently, systemic therapy for metastatic melanoma was ineffective, but the recent successes in the development of new therapies for metastatic melanoma, such as mitogen-activated protein kinase (MAPK) pathway inhibitors, anti-cytotoxic T-lymphocyte-associated antigen-4 (CTLA-4), and programmed cell death protein 1 (PD-1)/programmed cell death ligand 1 (PD-L1) pathway blocking antibodies, as well as combination strategies of cytotoxic chemotherapy and inhibitors of angiogenesis, have all yielded promising results, changing the continually evolving landscape of therapeutic options for patients with this disease. The aim of this review was to summarize the evolution of and recent advances in the treatment of metastatic melanoma. Therefore, we conducted a comprehensive PubMed search between January 1, 1960, and February 1, 2014, using the search term melanoma or metastatic melanoma combined with terms such as chemotherapy, immunotherapy, CTLA-4, PD-1, PD-L1, adoptive T cell, targeted therapy, MAPK, molecular biology, and survival.

Shah S, Bellam N, Leipsic J, Berman DS, Quyyumi A, Hausleiter J, Achenbach S, Al-Mallah M, Budoff MJ, Cademartiri F, Callister TQ, Chang HJ, Chow BJW, Cury RC, Delago AJ, Dunning AL, Feuchtner GM, Hadamitzky M, Karlsberg RP, Kaufmann PA, Lin FY, **Chinnaiyan KM**, Maffei E, **Raff GL**, Villines TC, Gomez MJ, Min JK and Shaw LJ (2014).

"Prognostic significance of calcified plaque among symptomatic patients with nonobstructive coronary artery disease." *Journal of Nuclear Cardiology*. ePub Ahead of Print.

[Request Form](#)

Department of Internal Medicine

Background Coronary artery calcium (CAC) is a well-established predictor of clinical outcomes for population screening. Limited evidence is available as to its predictive value in symptomatic patients without obstructive coronary artery disease (CAD). The aim of the current study was to assess the prognostic value of CAC scores among symptomatic patients with nonobstructive CAD. Methods From the COronary Computed Tomographic Angiography EvaluationN For Clinical Outcomes: An InteRnational Multicenter (CONFIRM) registry, 7,200 symptomatic patients with nonobstructive CAD (<50% coronary stenosis) on coronary-computed tomographic angiography were prospectively enrolled and followed for a median of 2.1 years. Patients were categorized as without (0% stenosis) or with (>0% but <50% coronary stenosis) a luminal stenosis. CAC scores were calculated using the Agatston method. Univariable and multivariable Cox proportional hazard models were employed to estimate all-cause mortality and/or myocardial infarction (MI). Four-year death and death or MI rates were 1.9% and 3.3%. Results Of the 4,380 patients with no luminal stenosis, 86% had CAC scores of <10 while those with a luminal stenosis had more prevalent and extensive CAC with 31.9% having a CAC score of (greater-than or equal to)100. Among patients with no luminal stenosis, CAC was not predictive of all-cause mortality (P = .44). However, among patients with a luminal stenosis, 4-year mortality rates ranged from 0.8% to 9.8% for CAC scores of 0 to (greater-than or equal to)400 (P < .0001). The mortality hazard was 6.0 (P = .004) and 13.3 (P < .0001) for patients with a CAC score of 100-399 and (greater-than or equal to)400. In patients with a luminal stenosis, CAC remained independently predictive in all-cause mortality (P < .0001) and death or MI (P < .0001) in multivariable

models containing CAD risk factors and presenting symptoms. Conclusions CAC allows for the identification of those at an increased hazard for death or MI in symptomatic patients with nonobstructive disease. From the CONFIRM registry, the extent of CAC was an independent estimator of long-term prognosis among symptomatic patients with luminal stenosis and may further define risk and guide preventive strategies in patients with nonobstructive CAD. (copyright) 2014 American Society of Nuclear Cardiology.

Singh K, Ahmadinia K, **Park DK**, Nandyala SV, Marquez-Lara A, Patel AA and Fineberg SJ (2014). "Complications of spinal fusion with utilization of bone morphogenetic protein: A systematic review of the literature." *Spine* 39(1): 91-101.

[Full-Text](#)

Department of Orthopedic Surgery

STUDY DESIGN.: Systematic review. OBJECTIVE.: A systematic review was performed to identify the types of complications and complication rates associated with the use of bone morphogenetic protein (BMP) in both anterior and posterior cervical and lumbar spine surgery. SUMMARY OF BACKGROUND DATA.: There has been an increase in BMP use in various clinical situations typically in an "off-label" fashion. Associated with its use, however, have been reports of various complications. METHODS.: A MEDLINE search was conducted. All articles involving complications after spine surgery in patients receiving BMP were included. Articles were excluded on the basis of the following criteria: Non-English manuscripts and nonhuman subjects. A total of 29 articles met the inclusion and exclusion criteria and were used in the analysis. For each complication identified, the incidence was calculated by pooling the subjects from the studies that reported the complication. χ tests were used to compare the incidence rates between those that had received BMP and the control groups. RESULTS.: Of the 29 articles included, 7 reported complication rates in anterior cervical fusions, 3 in posterior cervical fusions, 4 in anterior lumbar interbody fusions (ALIF), 9 in posterior/transforaminal lumbar interbody fusions (PLIF/TLIF), and 6 in posterolateral lumbar fusions. Individual complication rates when BMP was used was in the range from 0.66% to 20.1% in anterior cervical fusions, 3.5% to 14.6% in posterior cervical fusions, 2.0% to 7.3% in ALIFs, 1.5% to 21.8% in PLIF/TLIFs, and 1.4% to 8.2% in posterolateral lumbar fusions. Pseudarthrosis rates were statistically significantly lower with the utilization of BMP in all procedures except for PLIF/TLIFs, which only approached significance ($P = 0.07$). The only individual complication that was statistically significantly greater with BMP utilization was retrograde ejaculation in ALIFs (7.3 vs. 2.3%; $P = 0.03$). The rate of dysphagia/swelling in anterior cervical fusions was greater with BMP (20.1 vs. 15.6%), however this only approached statistical significance ($P = 0.07$). CONCLUSION.: The body of literature reports complication rates with BMP ranging from 0.66% to 21.8%. However, the only statistically significant adverse complication rate was retrograde ejaculation in the ALIF population (7.3%). Despite the increased awareness of complications associated with BMP, complication rates remain spine site specific and low. Thorough patient education should be done with the physician to make an informative use regarding BMP utilization in spinal surgery. © 2013, Lippincott Williams & Wilkins.

Singh S, Manickam P, Amin AV, Samala N, Schouten LJ, Iyer PG and **Desai TK** (2014). "Incidence of esophageal adenocarcinoma in Barrett's esophagus with low-grade dysplasia: a systematic review and meta-analysis."

Gastrointestinal Endoscopy. ePub Ahead of Print.

[Full-Text](#)

Department of Internal Medicine

Background: The natural history of low-grade dysplasia (LGD) in patients with Barrett's esophagus (BE) is unclear. Objective: We performed a systematic review and meta-analysis of studies that reported the incidence of esophageal adenocarcinoma (EAC) and/or high-grade dysplasia (HGD) among patients with BE with LGD. Design: Systematic review and meta-analysis of cohort studies. Patients: Patients with BE-LGD, with mean cohort follow-up ≥ 2 years. Main Outcome Measurements: Pooled incidence rates with 95% confidence intervals (CI) of EAC and/or BE-HGD. Results: We identified 24 studies reporting on 2694 patients with BE-LGD, with 119 cases of EAC. Pooled annual incidence rates of EAC alone and EAC and/or HGD in patients with BE-LGD were 0.54% (95% CI, 0.32-0.76; 24 studies) and 1.73% (95% CI, 0.99-2.47; 17 studies). The results were stable across study setting and location and in high-quality studies. Substantial heterogeneity was observed, which could be explained by stratifying based on LGD/BE ratio as a surrogate for quality of pathology; the pooled annual incidence rates of EAC were 0.76% (95% CI, 0.44-1.09; 14 studies) for LGD/BE ratio < 0.15 and 0.32% (95% CI, 0.07-0.58; 10 studies) for LGD/BE ratio > 0.15 . The annual rate of mortality not

related to esophageal disease in patients with BE-LGD was 4.7% (95% CI, 3.2-6.2; 4 studies). Limitations: Substantial heterogeneity was observed in the overall analysis. Conclusion: The incidence of EAC among patients with BE-LGD is 0.54% annually. The LGD/BE ratio appears to explain the variation observed in the reported incidence of EAC in different cohorts. Conditions not related to esophageal disease are a major cause of mortality in patients with BE-LGD, although additional studies are warranted. © 2014 American Society for Gastrointestinal Endoscopy.

Skomorowski M and **Cappell MS** (2014). "Endoscopic findings with severely symptomatic esophagitis from an overly restrictive laparoscopic adjustable gastric band." [Surgery for Obesity and Related Diseases](#) 10(1): e9-e10.

[Request Form](#)

Department of Internal Medicine

Smith JL, Zacharias S, Hanson I, Madder R, **Goldstein J, Safian R** and **Abbas A** (2014). "Pathology of femoro-popliteal atherosclerosis: No role of lipid core?" [Journal of the American College of Cardiology](#) 63(12): A1778.

[Full-Text](#)

Department of Internal Medicine

Background: Autopsy studies have demonstrated differing characteristics of atherosclerosis depending on the arterial bed. Lipid core plaque (LCP) has been identified in the coronary circulation, but its presence in the superficial femoral artery (SFA) has not been evaluated invasively. Previous MRI studies suggested a differential LCP between eccentric and concentric lesions. We sought to assess the presence of LCP in SFA stenosis. Methods: Twelve consecutive patients undergoing SFA revascularization were scanned by near infrared spectroscopy (NIRS) and intravascular ultrasound (IVUS) for the detection of LCP prior to intervention. LCP, and lipid core burden index (LCBI) were then co-registered to the area of most severe stenosis in the artery by IVUS. Two patients underwent atherectomy with pathologic analysis. Results: In total, 12 patients underwent 18 scans of the SFA at sites of severe stenosis. The average length of vessel scanned was 78(plus or minus)31 mm with each scan. Of the 18 spectroscopic analyses, 16 (89%) had no LCP present at areas of stenosis. In both patients with atherectomy, no lipid core was identified on pathology. Of the 2 patients with LCP present at the site of stenosis, the mean LCBI was 297(plus or minus)86. Both plaques were negatively remodeled with circumferential calcification. Conclusions: The data suggests, as previously reported by other modalities, that LCP does not constitute a major process in the negative remodeling of atherosclerosis in SFA stenosis. (Figure presented).

Smorgick Y, Mirovsky Y, **Fischgrund JS, Baker KC**, Gelfer Y and Anekstein Y (2014). "Radiographic predisposing factors for degenerative spondylolisthesis." [Orthopedics](#) 37(3): e260-e264.

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Department of Orthopedic Surgery

Department of Surgery

This study was a retrospective radiographic study involving analysis of computed tomography scans obtained for patients with degenerative spondylolisthesis of the L4-L5 segment and a control group. The purpose of the study was to identify radiological predisposing factors for degenerative spondylolisthesis of the L4-L5 segment. The authors reviewed all computed tomography scans (N=3370) performed at their institution between January 2005 and December 2008. Eighty-four patients with degenerative spondylolisthesis were identified and compared with a control group regarding facet joint orientation, the presence of sacralization of the L5 vertebra, the presence of major degenerative changes in the L5-S1 disk space, and the location of the intercrestal line. There was a statistically significant difference between the 2 groups regarding facet joint orientation, with more sagittal facet joints in the degenerative spondylolisthesis group (56(degrees) and 54(degrees) in the right and left facets, respectively, in the study group, and 46(degrees) and 42(degrees) in the right and left facets, respectively, in the control group) (P<.001). There was no statistically significant difference between the 2 groups regarding the presence of sacralization of the L5 vertebra, the presence of major degenerative changes in the L5-S1 disk space, and the location of the intercrestal line relative to the lumbar spine. There is an association between sagittal orientation of the facet joints at the L4-L5 segment and degenerative spondylolisthesis at the same level.

Stults CD, Lafata JE, Diamond L, MacLean L, Stone AL, **Wunderlich T**, Frankel RM and Tai-Seale M (2014). "How do primary care physicians respond when patients cry during routine ambulatory visits?" Journal of Communication in Healthcare 7(1): 17-24.

[Full-Text](#)

Department of Medical Education

Although crying is universally recognized as a sign of distress in adults, its role in assessing and diagnosing depression in medical settings has received little attention. We sought to describe the interactional circumstances surrounding patients who cry during routine periodic health examinations and the subsequent actions of their physicians. Qualitative content analysis of audio-recorded visits and administrative claims data for adult primary care patients for one year before and after an index visit were used to explore the context of patients' crying and how physicians responded. Most patients began to cry while discussing emotional pain over the loss or illness of a loved one. While physicians generally responded with immediate expressions of empathy, the intensity of their responses varied. Some patients received minimal assessment regarding their mental health, whereas others were assessed more extensively. Although most physicians did express empathy in response to patients' tears, some did not systematically assess patients' mental health status and overall functioning. Physicians may want to view crying as a sign of distress and more fully evaluate whether it fits into a more complex clinical presentation of depression.

Tang DH, Colayco D, Piercy J, Patel V, Globe D and **Chancellor MB** (2014). "Impact of urinary incontinence on health-related quality of life, daily activities, and healthcare resource utilization in patients with neurogenic detrusor overactivity." BMC Neurology 14(74): doi:10.1186/1471-2377-1114-1174.

[Full-Text](#)

Department of Urology

Background Neurogenic detrusor overactivity (NDO) leads to impaired health-related quality of life (HRQoL), productivity, and greater healthcare resource burden. The humanistic and economic burden may be more apparent in NDO patients with urinary incontinence (UI). The objective of this study was to compare the HRQoL, productivity, and health resource use (HRU) between continent and incontinent NDO patients. Methods A retrospective database analysis was conducted using the Adelphi Overactive Bladder (OAB)/UI Disease Specific Programme, a multi-national, cross-sectional survey reported from both patients' and physicians' perspectives. The population for this analysis included NDO patients with or without UI. General and disease-specific HRQoL were assessed using the EuroQoL-5D (EQ-5D), Incontinence Quality of Life questionnaire (I-QOL), and the Overactive Bladder Questionnaire (OAB-q). Productivity and daily activity impairment were measured using the Work Productivity and Activity Impairment (WPAI) questionnaire. HRU indicators included OAB-related surgery, OAB-related hospitalizations, incontinence pad usage, switching anticholinergics used for OAB due to inadequate response or adverse effects, and OAB-related physician visits. Bivariate analyses, multivariate ordinary least squares (OLS) regression analyses and published minimal clinically important differences (MCID) were used to assess relationships between incontinent status and the aforementioned outcome measures. Results A total of 324 NDO patients with or without urinary incontinence were included, averaging 54 years of age (SD 16), of whom 43.8 percent were male. Bivariate analyses detected no significant relationship between incontinent status and HRU variables. Regression analyses revealed that incontinent patients had clinically and statistically lower disease-specific HRQoL and greater impairment in daily activities as compared to continent patients. On average, incontinent patients scored 10 points lower on the I-QOL total score, 9 points lower on the OAB-q HRQoL score, 15 points higher on OAB-q symptom severity, and experienced 8.2 percent higher activity impairment due to their bladder condition (all $p < 0.001$). Conclusions Incontinent NDO patients experience significantly lower HRQoL and activity impairment as compared to continent NDO patients.

Tomakowsky J, Carty J, Lumley M, Carrico D, Ehlert M, Dove-Medows E, **Sirls L**, Bartley J, **Gilleran J** and **Peters K** (2014). "Psychological differences among women with pain, urologic, and gynecologic diagnoses in a women's urology center." Neurourology and Urodynamics 33(2): 257.

[Full-Text](#)

Department of Urology

Introduction and Objectives: The present study examined psychological differences among women presenting to a multidisciplinary urology clinic. Of particular interest was how depression, anxiety, social

support coping and social constraint (feeling constrained in discussing one's problems) differed by diagnostic clusters reflecting the predominance of urogenital pain, urologic or gynecologic problems. Catastrophizing and pain severity were examined in patients with pain. Understanding psychological differences may prove useful in treatment planning for complex patients. Methods: Women presenting to a women's urology specialty center from July 2012 to April 2013 completed questionnaires prior to their first clinical exam. Validated measures assessed anxiety, depression, seeking social support, social constraint, catastrophizing and pain (severity and interference with functioning). Patients were divided into pain, urologic or gynecologic groups, determined by primary ICD-9 diagnosis at first clinical evaluation. ANOVAs compared the diagnostic groups on the measures. Results: 180 of 199 patients completed the questionnaires (90%). As shown in Table 1, the Pain and Gynecologic groups were similar on most psychosocial measures, but had significantly higher levels of pain severity, pain interference with functioning, social constraint, catastrophizing, helplessness and/ or emotional support seeking compared to the Urologic group. The three groups did not differ on anxiety and depression measures. Conclusions: These findings suggest that patients differ psychologically by diagnostic clusters, though the differences are not reflected in greater anxiety or depression. Patients whose conditions are primarily distinguished by pain and gynecologic problems (who may also have pain) fare worse in terms of catastrophizing, helplessness, pain severity and interference with functioning than those with primary urologic diagnoses. Gynecologic patients also appear more socially constrained. These findings may have implications for treatment planning for each diagnostic cluster and suggest that further investigation into diagnostic differences is of merit in ensuring that the needs of this complex population are met. (Figure Presented).

Torres-Mora J, Dry S, Li X, Binder S, **Amin M** and Folpe AL (2014). "Malignant melanotic schwannian tumor: A clinicopathologic, immunohistochemical, and gene expression profiling study of 40 cases, with a proposal for the reclassification of "melanotic schwannoma"." American Journal of Surgical Pathology 38(1): 94-105.

[Full-Text](#)

Department of Pathology

Melanotic schwannomas (MSs), variably associated with the Carney complex, are rare tumors that usually involve spinal nerve roots but may occur in other locations. Clinicopathologic evaluation poorly predicts the behavior of MS. Fewer than 200 cases have been reported. We report a series of 40 well-characterized MSs, one of the largest series to date. The tumors were comprehensively evaluated, and clinical follow-up was obtained. Immunohistochemistry for S100 protein, Melan-A, HMB45, tyrosinase, glial fibrillary acidic protein (GFAP), EMA, SMARCB1, Ki-67 antigen, ASMTL, and the Carney complex-associated PRKAR1A gene product was performed using commercially available antibodies and the Ventana Ultraview detection system. Gene microarray study was conducted on formalin-fixed, paraffin-embedded blocks from 10 MSs and the results compared with previous data from melanoma and schwannoma. Differentially expressed genes were selected at >3-fold and $P < 0.001$. The Fisher exact test was used for statistical analysis. The tumors occurred in 18 male and 22 female patients (mean age 41 y; range, 11 to 84 y) and involved the paravertebral nerve roots (N=31), mediastinum (N=3), sacrum, cauda equina, para-aortic region, fifth cranial nerve, buttock, and cerebellum (N=1 each). Two patients had known Carney complex, and 1 patient also had a cutaneous myxoma, suggestive of Carney complex. The tumors expressed S100 protein (21/25, 84%), Melan-A (23/25, 92%), HMB45 (25/25, 100%), tyrosinase (25/25, 100%), GFAP (0/24, 0%), EMA (0/9, 0%), SMARCB1 (retained in 25/25, 100%), and ASMTL (5/19, 26%); PRKAR1A expression was lost in 7/20 cases (35%). Ki-67-labeling index was <5% in 23/25 cases (92%) and 5% to 10% in 2/25 cases (8%). Gene expression profiling showed significant differences between MS, melanoma, and conventional schwannoma. Clinical follow-up (26/40, 65%; mean 55 mo; range, 1 to 300 mo) showed local recurrences in 9/26 (35%) and metastases in 11/26 (44%) patients. Fourteen patients were alive without disease, 5 were alive with disease, and 7 had died of disease. Only a mitotic rate >2/10 HPF correlated with metastases ($P = 0.008$). The clinicopathologic features of tumors with and without psammoma bodies were identical. We conclude that MSs are distinctive malignant tumors, rather than benign neoplasms with occasionally unpredictable behavior, and propose their reclassification as "malignant melanotic schwannian tumors." Loss of PRKAR1A expression suggests a link to Carney complex, even when this history is absent. © 2013 by Lippincott Williams and Wilkins.

Traylor K, Jolepalem P and **Mahajan P** (2014). "Painful knee arthroplasty." Journal of Nuclear Medicine Technology. ePub Ahead of Print.

[Request Form](#)

Department of Diagnostic Radiology and Molecular Imaging

A triple-tracer nuclear medicine study that incorporates 99mTc-sulfur colloid, 111In-labeled leukocytes, and 99mTc-methylene diphosphonate can be useful for the diagnosis of aseptic loosening in a patient after total-knee arthroplasty, as demonstrated in this case study. The triple-tracer technique takes less time and is more accurate than a bone scan alone.

Tyagi P, Kashyap MP, Kawamorita N, Yoshizawa T, **Chancellor M** and Yoshimura N (2014). "Intravesical liposome and antisense treatment for detrusor overactivity and interstitial cystitis/painful bladder syndrome." ISRN Pharmacology 2014: 601653.

[Full-Text](#)

Department of Urology

Purpose. The following review focuses on the recent advancements in intravesical drug delivery, which brings added benefit to the therapy of detrusor overactivity and interstitial cystitis/painful bladder syndrome (IC/PBS). Results. Intravesical route is a preferred route of administration for restricting the action of extremely potent drugs like DMSO for patients of interstitial cystitis/painful bladder syndrome (IC/PBS) and botulinum toxin for detrusor overactivity. Patients who are either refractory to oral treatment or need to mitigate the adverse effects encountered with conventional routes of administration also chose this route. Its usefulness in some cases can be limited by vehicle (carrier) toxicity or short duration of action. Efforts have been underway to overcome these limitations by developing liposome platform for intravesical delivery of biotechnological products including antisense oligonucleotides. Conclusions. Adoption of forward-thinking approaches can achieve advancements in drug delivery systems targeted to future improvement in pharmacotherapy of bladder diseases. Latest developments in the field of nanotechnology can bring this mode of therapy from second line of treatment for refractory cases to the forefront of disease management.

Updegraff A and **Doshi DR** (2014). "Clinical experience with oxaliplatin (O) desensitization (OD): A case series." Journal of Allergy and Clinical Immunology 133(2): AB269.

[Full-Text](#)

Department of Pediatrics

RATIONALE: Oxaliplatin is a platinum based cancer drug, and hypersensitivity reactions to O limit the ability to receive chemotherapy. METHODS: This is a retrospective analysis from May 2008 to October 2012 of patients who underwent OD after experiencing a hypersensitivity or severe adverse reaction to O. Each OD consisted of four infusions. Patients received intravenous (IV) diphenhydramine, 50mg; famotidine, 20mg; dexamethasone, 50mg; and oral acetaminophen, 625mg an hour prior to the OD. The total O dose was based on body surface area. Subsequently, 1/1000th of the total O was added to 100mL of 0.9% normal saline (NS) and infused over one hour; 1/100th of remaining O in 100mL NS was infused over the second hour; 1/10th of the remaining O in 100mL NS was infused over the third and fourth hours; the remaining O in 500mL was infused over the fifth and sixth hours. An additional dose of dexamethasone, 50mg IV was given prior to the final infusion. RESULTS: 29 patients underwent one or more OD (total, 85). One did not complete the OD due to flushing, tachycardia, and wheezing. The remaining 84/85 (99%) were successful. 60/85 (71%) reported no side effects. 24/85 (28%) experienced rash, flushing, palmar erythema or shortness of breath, all but one of which resolved following diphenhydramine, 50mg IV. One patient received epinephrine, 0.3mg IM, due to throat tightness and dyspnea with resolution of symptoms. CONCLUSIONS: OD, using a standard protocol, provides a safe and effective method for patients with hypersensitivity or severe adverse reactions to O to receive chemotherapy.

Vilchez G, Chelliah A, Brantley E, **Bahado-Singh R** and Sokol R (2014). "Pregnancy, labor and neonatal outcomes and optimal timing for induction of labor in gestational diabetes." Reproductive Sciences 21(3): 357A.

[Full-Text](#)

Department of Obstetrics and Gynecology

INTRODUCTION: Optimal timing for induction of labor (IOL) in Gestational Diabetes (GDM) is undetermined. Risks of prematurity, macrosomia, cesarean section, and post term pregnancy should be considered. The

current data is inadequate to make an evidence-based recommendation. We performed a population-based study to identify the optimal gestational age(GA) for IOL. METHODS: The US Natality Database from 2007-2010 was reviewed. Inclusion criteria were:singleton deliveries, IOL, GA at 36-42wks, GDM. Exclusion criteria were:congenital anomalies, pregestational diabetes, hypertensive disorders, previous cesarean, breech presentation, rupture of membranes. Non-GDM deliveries were selected as controls. Variables analyzed were:neonatal outcomes(low apgar score, assisted ventilation, NICU admission, antibiotic/surfactant use, seizures), labor complications(fetal distress, stained meconium, chorioamnionitis), delivery mode, and macrosomia(>4500g). Logistic regression was used to calculate adjusted odds ratios of variables by gestational age using 39wk control as reference. RESULTS: A total of 96,964 cases and 176,079 controls were included. GDM presents increased risks for all adverse outcomes compared to controls. The risk of neonatal complications and cesarean delivery are the lowest at 39wks; the risk of labor complications is the lowest at 38 wks (figure). Risk of macrosomia increases after 37wks, but without further increase risk in birth injury. Babies from GDM mothers present and increase risk for NICU admission compared to controls. CONCLUSIONS: 39wks seems to be the optimal timing for IOL in GDM. Gestational age for gestational age, induced GDM have more complications than non-GDM, they truly are at higher risk of adverse outcomes. There is no evidence from this analysis that modifying optimal weeks' gestation for induction would improve outcome for gestational diabetics & their infants, but clinical trials on this topic may modify this conclusion. (Figure Presented).

Wang Y, Wolforth SC, Doshi M, Khan S, **Rooney MT, Li W and Zhang PL** (2014). "Identifying iron deposition in proximal tubules is a useful method to distinguish sickle cell disease (SCD) associated renal tubular injury from other injury etiologies." *Laboratory Investigation* 94: 416A.

[Full-Text](#)

Department of Pathology

Background: Sickle cell nephropathy (SCN) has been thought to be a vascular disorder since blood clot formation from sickle cells is considered to be the cause of renal disease. We hypothesize that sickle cells, known vulnerable for broken, may dump large amount of iron to proximal tubules and cause renal tubular injury, thus partially contributing to renal failure seen in sickle cell nephropathy. We compared iron stains in 3 cases with SCD and 29 controls. Design: Three biopsies from patients with SCD (one native and two transplant biopsies) were stained for iron using conventional Prussian blue method. The proximal tubules were evaluated for iron staining (0 to 3+) and correlated with clinical scenarios. Controls include 12 IgA nephropathy, 13 thrombotic microangiopathy (TMA) and 4 nullpurenull acute tubular necrosis (ATN) cases were also stained for iron. Results: All controls showed negative or minimal iron staining in proximal tubules, except two TMA with 2+ iron staining in proximal tubules. The first native biopsy with SCD showed membranoproliferative pattern of glomerulopathy and 3+ iron staining in proximal tubules, consistent with a SCN. The second patient, status post renal transplant 2 years ago, developed acute renal failure, and his renal biopsy was found to have acute tubular injury (ATI). Diffusely increased iron staining (2+) in proximal tubules was present, thus the ATI was most likely resulted from iron toxicity to proximal tubules, and EM confirmed aggregated sickled RBC in glomeruli, indicating a recurrent SCN. The third patient, status post renal transplant 4 years ago, developed acute renal failure and positive donor specific antibody. His renal biopsy revealed 1a acute cellular rejection, diffuse positive C4d in peritubular capillaries and thrombotic microangiopathy (TMA). The iron staining was focally and weakly present, implying that the TMA was most likely associated with the acute antibody mediated rejection (AAMR, type 2) rather than recurrent SCN. Conclusions: Our data indicate that iron staining is a non-expensive but effective method in distinguishing SCD associated renal injury from other etiologies, supporting the view that iron overloading in proximal tubules could be a cause of ATI.

Wang Y, Wolforth SC, Doshi M, Khan S, **Rooney MT, Li W and Zhang PL** (2014). "Identifying iron deposition in proximal tubules is a useful method to distinguish sickle cell disease (SCD) associated renal tubular injury from other injury etiologies." *Modern Pathology* 27: 416A.

[Full-Text](#)

Department of Pathology

Wasserman JA (2014). "Complementary and alternative medicine usage and race," In Cockerham WC, Dingwall R and Quah SR (ed). The Wiley Blackwell Encyclopedia of Health, Illness, Behavior, and Society. 1. West Sussex: John Wiley & Sons, Ltd. pp: 293-296.

[Full-Text](#)

Department of Biomedical Sciences (OU)

This entry highlights the relationship between complementary and alternative medicine (CAM) and race/ethnicity. The sociohistorical trajectory of the intersection of CAM use and race/ethnicity engages issues of culture and racism, as well as the important and changing relationship between class and health in an increasingly complex sociological environment. This entry explores the historical disparities in CAM use among African Americans and the shift in the status of CAM from a refuge of the disfranchised to a symbol of privilege in contemporary health.

Wasserman JA (2014). "Race and distrust of medicine," In Cockerham WC, Dingwall R and Quah SR (ed). The Wiley Blackwell Encyclopedia of Health, Illness, Behavior, and Society. 4. West Sussex: John Wiley & Sons, Ltd. pp: 1959-1964.

[Full-Text](#)

Department of Biomedical Sciences (OU)

As a social institution, medicine has historically tended to reflect the biases of the various social contexts in which it is based. In fact, the social history of medicine documents its sometimes very active role in the utilization of race as a fulcrum of social oppression. The result of this long-standing social discrimination against racial minorities is an often palpable distrust among them of social institutions in general, and of medicine in particular. This entry examines the causes and consequences of a distrust of medicine that is rooted in social structures of race and discrimination.

Wasserman JA (2014). "Race and medical experimentation," In Cockerham WC, Dingwall R and Quah SR (ed). The Wiley Blackwell Encyclopedia of Health, Illness, Behavior, and Society. 4. West Sussex: John Wiley & Sons, Ltd. pp: 1993-1998.

[Full-Text](#)

Department of Biomedical Sciences (OU)

While race/ethnicity clearly constitutes more of a social construct than a biological one, in sociological terms the reification of race has promoted its utilization in a variety of social arenas, including medicine. While often considered a scientific enterprise, it is important to remember that where science is a human enterprise, it is susceptible to social biases in the same way as other social institutions. In turn, medicine, at times, has been undergirded by questionable, and sometimes plainly false, knowledge. This entry examines the role of race in medical experimentation. Medical science long held that race was a significant biological reality. This, combined with the subjugated legal and moral status of certain race/ethnic groups, led to historical injustices in medical experimentation.

Wasserman JA (2014). "Slavery, segregation, and health," In Cockerham WC, Dingwall R and Quah SR (ed). The Wiley Blackwell Encyclopedia of Health, Illness, Behavior, and Society. 5. West Sussex: John Wiley & Sons, Ltd. pp: 2124-2133.

[Full-Text](#)

Department of Biomedical Sciences (OU)

Racism has a long history that touches every aspect of the social arrangements in the United States. This includes medicine, where African Americans have historically been victimized, sometimes by direct maltreatment and sometimes by being disfranchised from opportunities to get health care and more generally to maintain health. This entry primarily covers the broader social-structural context in which African Americans were mistreated by their exclusion from medicine and their limited social and economic opportunities. Examples of these include the segregation of hospitals and medical schools and the lack of attention to public health problems that largely affected blacks. These constitute a patterned and widespread set of experiences, less sensational, but perhaps more consequential for understanding racial disparities in health both past and present.

Wasserman JA (2014). "Stress among the homeless," In Cockerham WC, Dingwall R and Quah SR (ed). The Wiley Blackwell Encyclopedia of Health, Illness, Behavior, and Society. 5. West Sussex: John Wiley & Sons, Ltd. pp: 2295-2298.

[Full-Text](#)

Department of Biomedical Sciences (OU)

In some ways, homelessness can be viewed as a situation of extreme poverty, thereby reflecting all of the same related health disadvantages. However, there are aspects of homelessness not necessarily encountered by housed people who are poor. These pose unique risks and challenges for health among the homeless generally, and their experience of stress in particular. Indeed, homeless people report significantly higher levels of stress than do housed low-income people, and this is especially true among children. Focusing primarily on the United States, this entry explores ways in which stress results from the condition of homelessness, its effects on the health of homeless people, and the mechanisms of coping that they employ.

Wasserman JA and Clair JM (2014). "Homelessness, medicalization of," In Cockerham WC, Dingwall R and Quah SR (ed). The Wiley Blackwell Encyclopedia of Health, Illness, Behavior, and Society. 3. West Sussex: John Wiley & Sons, Ltd. pp: 1176-1180.

[Full-Text](#)

Department of Biomedical Sciences (OU)

Homelessness is a significant social phenomenon fundamentally conditioned by poverty and class inequality. However, while homelessness is best explained by social structural conditions, it continues to be understood as a phenomenon tied to the deviant behavior of individuals. Insofar as sociology serves a critical function in identifying how social phenomena are predicated by macrolevel contexts, it serves as an important counterweight to the overemphasis on individualistic explanations of these sorts of important social issues that is particularly common in the United States. Thus, where homelessness is understood as a function of deviance, mainly addiction and mental illness, there is a critical need for the sociological perspective. This entry explores the medicalization of homelessness, particularly where understandings of homelessness are conflated with disease concepts in a way that obscures social structural influences. We conclude by discussing how medicalized understandings of homelessness not only insufficiently explain it as a social problem, but impede efforts to remediate the fundamental inequalities at its foundations.

Wasserman JA and Cockerham WC (2014). "Modernity," In Cockerham WC, Dingwall R and Quah SR (ed). The Wiley Blackwell Encyclopedia of Health, Illness, Behavior, and Society. 4. West Sussex: John Wiley & Sons, Ltd. pp: 1656-1660.

[Full-Text](#)

Department of Biomedical Sciences (OU)

This entry discusses the characteristics of modernity as a social epoch in the context of health and medicine. In sociological terms, modernity is a period characterized by particular social values and dominant ways of thinking that underpin social institutions, including medicine. The Enlightenment gave birth to new forms of thinking that made societies more advanced and modern medicine possible. The application of improved empirical techniques of observation and rational forms of thinking enabled the countless miracles of modern medicine that have undeniably benefitted humanity. Modern medicine has cured diseases, improved health, and extended life beyond what any pre-modern physician could ever have imagined. However, it is precisely because of these successes that we now face new challenges, for which another revolution in medicine may be required.

Wasserman JA and Stevenson SL (2014). "Bioethics," In Cockerham WC, Dingwall R and Quah SR (ed). The Wiley Blackwell Encyclopedia of Health, Illness, Behavior, and Society. 1. West Sussex: John Wiley & Sons, Ltd. pp: 116-124.

[Full-Text](#)

Department of Biomedical Sciences (OU)

Bioethics generally refers to a discipline with a central focus on the moral considerations surrounding issues of life, particularly health and medicine. While discourse on ethics has always supplemented medical philosophy and practice, advances in technology in the mid-twentieth century enabled life-saving and life-sustaining measures well beyond the capacity of medicine in earlier eras. In turn, there arose new questions about the uses of these technologies and the relationship between medical decision-making and

other human values. Across the last few decades, new advances in medical imaging, genetics, and surgery, particularly success with organ transplantation, have promoted the expansion of bioethics as a field, where it has witnessed growing numbers of professionals, increasing organization (e.g., the American Society for Bioethics and the Humanities), and expanding discursive terrain, where bioethicists now engage in discussions of doctor–patient communication, environmental issues, and cultural competency in medicine. This entry provides an overview of bioethics from its historical precursors to its emergence its own field, concluding with contemporary debates and future challenges.

Welton KL, Gomberawalla MM, Gagnier JJ, **Fischgrund JS**, Graziano GP and Patel RD (2014). "Patient impressions of reimbursement for orthopedic spine surgeons." Spine Journal. ePub Ahead of Print.

[Full-Text](#)

Department of Orthopedic Surgery

Wiater BP, Moravek JE, Jr. and **Wiater JM** (2014). "The evaluation of the failed shoulder arthroplasty." Journal of Shoulder and Elbow Surgery 23(5): 745-758.

[Full-Text](#)

Department of Orthopedic Surgery

As the incidence of shoulder arthroplasty continues to rise, the orthopedic shoulder surgeon will be increasingly faced with the difficult problem of evaluating a failed shoulder arthroplasty. The patient is usually dissatisfied with the outcome of the previous arthroplasty as a result of pain, but may complain of poor function due to limited range of motion or instability. A thorough and systematic approach is necessary so that the most appropriate treatment pathway can be initiated. A comprehensive history and physical examination are the first steps in the evaluation. Diagnostic studies are numerous and include laboratory values, plain radiography, computed tomography, ultrasound imaging, joint aspiration, nuclear scans, and electromyography. Common causes of early pain after shoulder arthroplasty include technical issues related to the surgery, such as malposition or improper sizing of the prosthesis, periprosthetic infection, neurologic injury, and complex regional pain syndrome. Pain presenting after a symptom-free interval may be related to chronic periprosthetic infection, component wear and loosening, glenoid erosion, rotator cuff degeneration, and fracture. Poor range of motion may result from inadequate postoperative rehabilitation, implant-related factors, and heterotopic ossification. Instability is generally caused by rotator cuff deficiency and implant-related factors. Unfortunately, determining the cause of a failed shoulder arthroplasty can be difficult, and in many situations, the source of pain and disability is multifactorial.

Wiater JM, Moravek Jr JE, Budge MD, Koueiter DM, **Marcantonio D** and Wiater BP (2014). "Clinical and radiographic results of cementless reverse total shoulder arthroplasty: a comparative study with 2 to 5 years of follow-up." Journal of Shoulder and Elbow Surgery. ePub Ahead of Print.

[Full-Text](#)

Department of Orthopedic Surgery

Department of Diagnostic Radiology and Molecular Imaging

Background: Most studies of reverse total shoulder arthroplasty (RTSA) involve cemented humeral stems. To our knowledge, this is the first study to compare the results of cementless RTSA, using a porous-coated stem designed for uncemented fixation, with cemented RTSA. Methods: A prospective database of patients undergoing RTSA was retrospectively reviewed for patients with a diagnosis of cuff tear arthropathy or severe rotator cuff deficiency with minimum 2-year follow-up. Of these, 37 patients had cemented RTSA and 64 patients had cementless RTSA. Outcome measures included Constant-Murley scores, American Shoulder and Elbow Surgeons scores, visual analog pain scale scores, range of motion, patient satisfaction, and radiographic evidence of complication. Results: Compared with preoperative values, both cohorts demonstrated significant improvements ($P < .01$) in all functional scores, active forward elevation, and active internal rotation. There was no significant difference ($P > .05$) in comparing the changes in these values after surgery between the cemented and cementless cohorts. On radiographic evaluation, there was no evidence of loosening or humeral components "at risk" of loosening in either group. There was no significant difference ($P = 1.0$) in the incidence of humeral component radiolucent lines between the cemented and uncemented cohorts. There was no significant difference ($P = .30$) in the incidence of scapular notching between the cemented ($n = 8$) and uncemented ($n = 10$) cohorts. Conclusion: Cementless fixation of a

porous-coated RTSA humeral stem provides clinical and radiographic outcomes equivalent to those of cemented stems at minimum 2-year follow-up. With advantages such as simplified operative technique, no cement-related complications, greater ease of revision, and long-lasting biologic fixation, uncemented fixation may provide several benefits over cemented fixation. (copyright) 2013 Journal of Shoulder and Elbow Surgery Board of Trustees.

Williams GA (2014). "Understanding and preparing for audits: CERT, RAC, and ZPIC: Doctors can better prepare for different audits when they understand the differences between them." Retina Today Jan/Feb: 24-25.

[Request Form](#)

Department of Ophthalmology

Womble PR, Dixon MW, Linsell SM, Ye Z, Montie JE, Lane BR, Miller DC and **Burks FN** (2014). "Infection related hospitalizations after prostate biopsy in a statewide quality improvement collaborative." Journal of Urology. ePub Ahead of Print.

[Request Form](#)

Department of Urology

Purpose: While transrectal prostate biopsy is the cornerstone of prostate cancer diagnosis, serious post-biopsy infectious complications are reported to be increasing. A better understanding of the true prevalence and microbiology of these events is needed to guide quality improvement in this area and ultimately better early detection practices. Materials and Methods: Using data from the MUSIC registry we identified all men who underwent transrectal prostate biopsy at 21 practices in Michigan from March 2012 to June 2013. Trained data abstractors recorded pertinent data including prophylactic antibiotics and all biopsy related hospitalizations. Claims data and followup telephone calls were used for validation. All men admitted to the hospital for an infectious complication were identified and their culture data were obtained. We then compared the frequency of infection related hospitalization rates across practices and according to antibiotic prophylaxis in concordance with AUA best practice recommendations. Results: The overall 30-day hospital admission rate after prostate biopsy was 0.97%, ranging from 0% to 4.2% across 21 MUSIC practices. Of these hospital admissions 95% were for infectious complications and the majority of cultures identified fluoroquinolone resistant organisms. AUA concordant antibiotics were administered in 96.3% of biopsies. Patients on noncompliant antibiotic regimens were significantly more likely to be hospitalized for infectious complications (3.8% vs 0.89%, $p = 0.0026$). Conclusions: Infection related hospitalizations occur in approximately 1% of men undergoing prostate biopsy in Michigan. Our findings suggest that many of these events could be avoided by implementing new protocols (eg culture specific or augmented antibiotic prophylaxis) that adhere to AUA best practice recommendations and address fluoroquinolone resistance. (copyright) 2014 American Urological Association Education and Research, Inc.

Wu CSY, Mikhail S, Wei L, Martin LK, Li X, Timmers CD, Chen JL, Tahiri S, Neal A, Walker JP, El-Dika SS, Rock JB, Clark D, Yang X, Foy K, **Liu JJ**, Knopp MV, Kaumaya P and Bekaii-Saab TB (2014). "A mechanistic radiographic and biologic phase 2 study of sunitinib in relapsed/refractory esophageal (E) and gastroesophageal (GE) cancers." Journal of Clinical Oncology 32(3 Suppl): 149.

[Request Form](#)

Department of Pathology

Background: Patients (pts) with relapsed or treatment-refractory E and GE cancers carry a poor prognosis. Inhibition of the vascular endothelial growth factor (VEGF) pathway may be a potential treatment approach. We conducted a phase II trial to assess the efficacy of sunitinib, a tyrosine kinase inhibitor that inhibits VEGFR 1 and 2. Methods: Pts received sunitinib 37.5 mg orally, daily. Primary endpoint was progression free survival (PFS) at 24 weeks. Secondary endpoints included overall response rate (ORR), overall survival (OS), PFS, and toxicity. Pts underwent serial functional imaging with DCE-MRI and measurements of serum VEGF, PIGF, VEGFR 2 and 3. Gene expression profiling and somatic mutational analysis using next-generation sequencing were also performed on tumor specimens (results to be presented at the symposium). Results: Clinical results are in the table. The PFS in the group that had clinical benefit [partial response (PR) + stable disease (SD)] with sunitinib was 99 days (95% CI: 74-161) vs. 39 days (95% CI: 26-42; Log-rank test p -value is <0.0001) in pts who had progressive disease (PD). By RECIST criteria, sunitinib non-responders demonstrated an initial reduction in tumor size but then subsequent rapid tumor size increase by week 6 as compared to

baseline values. In contrast, sunitinib responders demonstrated at least stable disease through weeks 2-6. Changes in serum VEGF-A and VEGF-C levels from baseline to 2 weeks were associated with PFS (p=0.04 and p=0.03, respectively). Furthermore, baseline VEGF-C was also associated with PFS (p=0.03) and RECIST response (p=0.04). Conclusions: Although the primary endpoint was not met, these results suggest that there is a subgroup of patients with clinical response to sunitinib. Our correlative analysis indicated that circulating biomarkers, such as VEGF-C, are worthy of further research to help us identify this subgroup. (Table Presented).

Wu D, Fink-Bennett D and **Campbell J** (2014). "Thyroid remnant ablation following administration of a diagnostic dose of iodine-131 under thyrogen stimulation." *Thyroid*. ePub Ahead of Print.

[Request Form](#)

Department of Diagnostic Radiology and Molecular Imaging

Yokoyama T and **Chancellor MB** (2014). "Statin-associated underactive bladder." *LUTS: Lower Urinary Tract Symptoms* 6(2): 124-125.

[Full-Text](#)

Department of Urology

Case: Statins are widely used to treat hypercholesterolemia but can lead to side-effects. We present a case of statin-associated permanent urinary retention in a 69-year-old woman. Outcome: Oral Cerivastatin was prescribed 2 months prior to the onset of retention. With the discontinuation of Cerivastatin, the patient reported modest improvement in symptoms. Conclusion: The findings of this case support the potential risk of permanent bladder smooth muscle damage due to statin that may lead to underactive bladder and urinary retention. (copyright) 2013 Wiley Publishing Asia Pty Ltd.

Yoshimura N, Ogawa T, Miyazato M, Kitta T, Furuta A, **Chancellor MB** and **Tyagi P** (2014). "Neural mechanisms underlying lower urinary tract dysfunction." *Korean Journal of Urology* 55(2): 81-90.

[Full-Text](#)

Department of Urology

This article summarizes anatomical, neurophysiological, and pharmacological studies in humans and animals to provide insights into the neural circuitry and neurotransmitter mechanisms controlling the lower urinary tract and alterations in these mechanisms in lower urinary tract dysfunction. The functions of the lower urinary tract, to store and periodically release urine, are dependent on the activity of smooth and striated muscles in the bladder, urethra, and external urethral sphincter. During urine storage, the outlet is closed and the bladder smooth muscle is quiescent. When bladder volume reaches the micturition threshold, activation of a micturition center in the dorsolateral pons (the pontine micturition center) induces a bladder contraction and a reciprocal relaxation of the urethra, leading to bladder emptying. During voiding, sacral parasympathetic (pelvic) nerves provide an excitatory input (cholinergic and purinergic) to the bladder and inhibitory input (nitroergic) to the urethra. These peripheral systems are integrated by excitatory and inhibitory regulation at the levels of the spinal cord and the brain. Therefore, injury or diseases of the nervous system, as well as disorders of the peripheral organs, can produce lower urinary tract dysfunction, leading to lower urinary tract symptoms, including both storage and voiding symptoms, and pelvic pain. Neuroplasticity underlying pathological changes in lower urinary tract function is discussed. © The Korean Urological Association, 2014.

Zaidi AU and **Berman B** (2014). "Crossing the thrombotic threshold: Deep vein thrombosis in Henoch-Schonlein purpura." *Clinical Pediatrics*. ePub Ahead of Print.

[Full-Text](#)

Department of Pediatrics

Zaltz I, Kelly BT, Larson CM, Leunig M and Bedi A (2014). "Surgical treatment of femoroacetabular impingement: What are the limits of hip arthroscopy?" *Arthroscopy - Journal of Arthroscopic and Related Surgery* 30(1): 99-110.

[Full-Text](#)

Department of Orthopedic Surgery

The variety of hip pathology that can be addressed in a minimally invasive fashion in the young, pre-arthritis patient has rapidly grown in parallel with technical advances in hip arthroscopy. However, the indications and limits of arthroscopy must be carefully defined and indications must evolve correspondingly to avoid an increase in failure rates and unsatisfactory clinical outcomes. Some diagnoses may be better and more comprehensively addressed with open procedures or combined surgical approaches. The purpose of this article is to provide an unbiased and evidence-based review of conditions of the pre-arthritis hip to define our current understanding of the advantages, disadvantages, and limitations of an arthroscopic approach.

Zhang B, Shen C, Bealmear B, **Ragheb S**, Xiong WC, Lewis RA, Lisak RP and Mei L (2014). "Autoantibodies to agrin in myasthenia gravis patients." *PloS One* 9(3): e91816.

[Full-Text](#)

Department of Biomedical Sciences (OU)

To determine if patients with myasthenia gravis (MG) have antibodies to agrin, a proteoglycan released by motor neurons and is critical for neuromuscular junction (NMJ) formation, we collected serum samples from 93 patients with MG with known status of antibodies to acetylcholine receptor (AChR), muscle specific kinase (MuSK) and lipoprotein-related 4 (LRP4) and samples from control subjects (healthy individuals and individuals with other diseases). Sera were assayed for antibodies to agrin. We found antibodies to agrin in 7 serum samples of MG patients. None of the 25 healthy controls and none of the 55 control neurological patients had agrin antibodies. Two of the four triple negative MG patients (i.e., no detectable AChR, MuSK or LRP4 antibodies, AChR-/MuSK-/LRP4-) had antibodies against agrin. In addition, agrin antibodies were detected in 5 out of 83 AChR+/MuSK-/LRP4- patients but were not found in the 6 patients with MuSK antibodies (AChR-/MuSK+/LRP4-). Sera from MG patients with agrin antibodies were able to recognize recombinant agrin in conditioned media and in transfected HEK293 cells. These sera also inhibited the agrin-induced MuSK phosphorylation and AChR clustering in muscle cells. Together, these observations indicate that agrin is another autoantigen in patients with MG and agrin autoantibodies may be pathogenic through inhibition of agrin/LRP4/MuSK signaling at the NMJ. (copyright) 2014 Zhang et al.

Zhang PL, Mashni JW, Sabbisetti VS, Schworer CM, **Wilson GD**, Wolforth SC, **Kernen KM**, **Seifman BD**, **Amin MB**, Geddes TJ, Lin F, Bonventre JV and **Hafron JM** (2014). "Urine kidney injury molecule-1: A potential non-invasive biomarker for patients with renal cell carcinoma." *International Urology and Nephrology* 46(2): 379-388.

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Department of Pathology

Department of Radiation Oncology

Department of Urology

Background: KIM-1 staining is upregulated in proximal tubule-derived renal cell carcinoma (RCC) including clear renal cell carcinoma and papillary renal cell carcinoma, but not in chromophobe RCC (distal tubular tumor). This study was designed to prospectively examine urine KIM-1 level before and 1 month after removal of renal tumors. Patients and design: A total of 19 patients were eventually enrolled in the study based on pre-operative imaging studies. Pre-operative and follow-up (1 month) urine KIM-1 levels were measured. The urine KIM-1 levels (uKIM-1) were then normalized to urine creatinine levels (uCr). Renal tumors were also stained for KIM-1 using immunohistochemical techniques. Results: The KIM-1-negative staining group included 7 cases, and the KIM-1-positive group consisted of 12 cases. The percentage of KIM-1-positive staining RCC cells ranged from 10 to 100 %, and the staining intensity ranged from 1+ to 3+. In both groups, serum creatinine levels were both significantly elevated after nephrectomy. In the KIM-1-negative group, uKIM-1/uCr remained at a similar level before (0.37 ± 0.1 ng/mg Cr) and after nephrectomy (0.32 ± 0.01 ng/mg Cr). However, in the KIM-1-positive group, elevated uKIM-1/uCr at 1.20 ± 0.31 ng/mg Cr was significantly reduced to 0.36 ± 0.1 ng/mg Cr, which was similar to the pre-operative uKIM-1/uCr (0.37 ± 0.1 ng/mg Cr) in the KIM-1-negative group. Conclusion: Our small but prospective study

showed significant reduction in uKIM-1/uCr after nephrectomy in the KIM-1 positive group, suggesting that urine KIM-1 may serve as a surrogate biomarker for kidney cancer and a non-invasive pre-operative measure to evaluate the malignant potential of renal masses. © 2013 Springer Science+Business Media.

Zhuang L, **Yan D**, Liang J, **Ionascu D**, Mangona V, Yang K and **Zhou J** (2014). "Evaluation of image guided motion management methods in lung cancer radiotherapy." *Medical Physics* 41(3): 031911.

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Department of Radiation Oncology

Purpose: To evaluate the accuracy and reliability of three target localization methods for image guided motion management in lung cancer radiotherapy. **Methods:** Three online image localization methods, including (1) 2D method based on 2D cone beam (CB) projection images, (2) 3D method using 3D cone beam CT (CBCT) imaging, and (3) 4D method using 4D CBCT imaging, have been evaluated using a moving phantom controlled by (a) 1D theoretical breathing motion curves and (b) 3D target motion patterns obtained from daily treatment of 3 lung cancer patients. While all methods are able to provide target mean position (MP), the 2D and 4D methods can also provide target motion standard deviation (SD) and excursion (EX). For each method, the detected MP/SD/EX values are compared to the analytically calculated actual values to calculate the errors. The MP errors are compared among three methods and the SD/EX errors are compared between the 2D and 4D methods. In the theoretical motion study (a), the dependency of MP/SD/EX error on EX is investigated with EX varying from 2.0 cm to 3.0 cm with an increment step of 0.2 cm. In the patient motion study (b), the dependency of MP error on target sizes (2.0 cm and 3.0 cm), motion patterns (four motions per patient) and EX variations is investigated using multivariate linear regression analysis. **Results:** In the theoretical motion study (a), the MP detection errors are -0.2 ± 0.2 , -1.5 ± 1.1 , and -0.2 ± 0.2 mm for 2D, 3D, and 4D methods, respectively. Both the 2D and 4D methods could accurately detect motion pattern EX (error < 1.2 mm) and SD (error < 1.0 mm). In the patient motion study (b), MP detection error vector (mm) with the 2D method (0.7 ± 0.4) is found to be significantly less than with the 3D method (1.7 ± 0.8 , $p < 0.001$) and the 4D method (1.4 ± 1.0 , $p < 0.001$) using paired t-test. However, no significant difference is found between the 4D method and the 3D method. Based on multivariate linear regression analysis, the variances of MP error in SI direction explained by target sizes, motion patterns, and EX variations are 9% with the 2D method, 74.4% with the 3D method, and 27% with the 4D method. The EX/SD detection errors are both < 1.0 mm for the 2D method and < 2.0 mm for the 4D method. **Conclusions:** The 2D method provides the most accurate MP detection regardless of the motion pattern variations, while its performance is limited by the accuracy of target identification in the projection images. The 3D method causes the largest error in MP determination, and its accuracy significantly depends on target sizes, motion patterns, and EX variations. The 4D method provides moderate MP detection results, while its accuracy relies on a regular motion pattern. In addition, the 2D and 4D methods both provide accurate measurement of the motion SD/EX, providing extra information for motion management. © 2014 American Association of Physicists in Medicine.

Zyczynski HM, **Sirls LT**, Greer WJ, Rahn DD, Casiano E, Norton P, Kim HY and Brubaker L (2014). "Findings of universal cystoscopy at incontinence surgery and their sequelae." *American Journal of Obstetrics and Gynecology*. ePub Ahead of Print

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Department of Urology

Objective: The purpose of this study was to report the frequency of abnormal cystoscopy at incontinence surgery and to identify risk factors and sequelae of injury. **Study Design:** Findings of cystoscopy were collected prospectively in 3 multicenter surgical trials. Clinical, demographic, and procedure characteristics and surgeon experience were analyzed for association with iatrogenic injury and noninjury abnormalities. **Impact of abnormalities on continence outcomes and adverse events during 12 months after the procedure were assessed.** **Results:** Abnormal findings in the bladder or urethra were identified in 95 of 1830 women (5.2%). Most injuries (75.8%) were iatrogenic. Lower urinary tract (LUT) injury was most common at retropubic urethropexy and retropubic midurethral sling (MUS) procedures (6.4% each), followed by autologous pubovaginal sling procedures (1.7%) and transobturator MUS (0.4%). Increasing age (56.9 vs 51.9 years; $P = .04$), vaginal deliveries (3.2 vs 2.6; $P = .04$), and blood loss (393 vs 218 mL; $P = .01$) were associated with LUT injury during retropubic urethropexy; however, only age (62.9 vs 51.4 years; $P = .02$) and smoking

history ($P = .04$) were associated for pubovaginal sling procedures. No factors correlated with increased risk of injury at retropubic and transobturator MUS. Notably, previous incontinence surgery, concomitant procedures, anesthesia type, and trainee participation did not increase LUT injury frequency. Although discharge with an indwelling catheter was more common after trocar perforation compared with the noninjury group (55.6% vs 18.5%; $P < .001$), they did not differ in overall success, voiding dysfunction, recurrent urinary tract infections, or urge urinary incontinence. Conclusion: Universal cystoscopy at incontinence surgery detects abnormalities in 1 in 20 women. Urinary trocar perforations that are addressed intraoperatively have no long-term adverse sequelae. (copyright) 2014 Mosby, Inc. All rights reserved.