

OAKLAND UNIVERSITY WILLIAM BEAUMONT SCHOOL OF MEDICINE

PUBLICATION LIST

July - September 2019

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Abbas AE (2019). "Valve-in-valve transcatheter aortic valve replacement." Journal of the American College of Cardiology 74(11): 1516-1517.

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Department of Internal Medicine

Abbas AE, Mando R, **Hanzel G**, **Gallagher M**, **Safian R**, **Hanson I**, **Almany S**, **Pibarot P**, **Dalal P**, **Vivacqua A**, **Sakwa M** and **Shannon F** (2019). "Invasive versus echocardiographic evaluation of transvalvular gradients immediately post-transcatheter aortic valve replacement: Demonstration of significant echocardiography-catheterization discordance." Circulation: Cardiovascular Interventions 12(7).

[Request Form](#)

Department of Internal Medicine

Department of Surgery

Adler D, Abar B, Durham DD, **Bastani A**, Bernstein SL, Baugh CW, Bischof JJ, Coyne CJ, Grudzen CR, Henning DJ, Hudson MF, Klotz A, Lyman GH, Madsen TE, Pallin DJ, Reyes-Gibby CC, Rico JF, Ryan RJ, Shapiro NI, **Swor R**, Thomas CR, Jr., Venkat A, Wilson J, Yeung SCJ and Caterino JM (2019). "Validation of the Emergency Severity Index (Version 4) for the triage of adult emergency department patients with active cancer." Journal of Emergency Medicine 57(3): 354-361.

[Full Text](#)

Department of Emergency Medicine

Background: Patients with active cancer account for a growing percentage of all emergency department (ED) visits and have a unique set of risks related to their disease and its treatments. Effective triage for this population is fundamental to facilitating their emergency care. Objectives: We evaluated the validity of the Emergency Severity Index (ESI; version 4) triage tool to predict ED-relevant outcomes among adult patients with active cancer. Methods: We conducted a prespecified analysis of the observational cohort established by the National Cancer Institute-supported Comprehensive Oncologic Emergencies Research Network's multicenter (18 sites) study of ED visits by patients with active cancer (N = 1075). We used a series of χ^2 tests

for independence to relate ESI scores with 1) disposition, 2) ED resource use, 3) hospital length of stay, and 4) 30-day mortality. Results: Among the 1008 subjects included in this analysis, the ESI distribution skewed heavily toward high acuity (>95% of subjects had an ESI level of 1, 2, or 3). ESI was significantly associated with patient disposition and ED resource use (p values < 0.05). No significant associations were observed between ESI and the non-ED based outcomes of hospital length of stay or 30-day mortality. Conclusion: ESI scores among ED patients with active cancer indicate higher acuity than the general ED population and are predictive of disposition and ED resource use. These findings show that the ESI is a valid triage tool for use in this population for outcomes directly relevant to ED care.

Ahmed M (2019). "Artist's statement: Takotsubo cardiomyopathy." Academic Medicine : Journal of the Association of American Medical Colleges 94(9): 1329.

[Full Text](#)

OUWB Medical Student Author

Alanazi AM, Al-Rashoud JR, Aljahani JM, Alotaibi AF, Althubaiti AM, **Kojan SM**, Aljumah MA and Abulaban AA (2019). "Exploring the outcome of multiple sclerosis among Saudi adult patients a single-centered cross-sectional study at King Abdulaziz Medical City in Riyadh, Saudi Arabia." Neurosciences 24(3): 168-175.

[Full Text](#)

Department of Neurology

Arabia, during July-November 2017. All Saudi adult patients diagnosed with MS between 2000-2016 (269 patients) were included. Patients were contacted via phone calls and were assessed using a newly developed and validated multi-component questionnaire that included demographic data, disease course, and Arabic versions of the scales. Results: Out of 269 patients, 210 (78.2%) responded. The average patient age was 37.44±10.3 years. The majority were females (69.5%). Only, 51 (24.3%) patients reported worsening conditions. Annually, the average relapse rate was 2.28±1.91. In regard to patient outcomes, 120 (57.1%) showed no significant disability in mRS, 146 (69.5%) were ambulatory without aid in EDSS, and 185 (89.4%) were independent in BI scores. The average MSIS-29-PHYS score was 33.6±27.6 and MSIS-29-PSYCH score was 38.2±25.8. Modified Rankin scale and EDSS were significantly associated with the current use of disease-modifying therapy (DMT). Modified Rankin scale was negatively associated with delayed diagnosis. Barthel index showed significant association with medication compliance and the absence of attacks. Conclusion: Majority of patients had a favorable outcome that was linked with the use of DMT, compliance, early diagnosis, and absence of attacks.

Al'Aref SJ, Maliakal G, Singh G, van Rosendael AR, Ma X, Xu Z, Alawamih OAH, **Lee B**, Pandey M, Achenbach S, Al-Mallah MH, Andreini D, Bax JJ, Berman DS, Budoff MJ, Cademartiri F, Callister TQ, Chang HJ, **Chinnaiyan K**, Chow BJW, Cury RC, DeLago A, Feuchtner G, Hadamitzky M, Hausleiter J, Kaufmann PA, Kim YJ, Leipsic JA, Maffei E, Marques H, Gonçalves PA, Pontone G, **Raff GL**, Rubinshtein R, Villines TC, Gransar H, Lu Y, Jones EC, Peña JM, Lin FY, Min JK and Shaw LJ (2019). "Machine learning of clinical variables and coronary artery calcium scoring for the prediction of obstructive coronary artery disease on coronary computed tomography angiography: Analysis from the CONFIRM registry." European Heart Journal. ePub Ahead of Print.

[Full Text](#)

Department of Internal Medicine

Aims: Symptom-based pretest probability scores that estimate the likelihood of obstructive coronary artery disease (CAD) in stable chest pain have moderate accuracy. We sought to develop a machine learning (ML) model, utilizing clinical factors and the coronary artery calcium score (CACs), to predict the presence of obstructive CAD on coronary computed tomography angiography (CCTA). Methods and Results: The study screened 35 281 participants enrolled in the CONFIRM registry, who underwent ≥64 detector row CCTA evaluation because of either suspected or previously established CAD. A boosted ensemble algorithm (XGBoost) was used, with data split into a training set (80%) on which 10-fold cross-validation was done and a test set (20%). Performance was assessed of the (1) ML model (using 25 clinical and demographic features), (2) ML + CACS, (3) CAD consortium clinical score, (4) CAD consortium clinical score + CACS, and (5) updated Diamond-Forrester (UDF) score. The study population comprised of 13 054 patients, of whom 2380 (18.2%) had obstructive CAD (≥50% stenosis). Machine learning with CACS produced the best performance [area under the curve (AUC) of 0.881] compared with ML alone (AUC of 0.773), CAD consortium clinical score (AUC

of 0.734), and with CACS (AUC of 0.866) and UDF (AUC of 0.682), $P < 0.05$ for all comparisons. CACS, age, and gender were the highest ranking features. Conclusion: A ML model incorporating clinical features in addition to CACS can accurately estimate the pretest likelihood of obstructive CAD on CCTA. In clinical practice, the utilization of such an approach could improve risk stratification and help guide downstream management.

Alhousseini A, Zeineddine S, Hussein A, Baddah H, Saker H, Mody S, Ibrahim SA, Thakur M, Hernandez-Andrade E and **Bahado-Singh R** (2019). "Familial hydrocephalus and dysgenesis of the corpus callosum associated with Xp22.33 duplication and stenosis of the aqueduct of Sylvius with x-linked recessive inheritance pattern." *Gynecologic and Obstetric Investigation* 84(4): 412-416.

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Department of Obstetrics & Gynecology

Introduction: X-linked recessive mutations predominantly affect male fetuses with milder or no abnormalities in female siblings. Most reports show only one affected member in the family. We are reporting a family affected with hydrocephalus, stenosis of the aqueduct of Sylvius, dysgenesis of the corpus callosum, and Xp22.33 microduplication. Case Presentation: Eighteen-year-old patient was evaluated for her 2 pregnancies; the first was a male fetus with severe hydrocephalus and the second a female fetus with mild hydrocephalus. Postnatal MRI evaluation of the male neonate revealed stenosis of the aqueduct of Sylvius, dysgenesis of the corpus callosum, and severe hydrocephalus requiring ventriculoperitoneal shunt. Postnatal MRI evaluation of the female neonate revealed mild hydrocephalus, stenosis of the aqueduct of Sylvius, and mild dysgenesis of the corpus callosum. The female baby did not require surgical intervention. Genetic testing of the mother and the 2 children revealed a 439 Kb duplication of Xp22.33. Discussion: This family demonstrates typical X-linked recessive heritability. X-inactivation is a compensatory mechanism that explains the mild symptoms of the female child and the severe symptoms of the male child. This familial case shows the importance of prenatal testing and genetic counseling and testing, including karyotype and chromosomal microarray.

Ali-Ahmed F, Matlock D, Zeitler EP, Thomas KL, **Haines DE** and Al-Khatib SM (2019). "Physicians' perceptions of shared decision-making for implantable cardioverter-defibrillators: Results of a physician survey." *Journal of Cardiovascular Electrophysiology* 30(11): 2420-2426.

[Full Text](#)

Department of Internal Medicine

Background: Centers for Medicare and Medicaid Services has mandated the use of shared decision-making (SDM) for implantable cardioverter-defibrillator (ICD) implantation. SDM tools help facilitate quality SDM by presenting patients with balanced evidence-based facts related to risk and benefits. Perceptions of ICD implantation may differ based on patients' sex and race. Objective: To determine if and how physicians are incorporating SDM in counseling patients about ICD and if they are aware of sex- and race-based differences in patients' perception of ICDs. Methods: This was a pilot study involving an online survey targeting attending physicians who implant ICDs. Physicians were randomly selected by a computer-based program; 350 surveys were sent. Results: Of the 124 (35%) respondents to the survey, 102 (84%) met the inclusion criteria, and of those, 99 (97%) were adult electrophysiologists. Most physicians (90, 88%) stated they engaged in SDM during the general consent process. Sixty-three (62%) physicians discuss end of life issues while obtaining general consent. Forty-four (43%) physicians said they use an existing SDM tool with the Colorado SDM tool being the most common (39, 89%). The majority of physicians were unaware of sex- and race-based differences in perceptions related to ICD implantation (sex 64, 63% and race 63, 62%). Conclusion: A vast majority of physicians are engaging in SDM; however less than half are using a formal SDM tool, and a minority of physicians were aware of sex- and race-based differences in patients' perception of ICD implantation. Sex- and race-based tools might help address this gap.

Almahariq M, Quinn TJ, Siddiqui ZA, **Chen PY**, **Gustafson GS**, **Jawad MS** and **Dilworth JT** (2019). "Breast-conserving therapy including whole-breast irradiation is associated with better overall survival compared to mastectomy alone in patients with early-stage, lymph node-negative breast cancer with high oncotypeDX recurrence score: An NCDB analysis." *International Journal of Radiation Oncology Biology Physics* 105(1): E15-E15.

[Full Text](#)

Department of Radiation Oncology

Alser O, Hamouri S and **Novotny NM** (2019). "Esophageal caustic injuries in pediatrics: A sobering global health issue." Asian Cardiovascular Thoracic Annals 27(6): 431-435.

[Full Text](#)

Department of Surgery

Caustic material ingestion by children is considered a global healthcare issue, especially in low-to-middle income countries. The aim of this article was to review the epidemiology, prevention, and management of caustic material ingestion in pediatric patients, comparing low-to-middle income countries with high-income countries. We conducted an English literature review using PubMed with the following keywords: (caustic OR corrosive) AND ingestion AND (pediatric OR pediatric). Our search retrieved 253 citations; all abstracts were screened by the authors, and 52 articles were finally included in our review. Prevention is key in tackling this issue, but legislation is scarce in low-to-middle income countries. Diagnosis of caustic ingestion is mostly achieved using flexible endoscopy, computed tomography, and endoscopic ultrasound, but access is limited in low-to middle income countries and diagnosis is often delayed. After stabilizing patients, the mainstay of treatment is graded endoscopic dilatation, and rarely, esophageal replacement. We concluded that caustic ingestion represents a serious condition where prevention is the key. Once a child suffers an injury, rapid and careful evaluation of the injury with endoscopy, and a course of close observation and dilations if needed, will often avoid esophageal replacement. When necessary, the stomach is the best first option if it is viable, followed by the colon, and finally, the jejunum.

Alshahrani AM, Mahmood H, Wells GA, Hossein A, Rybicki FJ, Achenbach S, Al-Mallah MH, Andreini D, Bax JJ, Berman DS, Budoff MJ, Cademartiri F, Callister TQ, Chang HJ, **Chinnaiyan K**, Cury RC, DeLego A, Feuchtner G, Hadamitzky M, Hausleiter J, Kaufmann PA, Kim YL, Leipsic JA, Maffei E, Marques H, Pontone G, **Raff G**, Rubinshtein R, Shaw LJ, Villines TC, Lin FY, Min JK and Chow BJ (2019). "Point of care clinical risk score to improve the negative diagnostic utility of an Agatston Score of zero averting the need for coronary computed tomography angiography." Circulation-Cardiovascular Imaging 12(9).

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Department of Radiation Oncology

Background: Coronary artery calcification is a marker of underlying atherosclerotic vascular disease. The absence of coronary artery calcification is associated with a low prevalence of obstructive coronary artery disease (CAD), but it cannot be ruled out completely. We sought to develop a clinical tool that can be added to Agatston score of zero to rule out obstructive CAD with high accuracy. Methods: We developed a clinical score retrospectively from a cohort of 4903 consecutive patients with an Agatston score of zero. Patients with prior diagnosis of CAD, coronary percutaneous coronary intervention, or surgical revascularization were excluded. Obstructive CAD was defined as any epicardial vessel diameter narrowing of $\geq 50\%$. The score was validated using an external cohort of 4290 patients with an Agatston score of zero from a multinational registry. Results: The score consisted of 7 variables: age, sex, typical chest pain, dyslipidemia, hypertension, family history, and diabetes mellitus. The model was robust with an area under the curve of 0.70 (95% CI, 0.65-0.76) in the derivation cohort and 0.69 (95% CI, 0.65-0.72) in the validation cohort. Patients were divided into 3 risk groups based on the score: low (≤ 6), intermediate (7-13), and high (≥ 14). Patients who score ≤ 6 have a negative likelihood ratio of 0.42 for obstructive CAD, whereas those who score ≥ 14 have a positive likelihood ratio of >5.5 for obstructive CAD. The outcome was ruled out in $>98\%$ of patients with a score ≤ 6 in the validation cohort. Conclusions: We developed a score that may be used to identify the likelihood of obstructive CAD in patients with an Agatston score of zero, which may be used to direct the need for additional testing. However, the results of this retrospective analysis are hypothesis generating and before clinical implementation should be validated in a trial with a prospectively collected data.

Andring L, Tawil A and **Deraniyagala R** (2019). "A rare case of a malignant phyllodes tumor of the breast associated with secretion of beta-human chorionic gonadotropin." Breast Journal 25(5): 984-985.

[Full Text](#)

Department of Radiation Oncology

The article presents a case study of a 50-year-old female noted fullness in her left breast and subsequently found a mass within the upper inner quadrant. It mentions the results of medical examination that showed her malignant phyllodes tumor of the breast associated with secretion of beta-human chorionic

gonadotropin.

Aneese AM, Nasr JA and Halalau A (2019). "A prospective mixed-methods study evaluating the integration of an evidence based medicine curriculum into an internal medicine residency program." [Advances in Medical Education and Practice](#) 10: 533-546.

[Full Text](#)

OUWB Medical Student Author

Department of Internal Medicine

Introduction: Evidence based medicine (EBM) skills are often lacking in the general internal medicine physician population. Our aim is to evaluate the impact of our internal medicine EBM curriculum on the residents' EBM skills and knowledge through mixed methods. Methods: A prospective study was performed that evaluated the EBM curriculum: quantitatively, with pre/posttests and qualitatively through a focus group that addressed residents' opinion on the educational and clinical impact of each aspect of the curriculum. Results: A total of 60 internal medicine residents were surveyed. Short-term EBM Skills: therapy workshops (N=25) median pretest score of 8 (IQR: [6-9]) vs posttest 8 (IQR: [8-9]), (p=0.006); diagnosis (N=16) pretest score of 6 (IQR: [3-6]) vs posttest 7 (IQR: [6-9]), (p=0.006); systematic review (N=13) pretest score of 4 (IQR: [4-6]) vs posttest 7 (IQR: [6-8]), (p=0.002); and harm (N=16) pretest score of 6 (IQR: [5-7]) vs posttest 7 (IQR: [7-8]), (p=0.004). Long-term EBM Skills: Fresno test of competence in EBM, pretest median score of 110.5/212 (IQR: 96.0-124.0) and a median posttest score of 115/212 (IQR: 100.0-130.0) (p=0.60). Having previous EBM training, being actively involved in research and being the first author on a publication was associated with higher Fresno test scores. Focus group provided qualitative feedback on the residents' EBM curriculum perception. Conclusion: This curriculum adds a significant contribution to the current field of medical education as it fills an important educational gap, through defining ways of effectively delivering EBM concepts which led to improvement in residents' ability to evaluate and apply medical literature. The EBM curriculum was overall well received by the residents.

Anusim N, Ionescu F, Ezekwudo D and **Jaiyesimi I** (2019). "Demographics and survival in atypical chronic myeloid leukemia: SEER data analysis." [Clinical Lymphoma Myeloma & Leukemia](#) 19: S345-S346.

[Full Text](#)

Department of Internal Medicine

Arden JD, Quinn TJ, Wilson TG, Hanna A, Baker K, Baschnagel AM and **Wilson GD** (2019). "Automated assessment of biomarker expression in head and neck squamous cell carcinoma (HNSCC) patients shows association between high CD44, c-MET, EGFR, and GLUT1 expression with decreased disease-free survival and overall survival." [International Journal of Radiation Oncology Biology Physics](#) 105(1): E669-E670.

[Full Text](#)

Department of Radiation Oncology

Bahado-Singh RO, Sonek J, McKenna D, Cool D, Aydas B, Turkoglu O, Bjorndahl T, Mandel R, Wishart D, Friedman P, **Graham SF** and Yilmaz A (2019). "Artificial intelligence and amniotic fluid multiomics: Prediction of perinatal outcome in asymptomatic women with short cervix." [Ultrasound in Obstetrics & Gynecology](#) 54(1): 110-118.

[Full Text](#)

Department of Obstetrics & Gynecology

Objective: To evaluate the application of artificial intelligence (AI), i.e. deep learning and other machine-learning techniques, to amniotic fluid (AF) metabolomics and proteomics, alone and in combination with sonographic, clinical and demographic factors, in the prediction of perinatal outcome in asymptomatic pregnant women with short cervical length (CL). Methods: AF samples, which had been obtained in the second trimester from asymptomatic women with short CL (< 15 mm) identified on transvaginal ultrasound, were analyzed. CL, funneling and the presence of AF 'sludge' were assessed in all cases close to the time of amniocentesis. A combination of liquid chromatography coupled with mass spectrometry and proton nuclear magnetic resonance spectroscopy-based metabolomics, as well as targeted proteomics analysis, including chemokines, cytokines and growth factors, was performed on the AF samples. To determine the robustness of the markers, we used six different machine-learning techniques, including deep learning, to predict preterm delivery < 34 weeks, latency period prior to delivery < 28 days after amniocentesis and

requirement for admission to a neonatal intensive care unit (NICU). Omics biomarkers were evaluated alone and in combination with standard sonographic, clinical and demographic factors to predict outcome. Predictive accuracy was assessed using the area under the receiver-operating characteristics curve (AUC) with 95% CI, sensitivity and specificity. Results: Of the 32 patients included in the study, complete omics, demographic and clinical data and outcome information were available for 26. Of these, 11 (42.3%) patients delivered \geq 34 weeks, while 15 (57.7%) delivered $<$ 34 weeks. There was no statistically significant difference in CL between these two groups (mean \pm SD, 11.2 \pm 4.4 mm vs 8.9 \pm 5.3 mm, $P = 0.31$). Using combined omics, demographic and clinical data, deep learning displayed good to excellent performance, with an AUC (95% CI) of 0.890 (0.810-0.970) for delivery $<$ 34 weeks' gestation, 0.890 (0.790-0.990) for delivery $<$ 28 days post-amniocentesis and 0.792 (0.689-0.894) for NICU admission. These values were higher overall than for the other five machine-learning methods, although each individual machine-learning technique yielded statistically significant prediction of the different perinatal outcomes. Conclusions: This is the first study to report use of AI with AF proteomics and metabolomics and ultrasound assessment in pregnancy. Machine learning, particularly deep learning, achieved good to excellent prediction of perinatal outcome in asymptomatic pregnant women with short CL in the second trimester.

Bahado-Singh RO, Vishweswaraiah S, Aydas B, Mishra NK, Yilmaz A, Guda C and **Radhakrishna U** (2019). "Artificial intelligence analysis of newborn leucocyte epigenomic markers for the prediction of autism." Brain Research 1724: 146457.

[Full Text](#)

Department of Obstetrics & Gynecology

A great diversity of factors contribute to the pathogenesis of autism and autism spectrum disorder (ASD). Early detection is known to correlate with improved long term outcomes. There is therefore intense scientific interest in the pathogenesis of and early prediction of autism. Recent reports suggest that epigenetic alterations may play a vital role in disease pathophysiology. We conducted an epigenome-wide analysis of newborn leucocyte (blood spot) DNA in autism as defined at the time of sample collection. Our goal was to investigate the epigenetic basis of autism and identification of early biomarkers for disease prediction. Infinium HumanMethylation450 BeadChip assay was performed to measure DNA methylation level in 14 autism cases and 10 controls. The accuracy of cytosine methylation for autism detection using six different Machine Learning/Artificial Intelligence (AI) approaches including Deep-Learning (DL) was determined. Ingenuity Pathway Analysis (IPA) was further used to interrogate autism pathogenesis by identifying over-represented biological pathways. We found highly significant dysregulation of CpG methylation in 230 loci (249 genes). DL yielded an AUC (95% CI)=1.00 (0.80-1.00) with 97.5% sensitivity and 100.0% specificity for autism detection. Epigenetic dysregulation was identified in several important candidate genes including some previously linked to autism development e.g.: EIF4E, FYN, SHANK1, VIM, LMX1B, GABRB1, SDHAP3 and PACS2. We observed significant enrichment of molecular pathways involved in neuroinflammation signaling, synaptic long term potentiation, serotonin degradation, mTOR signaling and signaling by Rho-Family GTPases. Our findings suggest significant epigenetic role in autism development and epigenetic markers appeared highly accurate for newborn prediction.

Barinsky GL, Buziashvili D, Svider PF, Carron MA, **Folbe AJ**, Hsueh WD, Eloy JA and Johnson AP (2019). "Perioperative desmopressin for patients undergoing otolaryngologic procedures: A systematic review." Otolaryngology - Head and Neck Surgery (United States) 161(1): 36-45.

[Full Text](#)

Department of Surgery

Objective: Desmopressin (DDAVP) is a hemostatic agent used to manage bleeding in patients with hemostatic disorders, and there is a lack of published data to guide its use during otolaryngology procedures. The objective of this study was to conduct an evidence-based systematic review of the reported uses, efficacy, and adverse effects of DDAVP in the otolaryngology surgical setting. Data Sources: PubMed, MEDLINE, and Embase were searched for articles on the use of DDAVP in otolaryngology. Review Methods: The Methodological Index for Non-Randomized Studies criteria and Cochrane bias tool were used to assess study quality. Patient demographics, DDAVP dosing and route, and outcomes such as bleeding and adverse events were collected. A summary of evidence table was created specifying levels of evidence, benefits, and harm. Results: Nineteen studies encompassing 440 patients were included. Sixteen studies discussed DDAVP

for prophylaxis, and 3 discussed postoperative use. DDAVP effectively prevented bleeding in high-risk patients and successfully facilitated a dry surgical field when necessary. DDAVP had a 100% success rate when used symptomatically. Five studies described adverse effects, including hyponatremia (12.3%), nausea (2.0%), emesis (0.9%), and seizure (0.2%). The aggregate level of evidence for its use was Level B for adenotonsillectomy, septoplasty, and turbinate procedures and Level C for rhinoplasty. Conclusion: Current literature supports the use of DDAVP in otolaryngology surgical procedures as both a perioperative prophylactic agent and a postoperative symptomatic intervention for bleeding. Both modalities are effective with minimal adverse events. Further well-designed randomized trials are necessary to conclusively formulate guidelines for DDAVP use in otolaryngology.

Bartley J, Han E, Gupta P, Gaines N, Killinger KA, Boura JA, Farrah M, **Gillera J**, **Sirls LT** and **Peters KM** (2019). "Transvaginal trigger point injections improve pain scores in women with pelvic floor hypertonicity and pelvic pain conditions." Female Pelvic Medicine & Reconstructive Surgery 25(5): 392-396.

[Full Text](#)

Department of Urology

Objectives: Chronic pelvic pain in women often requires multimodal treatment regimens. We describe our method of transvaginal trigger point injections (TPIs) and report outcomes using change in pain scores. **Methods:** This was a retrospective review of women treated with in-office pelvic floor muscle injections from January 2012 to August 2015. Lidocaine 1% and 2%, bupivacaine 0.5%, or ropivacaine 0.5% with or without the addition of triamcinolone 40 mg was used for the injections. Pain was reported on a 0- to 10-point numerical rating scale before and after injection. Differences in pretreatment and posttreatment pain scores were analyzed after the first injection and after subsequent injections. Repeated-measures analysis was used to determine if any variable affected treatment response. **Results:** One hundred one women with a mean age of 44 years had a total of 257 separate visits for pelvic floor muscle injections. Triamcinolone was used at 90.2% (230/255) of the TPI visits. After the initial TPI visit, there was significant decrease in total levator numerical rating scale score (maximum score, 20; mean, -6.21 +/- 4.7; $P < 0.0001$), and 77% (70/91) of patients had improved. These significant improvements were noted at all visits 1 through 4 and whether bilateral or unilateral injections were done. Only the total amount of local anesthetic used had a significant effect on the change in total levator pain scores ($P = 0.002$). Minor adverse effects including leg numbness, dizziness, nausea, bleeding, and headache occurred at 10% of visits. **Conclusions:** Pelvic floor muscle injections decrease pain levels in women with pelvic floor dysfunction.

Batley TWK, Dreizin D, Bodanapally UK, Wnorowski A, Issa G, **Iacco A** and Chiu W (2019). "A comparison of segmented abdominopelvic fluid volumes with conventional CT signs of abdominal compartment syndrome in a trauma population." Abdominal Radiology 44(7): 2648-2655.

[Full Text](#)

Department of Surgery

Purpose: To compare the utility of abdominopelvic fluid volume measurements with established computed tomography signs for refractory post-traumatic abdominal compartment syndrome. **Methods:** This retrospective observational cohort study included 64 consecutive adult trauma patients with preoperative CT and diagnosis of refractory abdominal compartment syndrome requiring decompressive laparotomy at a level I trauma referral center between 2004 and 2014. We hypothesized that abdominal fluid volume measurements would be more predictive of the need for early laparotomy than previously described conventional CT signs of refractory ACS. Abdominopelvic fluid volumes were determined quantitatively using semi-automated segmentation software. The following conventional imaging parameters were recorded: abdominal anteroposterior:transverse ratio (round belly sign); infrahepatic vena cava diameter; distal abdominal aortic diameter; largest single small bowel wall diameter; hydronephrosis, inguinal herniation; and mesenteric and body wall edema. For outcome analysis, patients were stratified into two groups: those who underwent early (< 24 h) and late (>= 24 h) decompressive laparotomy following CT. Correlation analysis, comparison of means, and multivariate logistic regression were performed. **Results:** Abdominal fluid volumes ($p = 0.001$) and anteroposterior:transverse ratio ($p = 0.009$) were increased and inferior vena cava diameter ($p = 0.009$) was decreased in the early decompressive laparotomy group. Multivariate analysis including conventional CT variables, fluid volumes, and laboratory values revealed abdominal fluid volumes ($p = 0.012$; Delta in log odds of 1.002/mL) as the only independent predictor of early decompressive laparotomy.

Conclusions: Segmented abdominopelvic free fluid volumes had greater predictive utility for decision to perform early decompressive laparotomy than previously described ACS-related CT signs in trauma patients who developed refractory abdominal compartment syndrome.

Beshai JF, Serwer GA, Farrell MB, Vermeiren F, Bruhn JK, **Haines DE**, Paruch M, Saliba WI, Walsh EP and Leiserowitz AS (2019). "Early adopter program perception on the value of accreditation: Program survey results from the Intersocietal Accreditation Commission for Cardiac Electrophysiology Accreditation." Heart Rhythm 16(5): 511-512.

[Request Form](#)

Department of Internal Medicine

Background: The Intersocietal Accreditation Commission (IAC) is a non-profit organization that evaluates and accredits facility programs. The accreditation of cardiac electrophysiology (CEP) labs began in 2016.

Objective: To determine if participating programs find value in the accreditation process. Methods: An anonymous electronic survey was sent to 214 email contacts at 20 IAC CEP accredited programs. Survey participant agreement of IAC accreditation effect on 17 quality measures was evaluated Results: There were 27 responses (13%) from 13 laboratories (68%). Respondents included nurses (54%), physicians (19%) and technologists (19%). Most respondents (81%) worked in adult CEP laboratories. See Figure 1. Conclusion: Early adopters sought IAC CEP accreditation to improve procedural quality and for recognition of excellence. The majority of the programs had the perception that the IAC accreditation process improved the quality and safety of CEP procedures at their laboratory and increased guideline awareness. In the future, objective program compliance data will need to be measured against the subjective program perception of accreditation effect on quality measures.

Beshai JF, Serwer GA, Farrell MB, Vermeiren F, Lally M, Bruhn JK, **Haines DE**, Paruch M, Saliba WI, Walsh EP and Leiserowitz AS (2019). "Early adopters of Intersocietal Accreditation Commission Cardiac Electrophysiology Accreditation: Are programs compliant with documentation and reporting?" Heart Rhythm 16(5): 226.

[Request Form](#)

Department of Internal Medicine

Background: The Intersocietal Accreditation Commission (IAC) is a non-profit organization that evaluates and accredits facility programs. The accreditation of cardiac electrophysiology (CEP) labs began in 2016.

Objective: This study aims to identify compliance with the IAC Standards and Guidelines for Cardiac Electrophysiology Accreditation. Methods: Using the IAC database, peer-review data was extracted from the initial 16 accredited labs. Compliance with the following data categories was specifically reviewed: physician reporting (11), procedure records (17), and QI documentation (3). Program compliance for each data category was calculated as an overall percentage of the documentation data points reported by the programs. Results: Compliance with the standards for physician reporting, procedural documentation, and QI reporting was 6%, 0%, and 13% respectively. The most compliant physician reporting metric was complication documentation (88%), and the least compliant metric was documentation of report finalization within 48 (31%). The most and least compliant procedural documentation metrics were pre-procedure history and physical (88%) and documentation of pre-procedure fire safety evaluation (19%) respectively. QI documentation most and least compliant metrics were staff participation in QI meetings (88%) and documentation of QI measures in meeting minutes (13%) respectively. Conclusion: Significant noncompliance with the IAC Standards identified for most labs seeking IAC CEP accreditation provides an opportunity for labs to address the required metrics and thereby improve the quality of their programs and ultimately patient care.

Beydoun H, Jaggi R, Griffith K, Burmeister JW, Moran JM, Vicini FA, **Dilworth JT**, Hayman JA, Paximadis P, Boike TP, **Gustafson GS**, Radawski JD, Walker EM, Pierce LJ and Dominello MM (2019). "Are we missing acute toxicities associated with hypofractionated breast irradiation? A report from a large multi-center cohort study." International Journal of Radiation Oncology Biology Physics 105(1): E51-E51.

[Full Text](#)

Department of Radiation Oncology

Bloomingdale R, Walters HL, III, Mertens A, Ramos R, **Gallagher M**, Forbes TJ and Kobayashi D (2019). "Coronary sinus stenosis with right coronary artery to coronary sinus fistula." Annals of Thoracic Surgery 108(1): e31-e34.

[Full Text](#)

Department of Internal Medicine

Coronary artery fistula is a rare congenital cardiac anomaly. We report a 34-year-old woman who presented with a recurrent large pericardial effusion during pregnancy. She was found to have a right coronary artery to coronary sinus fistula. The coronary sinus was severely dilated due to coronary sinus ostial stenosis. Primary surgical closure of coronary artery fistula was performed with resection of coronary sinus ostial stenosis.

Brahmamdham P, Carveth SL, Smyth M, Gendelman BS and Maisels MJ (2019). "Factors influencing choice of medical vs. surgical treatment of pediatric appendicitis." *Journal of Pediatric Surgery* 54(9): 1800-1803.

[Full Text](#)

Department of Pediatrics

Department of Surgery

OUWB Medical Student Author

Purpose: To examine what proportion of caregivers, if given a choice, would choose medical versus surgical treatment of appendicitis and what factors would be important in their decision. Methods: A survey was devised and given to the caregivers of children presenting to the pediatrician for a routine visit in community and academic pediatric clinics. The survey presented a summary of outcomes after medical (non-operative) and surgical treatment of uncomplicated appendicitis. Participants were then asked to choose medical versus surgical treatment if their child were to develop appendicitis. They were also asked to rate the importance of certain factors in their decision -1 being "not important" and 5 being "very important". Results: Four hundred surveys were distributed with an 86.2% (345/400) response rate. Six percent (21/342) of respondents reported a history of appendicitis and 49.4% (168/340) reported having known someone who had appendicitis. The majority of respondents, 85.3% (284/333), were mothers. A minority of respondents, 41.7% (95% CI: 36.7, 47.0), chose medical treatment over surgery for appendicitis. There was no statistical difference in the proportion of mothers (41.6%) versus fathers who chose medical treatment (41.3%). Caregivers who chose medical treatment were more likely to rate time in hospital ($p=.008$) and time out of school ($p=.05$) as important in decision making when compared with those who chose surgery. Those who chose surgical treatment were more likely to rate risk of recurrent appendicitis ($p<.001$) as important to decision making. In the multivariate analysis, those who rated time in hospital as very important had more than twice the odds of choosing medical therapy (OR 2.20, $p=0.02$) when compared with those who rated it as less important. Not knowing someone who has had appendicitis was significantly associated with choosing medical therapy when compared with those who do know someone who has had appendicitis, OR 2.3, $p=.002$. Rating pain as very important was also significantly associated with choosing medical therapy, when compared to those rating pain 1-3, OR 3.38, $p=.03$. Conclusions: In this survey of caregivers of children presenting for routine care, 41.7% would choose medical, or non-operative, therapy for their children with acute appendicitis. The risk of recurrence, time in hospital, and time out of school, pain, and knowing someone who has had appendicitis were all important factors that families may consider when making a decision. These data may be useful for surgeons counseling patients on which treatment to pursue.

Brisson RJ, Kochanny S, Arshad S, Dekker A, DeSouza JA, Saloura V, Vokes EE and Seiwert TY (2019). "A pilot study of the pan-class I PI3K inhibitor buparlisib in combination with cetuximab in patients with recurrent or metastatic head and neck cancer." *Head and Neck* 41(11): 3842-3849.

[Full Text](#)

OUWB Medical Student Author

Background: This study assessed the maximum tolerated dose (MTD) of the PI3K inhibitor buparlisib given concurrently with cetuximab in recurrent and metastatic (R/M) head and neck squamous cell carcinoma (HNSCC). Methods: Twelve patients with R/M HNSCC were enrolled. Patients were given oral buparlisib starting day 7 and daily thereafter. The dose of buparlisib was escalated in a 3 + 3 design followed by a dose expansion cohort of 6 patients. The MTD of buparlisib per protocol was 100 mg daily with cetuximab given intravenously every 14 days starting day 0. Results: Ten patients had ≥ 2 previous treatment regimens (11 with prior cetuximab). There were no dose limiting toxicities observed during dose escalation. One patient achieved a partial response and 4 achieved stable disease. Conclusion: Based on this pilot study, buparlisib at 100 mg daily plus cetuximab proved to be well-tolerated. Patients previously treated with cetuximab

monotherapy showed benefit from this combination.

Brisson RJ, Sura K, Ye H, Marvin K, **Gustafson GS** and **Krauss DJ** (2019). "Comparison of radiation therapy and radical prostatectomy in the treatment of high-risk prostate cancer: A retrospective matched pair review." [International Journal of Radiation Oncology Biology Physics](#) 105(1): E267-E267.

[Full Text](#)

OUWB Medical Student Author

Department of Radiation Oncology

Cappell MS and Friedel DM (2019). "Stricter national standards are required for credentialing of endoscopic-retrograde-cholangiopancreatography in the United States." [World Journal of Gastroenterology](#) 25(27): 3468-3483.

[Full Text](#)

Department of Internal Medicine

Endoscopic-retrograde-cholangiopancreatography (ERCP) is now a vital modality with primarily therapeutic and occasionally solely diagnostic utility for numerous biliary/pancreatic disorders. It has a significantly steeper learning curve than that for other standard gastrointestinal (GI) endoscopies, such as esophagogastroduodenoscopy or colonoscopy, due to greater technical difficulty and higher risk of complications. Yet, GI fellows have limited exposure to ERCP during standard-three-year-GI-fellowships because ERCP is much less frequently performed than esophagogastroduodenoscopy/colonoscopy. This led to adding an optional year of training in therapeutic endoscopy. Yet many graduates from standard three-year-fellowships without advanced training intensely pursue independent/unsupervised ERCP privileges despite inadequate numbers of performed ERCPs and unacceptably low rates of successful selective cannulation of desired (biliary or pancreatic) duct. Hospital credentialing committees have traditionally performed ERCP credentialing, but this practice has led to widespread flouting of recommended guidelines (e.g., planned privileging of applicant with 20% successful cannulation rate, or after performing only 7 ERCPs); and intense politicking of committee members by applicants, their practice groups, and potential competitors. Consequently, some gastroenterologists upon completing standard fellowships train and learn ERCP "on the job" during independent/unsupervised practice, which can result in bad outcomes: high rates of failed bile duct cannulation. This severe clinical problem is indicated by publication of ≥ 12 ERCP competency studies/guidelines during last 5 years. However, lack of mandatory, quantitative, ERCP credentialing criteria has permitted neglect of recommended guidelines. This work comprehensively reviews literature on ERCP credentialing; reviews rationales for proposed guidelines; reports problems with current system; and proposes novel criteria for competency. This work advocates for mandatory, national, written, minimum, quantitative, standards, including cognitive skills (possibly assessed by a nationwide examination), and technical skills, assessed by number performed (≥ 200 -250 ERCPs), types of ERCPs, success rate (approximately $\geq 90\%$ cannulation of desired duct), and letters of recommendation by program director/ERCP mentor. Mandatory criteria should ideally not be monitored by a hospital committee subjected to intense politicking by applicants, their employers, and sometimes even competitors, but an independent national entity, like the National Board of Medical Examiners/American Board of Internal Medicine.

Cappell MS and Gjeorgjievski M (2019). "Gastroenterologist successfully extracting at EGD a blunt, semi-rigid, foreign body tightly impacted at the UES." [Minerva Gastroenterologica e Dietologica](#) 65(3): 239-241.

[Request Form](#)

Department of Internal Medicine

Cappell MS, Stavropoulos SN and Friedel D (2019). "Updated systematic review of achalasia, with a focus on POEM therapy." [Digestive Diseases and Sciences](#). ePub Ahead of Print.

[Full Text](#)

Department of Internal Medicine

Aim: To systematically review clinical presentation, diagnosis, and therapy of achalasia, focusing on recent developments in high-resolution esophageal manometry (HREM) for diagnosis and peroral endoscopic myotomy (POEM) for therapy. Methods: Systematic review of achalasia using computerized literature search via PubMed and Ovid of articles published since 2005 with keywords ("achalasia") AND ("high resolution" or

"HREM" or "peroral endoscopic myotomy" or "POEM"). Two authors independently performed literature searches and incorporated articles into this review by consensus according to prospectively determined criteria. Results: Achalasia is an uncommon esophageal motility disorder, usually manifested by dysphagia to solids and liquids, and sometimes manifested by chest pain, regurgitation, and weight loss. Symptoms often suggest more common disorders, such as gastroesophageal reflux disease (GERD), thus often delaying diagnosis. Achalasia is a predominantly idiopathic chronic disease. Diagnosis is typically suggested by barium swallow showing esophageal dilation; absent distal esophageal peristalsis; smoothly tapered narrowing ("bird's beak") at esophagogastric junction; and delayed passage of contrast into stomach. Diagnostic findings at high-resolution esophageal manometry (HREM) include: distal esophageal aperistalsis and integrated relaxation pressure (trough LES pressure during 4 s) > 15 mmHg. Achalasia is classified by HREM into: type 1 classic; type 2 compartmentalized high pressure in esophageal body, and type 3 spastic. This classification impacts therapeutic decisions. Esophagogastroduodenoscopy is required before therapy to assess esophagus and esophagogastric junction and to exclude distal esophageal malignancy. POEM is a revolutionizing achalasia therapy. POEM creates a myotomy via interventional endoscopy. Numerous studies demonstrate that POEM produces comparable, if not superior, results compared to standard laparoscopic Heller myotomy (LHM), as determined by LES pressure, dysphagia frequency, Eckardt score, hospital length of stay, therapy durability, and incidence of GERD. Other therapies, including botulinum toxin injection and pneumatic dilation, have moderately less efficacy and much less durability than POEM. Conclusion: This comprehensive review suggests that POEM is equivalent or perhaps superior to LHM for achalasia in terms of cost efficiency, hospital length of stay, and relief of dysphagia, with comparable side effects. The data are, however, not conclusive due to sparse long-term follow-up and lack of randomized comparative clinical trials. POEM therapy is currently limited by a shortage of trained endoscopists.

Carpenter CF, Aljasseem A, Stassinopoulos J, Pisacreta G and Hutton D (2019). "A cost-effectiveness analysis of an adjuvanted subunit vaccine for the prevention of herpes zoster and post-herpetic neuralgia." [Open Forum Infectious Diseases](#) 6(7).

[Full Text](#)

Department of Physical Medicine & Rehabilitation

Department of Internal Medicine

Background: Herpes zoster (HZ) develops in up to 50% of unvaccinated individuals, accounting for >1 million cases annually in the United States. A live attenuated HZ vaccine (LAV) is Food and Drug Administration approved for those age 50 years or older, though Advisory Committee on Immunization Practices recommendations are only for those age 60 years or older. LAV efficacy is similar to 70% for persons 50-59 years of age, with lower efficacy in older adults. A new 2-dose adjuvanted subunit vaccine (SUV) has >95% efficacy in persons 50-69 years of age and remains similar to 90% efficacious in persons vaccinated at age 70 years. Methods: To estimate the relative cost-effectiveness of SUV, LAV, and no vaccination (NoV) strategies, a Markov model was developed based on published data on vaccine efficacy, durability of protection, quality of life, resource utilization, costs, and disease epidemiology. The perspective was US societal, and the cycle length was 1 year with a lifelong time horizon. SUV efficacy was estimated to wane at the same rate as LAV. Outcomes evaluated included lifetime costs, discounted life expectancy, and incremental cost-effectiveness ratios (ICERs). Results: For individuals vaccinated at age 50 years, the ICER for LAV vs NoV was \$118 535 per quality-adjusted life-year (QALY); at age 60 years, the ICER dropped to \$42 712/QALY. SUV was more expensive but had better ICERs than LAV. At age 50, the ICER was \$91 156/QALY, and it dropped to \$ 19 300/QALY at age 60. Conclusions: Vaccination with SUV was more cost-effective than LAV in all age groups studied. Vaccination with SUV at age 50 years appears cost-effective, with an ICER <\$100 000/QALY.

Carty JN, Ziadni MS, Holmes HJ, Tomakowsky J, **Peters K**, Schubiner H and Lumley MA (2019). "The effects of a life stress emotional awareness and expression interview for women with chronic urogenital pain: A randomized controlled trial." [Pain Medicine](#) 20(7): 1321-1329.

[Full Text](#)

Department of Urology

Objective: Women with chronic urogenital pain (CUP) conditions have elevated rates of lifetime trauma, relational stress, and emotional conflicts, but directly assessing and treating psychological stress is rarely done in women's health care settings. We developed and tested the effects on patients' somatic and

psychological symptoms of a life stress interview that encourages disclosure about stressors and uses experiential techniques to increase awareness of links between stress, emotions, and symptoms. Methods: In this randomized trial, women with CUP recruited at a multidisciplinary women's urology center received either a single 90-minute life stress interview (N = 37) or no interview (treatment-as-usual control; N = 25). Self-report measures of pain severity (primary outcome), pain interference, pelvic floor symptoms, and psychological symptoms (anxiety and depression) were completed at baseline and six-week follow-up. Results: Differences between the life stress interview and control conditions at follow-up were tested with analyses of covariance, controlling for baseline level of the outcome and baseline depression. Compared with the control condition, the interview resulted in significantly lower pain severity and pelvic floor symptoms, but the interview had no effect on pain interference or psychological symptoms. Conclusions: An intensive life stress emotional awareness expression interview improved physical but not psychological symptoms among women with CUP seen in a tertiary care clinic. This study suggests that targeting stress and avoided emotions and linking them to symptoms may be beneficial for this complex group of patients.

Chasse MH, Boguslawski E, Sorensen K, Beddows I, **Rybski K**, Madaj Z, Kitchen-Goosen SM and Grohar PJ (2019). "Mithramycin inhibits KDM6A (UTX) and SWI/SNF to induce apoptosis in malignant rhabdoid tumor." Cancer Research 79(13).

[Full Text](#)

OUWB Medical Student Author

Chen CJ, Lee CC, Ding D, Tzeng SW, Kearns KN, Kano H, Atik A, Ironside N, Joshi K, Huang PP, Kondziolka D, Mathieu D, Iorio-Morin C, **Grills IS**, Quinn TJ, Siddiqui Z, Marvin K, Feliciano C, Faramand A, Starke RM, Barnett G, Lunsford LD and Sheehan JP (2019). "Stereotactic radiosurgery for unruptured versus ruptured pediatric brain arteriovenous malformations." Stroke 50(10): 2745-2751.

[Request Form](#)

Department of Radiation Oncology

Background and Purpose: The effects of prior hemorrhage on stereotactic radiosurgery (SRS) outcomes for pediatric arteriovenous malformations (AVMs) are not well defined. The aim of this multicenter, retrospective cohort study is to compare the SRS outcomes for unruptured versus ruptured pediatric AVMs. Methods: The International Radiosurgery Research Foundation pediatric AVM database from 1987 to 2018 was reviewed retrospectively. Favorable outcome was defined as AVM obliteration, no post-SRS hemorrhage, and no permanently symptomatic radiation-induced changes. Associations between prior hemorrhage and outcomes were adjusted for baseline differences, inverse probability weights, and competing risks. Results: The study cohort comprised 153 unruptured and 386 ruptured AVMs. Favorable outcome was achieved in 48.4% and 60.4% of unruptured and ruptured AVMs, respectively (adjusted odds ratio, 1.353; P=0.190). Cumulative AVM obliteration probabilities were 51.2%, 59.4%, 64.2%, and 70.0% for unruptured and 61.0%, 69.3%, 74.0%, and 79.3% for ruptured AVMs at 4, 6, 8, and 10 years, respectively (subhazard ratio, 1.311; P=0.020). Cumulative post-SRS hemorrhage probabilities were 4.5%, 5.6%, 5.6%, and 9.8% for unruptured and 4.7%, 6.1%, 6.1%, and 10.6% for ruptured AVMs at 4, 6, 8, and 10 years, respectively (subhazard ratio, 1.086; P=0.825). Probabilities of AVM obliteration (adjusted subhazard ratio, 0.968; P=0.850) and post-SRS hemorrhage (adjusted subhazard ratio, 1.663; P=0.251) were comparable between the 2 cohorts after inverse probability weight adjustments. Symptomatic (15.8% versus 8.1%; adjusted odds ratio, 0.400; P=0.008) and permanent (9.2% versus 5.0%; adjusted odds ratio, 0.441; P=0.045) radiation-induced change were more common in unruptured AVMs. Conclusions: The overall outcomes after SRS for unruptured versus ruptured pediatric AVMs are comparable. However, symptomatic and permanent radiation-induced change occur more frequently in pediatric patients with unruptured AVMs.

Cole DW, Svider PF, **Shenouda KG**, Lee PB, Yoo NG, McLeod TM, Mutchnick SA, Yoo GH, Kaufman RJ, Callaghan MU and Fribley AM (2019). "Targeting the unfolded protein response in head and neck and oral cavity cancers." Experimental Cell Research 382(1).

[Full Text](#)

OUWB Medical Student Author

Many FDA-approved anti-cancer therapies, targeted toward a wide array of molecular targets and signaling networks, have been demonstrated to activate the unfolded protein response (UPR). Despite a critical role

for UPR signaling in the apoptotic execution of cancer cells by many of these compounds, the authors are currently unaware of any instance whereby a cancer drug was developed with the UPR as the intended target. With the essential role of the UPR as a driving force in the genesis and maintenance of the malignant phenotype, a great number of pre-clinical studies have surged into the medical literature describing the ability of dozens of compounds to induce UPR signaling in a myriad of cancer models. The focus of the current work is to review the literature and explore the role of the UPR as a mediator of chemotherapy-induced cell death in squamous cell carcinomas of the head and neck (HNSCC) and oral cavity (OCSCC), with an emphasis on preclinical studies.

Cordeiro D, Xu Z, Mehta GU, Ding D, Vance ML, Kano H, Sisterson N, Yang HC, Kondziolka D, Lunsford LD, Mathieu D, Barnett GH, Chiang V, Lee J, Sneed P, Su YH, Lee CC, Krsek M, Liscak R, Nabeel AM, El-Shehaby A, Karim KA, Reda WA, Martinez-Moreno N, Martinez-Alvarez R, Blas K, **Grills I, Lee KC**, Kosak M, Cifarelli CP, Katsevman GA and Sheehan JP (2019). "Hypopituitarism after Gamma Knife radiosurgery for pituitary adenomas: A multicenter, international study." *Journal of Neurosurgery* 131(4): 1188-1196.

[Request Form](#)

Department of Radiation Oncology

Objective: Recurrent or residual adenomas are frequently treated with Gamma Knife radiosurgery (GKRS). The most common complication after GKRS for pituitary adenomas is hypopituitarism. In the current study, the authors detail the timing and types of hypopituitarism in a multicenter, international cohort of pituitary adenoma patients treated with GKRS. Methods: Seventeen institutions pooled clinical data obtained from pituitary adenoma patients who were treated with GKRS from 1988 to 2016. Patients who had undergone prior radiotherapy were excluded. A total of 1023 patients met the study inclusion criteria. The treated lesions included 410 nonfunctioning pituitary adenomas (NFPAs), 262 cases of Cushing's disease (CD), and 251 cases of acromegaly. The median follow-up was 51 months (range 6–246 months). Statistical analysis was performed using a Cox proportional hazards model to evaluate factors associated with the development of new-onset hypopituitarism. Results: At last follow-up, 248 patients had developed new pituitary hormone deficiency (86 with NFPA, 66 with CD, and 96 with acromegaly). Among these patients, 150 (60.5%) had single and 98 (39.5%) had multiple hormone deficiencies. New hormonal changes included 82 cortisol (21.6%), 135 thyrotropin (35.6%), 92 gonadotropin (24.3%), 59 growth hormone (15.6%), and 11 vasopressin (2.9%) deficiencies. The actuarial 1-year, 3-year, 5-year, 7-year, and 10-year rates of hypopituitarism were 7.8%, 16.2%, 22.4%, 27.5%, and 31.3%, respectively. The median time to hypopituitarism onset was 39 months. In univariate analyses, an increased rate of new-onset hypopituitarism was significantly associated with a lower isodose line ($p = 0.006$, HR = 8.695), whole sellar targeting ($p = 0.033$, HR = 1.452), and treatment of a functional pituitary adenoma as compared with an NFPA ($p = 0.008$, HR = 1.510). In multivariate analyses, only a lower isodose line was found to be an independent predictor of new-onset hypopituitarism ($p = 0.001$, HR = 1.38). Conclusions: Hypopituitarism remains the most common unintended effect of GKRS for a pituitary adenoma. Treating the target volume at an isodose line of 50% or greater and avoiding whole-sellar radiosurgery, unless necessary, will likely mitigate the risk of post-GKRS hypopituitarism. Follow-up of these patients is required to detect and treat latent endocrinopathies.

Cret N, Halalau M, Rezvani S and **Halalau A** (2019). "Posterior reversible encephalopathy syndrome caused by Fioricet (butalbital-acetaminophen-caffeine)." *Case Reports in Medicine* 5410872: 1-6.

[Full Text](#)

Department of Internal Medicine

A common side effect of Fioricet (butalbital-acetaminophen-caffeine) is high blood pressure caused by the caffeine content. We report a case of a 54-year-old female who developed the worst headache of her life after taking 2 tablets of butalbital-acetaminophen-caffeine every six hours for three days before presenting to the emergency department, where her blood pressure was 178/87 mmHg. A brain MRI showed edema in the subcortical white matter of the right occipital lobe, right parietal lobe, and left occipital lobe. Posterior reversible encephalopathy syndrome (PRES) was diagnosed. The patient returned within the week with severe headaches, visual hallucinations, and a blood pressure of 150/80 mmHg. Repeat brain MRI showed slight improvement of edema. Her brain imaging studies completely normalized at 10 months after diagnosis. Although the patient received appropriate treatment, she was unable to make full recovery. Due to her inability to work and the constant pain, the patient continues to struggle with depression.

Crew KD, Anderson GL, Hershman DL, Terry MB, Tehranifar P, Lew DL, Yee M, **Brown EA**, Kairouz SS, Kuwajerwala N, Bevers T, Doster JE, Zarwan C, Kruper L, Minasian LM, Ford L, Arun B, Neuhouser M, Goodman GE and Brown PH (2019). "Randomized double-blind placebo-controlled biomarker modulation study of vitamin D supplementation in premenopausal women at high risk for breast cancer " [Cancer Prevention Research](#) 12(7): 481-489.

[Full Text](#)

Department of Surgery

Observational studies have reported an inverse association between vitamin D intake and breast cancer risk. We examined whether vitamin D supplementation in high-risk premenopausal women reduces mammographic density (MD), an established breast cancer risk factor. We conducted a multicenter randomized double-blind placebo-controlled trial in premenopausal women at high risk for breast cancer [5-year risk \geq 1.67%, lifetime risk \geq 20%, lobular carcinoma in situ, prior stage 0-II breast cancer, hereditary breast cancer syndrome, or high MD (heterogeneously/extremely dense) with a baseline serum 25-hydroxyvitamin D [25 (OH)D] \leq 32 ng/mL. Participants were randomized to 12 months of vitamin D3 20,000 IU/week or matching placebo. The primary endpoint was change in MD from baseline to 12 months using the Cumulus technique. Secondary endpoints included serial blood bio- markers [25(OH)D, 1,25-dihydroxyvitamin D (1,25 (OH)D), insulin-like growth factor (IGF)-1, IGF-binding protein-3] and MD change at 24 months. Among 208 women randomized, median age was 44.6 years, 84% were white, 33% had baseline 25 (OH)D $<$ 20 ng/mL, and 78% had high baseline MD. Comparing the active and placebo groups at 12 months, MD changes were small and did not significantly differ. Mean MD changes at 12 and 24 months were -0.3% and -1.2%, respectively, in the active arm and +1.5% and +1.6% with placebo ($P > 0.05$). We observed a mean change in serum 25(OH)D of -18.9 versus +2.8 ng/mL ($P < 0.01$) and IGF-1 of -9.8 versus -1.8 ng/mL ($P = 0.28$), respectively. At 12 months, MD was positively correlated with serum IGF-1 and IGF-1/IGFBP-3 ($P < 0.01$). This trial does not support the use of vitamin D supplementation for breast cancer risk reduction.

Cutie C, Eφος M, Sobol J, **Gillera J**, Maffeo J and Kennelly M (2019). "Continuous intravesical delivery of tiroprium chloride significantly improves OAB symptoms: Results of a phase 1B study." [Neurourology and Urodynamics](#) 38: S121-S122.

[Full Text](#)

Department of Urology

Davis FM, Jerzal E, Albright J, Kazmers A, Monsour A, **Bove P** and Henke PK (2019). "Variation in the elective management of small abdominal aortic aneurysms and physician practice patterns." [Journal of Vascular Surgery](#) 70(4): 1089-1098.

[Full Text](#)

Department of Surgery

Objective: Recent vascular societal guidelines have recommended an abdominal aortic aneurysm (AAA) size threshold for elective intervention; however, limited data have documented how well these AAA diameter benchmarks are being met. The objective of this study was to analyze variation in management of AAAs based on diameter and to determine the physician's rationale for intervention on small AAAs in relation to recommended treatment guidelines. Methods: A retrospective review of a statewide vascular surgery registry of all elective endovascular or open surgical AAA repairs from January 2012 to January 2016 was performed. Patients were dichotomized on the basis of aortic diameter at time of intervention into either guideline size AAAs or small AAAs, which were defined as $<$ 5.5 cm in men, $<$ 5.0 cm in women, or with growth $<$ 1.0 cm/y. An internal review was conducted of all small AAAs to determine the physician's rationale for intervention. The primary outcomes were variation in adherence to recommended treatment guidelines and the physician's rationale for treatment of small AAAs. Risk-adjusted major complication and mortality rates were calculated at 30 days and 1 year using a propensity score matching analysis. Results: Among the 3932 patients who underwent an elective AAA repair, 485 (12.3%) were repaired at diameters smaller than recommended by guidelines. The median AAA size in the small AAA cohort was 5.1 cm (interquartile range, 4.7-5.3 cm) vs 5.6 cm (interquartile range, 5.2-6.1 cm) in the guideline-based group. Percentage of small AAA repairs varied widely between hospitals from 1.4% to 44.4%. The physician's rationale for the majority of early interventions included the patient's anxiety (12.0%), combined aortoiliac occlusive disease (14.8%),

aneurysm anatomy (28.2%), and does not adhere to guidelines (30%). The small AAA cohort had no significant difference in the 30-day or 1-year risk-adjusted mortality in comparison to guideline size AAAs. Conclusions: Despite well-established aortic diameter threshold guidelines, marked variation exists both at the hospital level and in terms of the physician's rationale for the management of elective AAA repairs. These findings demonstrate the challenge of providing uniform care for patients with AAAs despite established guidelines.

De la Huerta I, **Gappy M, Drenser KA**, Capone A and **Trese MT** (2019). "Long-term outcomes on lens clarity after lens-sparing vitrectomy for persistent fetal vasculature syndrome." *Investigative Ophthalmology & Visual Science* 60(9).

[Full Text](#)

OUWB Medical Student Author

Department of Ophthalmology

De la Huerta I, Yonekawa Y, Thomas BJ and **Capone A, Jr.** (2019). "A surgical technique for the management of tractional retinal detachment in aggressive posterior retinopathy of prematurity treated with intravitreal bevacizumab." *Retina* 39: S156-S159.

[Full Text](#)

Department of Ophthalmology

Dhondt N, Healy C, Clarke M and **Cannon M** (2019). "Childhood adversity and adolescent psychopathology: Evidence for mediation in a national longitudinal cohort study." *British Journal of Psychiatry* 215(3): 559-564.

[Full Text](#)

Department of Internal Medicine

Background: Childhood adversity is a well-established risk factor for psychopathology; however, many who experience adversity do not go on to develop psychopathology. Poor self-concept and poor parental support are known risk factors for adolescent psychopathology, which may account for some of this mechanism. Aims To investigate candidate mediators in the relationship between childhood adversity and psychopathology. Method: We used data from the age 9 and 13 waves of the child-cohort of the Growing Up in Ireland study. We undertook mediation analysis by path decomposition of the relationship between childhood adversity and psychopathology (internalising and externalising problems) at age 13 and persistent psychopathology. Candidate mediators were self-concept, parent-child relationship and hobby participation at age 9. Results: Childhood adversity was reported by 28.2% of participants, and was significantly associated with internalising and externalising problems. Parent-child conflict mediated the relationship between childhood adversity and both age 13 and persistent psychopathology, accounting for 52.4% of the relationship between childhood adversity and persistent externalising problems (indirect odds ratio, 1.30; 95% CI 1.19-1.43) and 19.2% for persistent internalising problems (indirect odds ratio, 1.24; 95% CI 1.15-1.34). There was a small mediating effect of self-concept. Hobby participation and positive parent-child relationship did not mediate these relationships. Conclusions: Parent-child conflict explains almost half the relationship between childhood adversity and persisting externalising problems in adolescence, and a fifth of the relationship with persisting internalising problems. This suggests parent-child conflict is a good target for interventions in childhood to prevent adolescent psychopathology.

Dilworth JT, Griffith K, Vicini FA, Jagsi R, Dominello MM, Hayman JA, Moran JM, Radawski JD, **Gustafson GS**, Boike TP, Walker EM and Pierce LJ (2019). "Use of chemotherapy in patients receiving hypofractionated whole-breast irradiation: An analysis within a state-wide quality consortium." *International Journal of Radiation Oncology Biology Physics* 105(1): E9-E10.

[Full Text](#)

Department of Radiation Oncology

Diokno AC (2019). "A 50-year review of Lapedes' Clean Intermittent Catheterization: A revolutionary, life-saving, quality-of-life improving technique for bladder management." *Urologic Nursing* 39(5): 229-239.

[Request Form](#)

Department of Urology

Lapides introduced clean intermittent catheterization (CIC) in 1972, and since, has gained widespread acceptability in managing many patients with bladder-emptying dysfunctions regardless of the etiology. This article will present the background, indications, and helpful hints in Implementing a successful CIC program.

Diokno AC (2019). "Legends in urology." Canadian Journal of Urology 26(4): 9803-9805.

[Full Text](#)

Department of Urology

Dokter JJ, Marvin K, **Nandalur SR**, **Al-Wahab Z**, Rakowski JA, **Field J**, Gadzinski J, **Rosen B** and **Jawad MS** (2019). "Outcomes and toxicity following adjuvant vaginal brachytherapy for stage I and II endometrial cancer using 30 Gy in 6 fractions: An institutional analysis." International Journal of Radiation Oncology Biology Physics 105(1): E348-E349.

[Full Text](#)

OUWB Medical Student Author

Department of Radiation Oncology

Department of Obstetrics & Gynecology

Dominello MM, Jaggi R, Griffith K, Vicini FA, **Dilworth JT**, Moran JM, Burmeister JW, Hayman JA, Paximadis PA, Boike TP, **Gustafson GS**, Radawski JD, Walker EM and Pierce LJ (2019). "Factors associated with patient-reported and physician-assessed acute toxicity after hypofractionated breast radiotherapy, a report from a large multi-center cohort study." International Journal of Radiation Oncology Biology Physics 105(1): E53-E54.

[Full Text](#)

Department of Radiation Oncology

Donovan DJ, Borgman MA, Leary-Wojcik RM and **Perez-Cruet MJ** (2019). "Aeromedical evacuation of the neurosurgical patient," In Hurd WW and Beninati W (ed). Aeromedical Evacuation: Management of Acute and Stabilized Patients. Cham: Springer International Publishing. pp: 175-198.

[Full Text](#)

Department of Neurosurgery

Patients with head or spine injury or disease are at high risk for life-altering disability and death. To minimize this risk, it is essential that they receive proper initial management and stabilization, appropriate and timely surgical care, and transport to and from facilities where this care is available. Transport is particularly important when the illness or injury occurs in austere environments such as a combat theater or natural disaster. In such situations, long-distance aeromedical evacuation (AE) is often required to offer patients the best chance of survival and functional recovery. This chapter describes the most common neurologic illnesses and injuries requiring urgent specialty care and AE, including traumatic brain injury, skull fractures, various types of intracranial bleeds, and spinal cord injuries. Standard diagnostic and treatment approaches are summarized, emphasizing monitoring methods used during the acute recovery phase, such as intracranial pressure monitoring. Implications for AE and potential complication and their treatments are provided for each condition.

Driscoll JA, Lubbe R, Jakus AE, Chang K, Haleem M, Yun C, Singh G, Schneider AD, Katchko KM, Soriano C, Newton M, Maerz T, Li X, **Baker K**, Hsu WK, Shah RN, Stock SR and Hsu EL (2019). "3D-printed ceramic-demineralized bone matrix hyperelastic bone composite scaffolds for spinal fusion." Tissue Engineering Part A. ePub Ahead of Print.

[Request Form](#)

Department of Orthopaedic Surgery

Although numerous spinal biologics are commercially available, a cost-effective and safe bone graft substitute material for spine fusion has yet to be proven. In this study, "3D-Prints" containing varying volumetric ratios of hydroxyapatite (HA) and human demineralized bone matrix (DBM) in a poly(lactide-co-glycolide) elastomer were three-dimensional (3D) printed into scaffolds to promote osteointegration in rats, with an end goal of spine fusion without the need for recombinant growth factor. Spine fusion was evaluated by manual palpation, and osteointegration and de novo bone formation within scaffold struts were evaluated by laboratory and synchrotron microcomputed tomography and histology. The 3:1 HA:DBM composite achieved the highest mean fusion score and fusion rate (92%), which was significantly greater than the 3D printed DBM-only scaffold (42%). New bone was identified extending from the host transverse

processes into the scaffold macropores, and osteointegration scores correlated with successful fusion. Strikingly, the combination of HA and DBM resulted in the growth of bone-like spicules within the DBM particles inside scaffold struts. These spicules were not observed in DBM-only scaffolds, suggesting that de novo spicule formation requires both HA and DBM. Collectively, our work suggests that this recombinant growth factor-free composite shows promise to overcome the limitations of currently used bone graft substitutes for spine fusion. Impact Statement Currently, there exists a no safe, yet highly effective, bone graft substitute that is well accepted for use in spine fusion procedures. With this work, we show that a three-dimensional printed scaffold containing osteoconductive hydroxyapatite and osteoinductive demineralized bone matrix that promotes new bone spicule formation, osteointegration, and successful fusion (stabilization) when implemented in a preclinical model of spine fusion. Our study suggests that this material shows promise as a recombinant growth factor-free bone graft substitute that could safely promote high rates of successful fusion and improve patient care.

Dupont E, Tsangaris T, Garcia-Cantu C, Howard-McNatt M, Chiba A, Berger AC, Levine EA, Gass JS, Gallagher K, Lum SS, Martinez RD, Willis AI, Pandya SV, **Brown EA**, Fenton A, Mendiola A, Murray M, Solomon NL, Senthil M, Ollila DW, Edmonson D, Lazar M, Namm JP, Li F, Butler M, McGowan NE, Herrera ME, Avitan YP, Yoder B, **Walters LL**, McPartland T and Chagpar AB (2019). "Resection of cavity shave margins in stage 0-III breast cancer patients undergoing breast conserving surgery: A prospective multicenter randomized controlled trial." Annals of Surgery. ePub Ahead of Print.

[Full Text](#)

Department of Surgery

Department of Pathology

Objective: Single-center studies have demonstrated that resection of cavity shave margins (CSM) halves the rate of positive margins and re-excision in breast cancer patients undergoing partial mastectomy (PM). We sought to determine if these findings were externally generalizable across practice settings. Methods: In this multicenter randomized controlled trial occurring in 9 centers across the United States, stage 0-III breast cancer patients undergoing PM were randomly assigned to either have resection of CSM ("shave" group) or not ("no shave" group). Randomization occurred intraoperatively, after the surgeon had completed their standard PM. Primary outcome measures were positive margin and re-excision rates. Results: Between July 28, 2016 and April 13, 2018, 400 patients were enrolled in this trial. Four patients (2 in each arm) did not meet inclusion criteria after randomization, leaving 396 patients for analysis: 196 in the "shave" group and 200 to the "no shave" group. Median patient age was 65 years (range; 29-94). Groups were well matched at baseline for demographic and clinicopathologic factors. Prior to randomization, positive margin rates were similar in the "shave" and "no shave" groups (76/196 (38.8%) vs. 72/200 (36.0%), respectively, $P = 0.604$). After randomization, those in the "shave" group were significantly less likely than those in the "no shave" group to have positive margins (19/196 (9.7%) vs. 72/200 (36.0%), $P < 0.001$), and to require re-excision or mastectomy for margin clearance (17/196 (8.7%) vs. 47/200 (23.5%), $P < 0.001$). Conclusion: Resection of CSM significantly reduces positive margin and re-excision rates in patients undergoing PM.

Eden CL, **Long GW**, Major M, Studzinski D and **Brown OW** (2019). "Type II endoleak with an enlarging aortic sac predisposes to development of type IA endoleak." Journal of Vascular Surgery 70(3): E63-E63.

[Full Text](#)

Department of Surgery

Edhi AI, Gjeorgjievski M, **Kulesza G** and **Cappell MS** (2019). "Esophagopericardial fistula from thermal injury after local abnormal ventricular activity arrhythmia ablation therapy: endoscopic findings and therapy." Gastrointestinal Endoscopy. ePub Ahead of Print.

[Full Text](#)

Department of Internal Medicine

Edupuganti S, Bushman J, Maditz R, **Kaminoulu P** and **Halalau A** (2019). "A quality improvement project to increase compliance with diabetes measures in an academic outpatient setting." Clinical Diabetes and Endocrinology 5: 11.

[Full Text](#)

OUWB Medical Student Author

Department of Internal Medicine

Background: American Diabetes Association (ADA) sets annual guidelines on preventative measures that aim to delay the onset of severe diabetes mellitus complications. Compared to private internal medicine clinics, resident clinics provide suboptimal diabetic preventative care as evidenced by decreased compliance with ADA guidelines. The purpose of our study is to improve diabetic care in resident clinics through quality improvement (QI) projects, with A1C value as primary outcome and other ADA guidelines as secondary outcomes. Methods: Our resident clinic at Beaumont Hospital, Royal Oak consists of 76 residents divided in 8 teams. In November 2016, baseline data on ADA guideline measures was obtained on 538 patients with diabetes mellitus. A root cause analysis was conducted. 5 teams developed a QI intervention plan to improve their diabetes care and 3 teams served as comparisons without intervention plans. In November 2017, post-intervention data was collected. Results: Baseline characteristics demonstrate mean age of intervention groups at 60.9 years and of comparison groups at 58.9 years. The change in A1C value from baseline to post-intervention was + 0.09 vs. + 0.322 in the intervention and comparison groups respectively ($p = 0.174$). As a group, the changes in secondary outcome measures were as follows: eye examinations (+ 5% in intervention vs. -7% in comparison, $p < 0.01$), foot examinations (+ 13% vs. + 5%, $p = 0.09$), lipid panel testing (+ 7% vs. -5%, $p < 0.01$), micro-albumin/creatinine ratio testing (+ 4% vs. + 1%, $p = 0.03$), and A1C testing (+8% vs. + 5%, $p = 0.24$). Conclusions: While the QI project did not improve A1C value, it did have significant improvement in several secondary outcomes within intervention groups. One resident team implemented an intervention involving protected half-day blocks to identify overdue examinations and consequently had the largest improvements, thus serving as a potential intervention to further study. Given our study results, we believe that QI interventions improve preventative care for patients with diabetes in resident clinics.

Farley KX, Aizpuru M, **Boden SH**, Wagner ER, Gottschalk MB and Daly CA (2019). "Avocado-related knife injuries: Describing an epidemic of hand injury." [American Journal of Emergency Medicine](#). ePub Ahead of Print.

[Full Text](#)

OUWB Medical Student Author

Introduction: Recent media reports have described knife injuries sustained while preparing avocados; however, this rise has not been reported in the literature. The purpose of this study is to describe, quantify, and trend emergency department (ED) encounters associated with avocado-related knife injuries. Methods: The National Electronic Injury Surveillance System (NEISS) was queried for avocado-related knife injuries from 1998 to 2017. Patient demographic and injury data was collected and analyzed to describe trends in incidence, patient demographics, and injury patterns associated with an ED encounter for an avocado-related knife injury. Results: There were an estimated 50,413 (95% Confidence Interval: 46,333-54,492) avocado-related knife injuries from 1998 to 2017. The incidence of avocado-related knife injuries increased over this time period (1998-2002=3143; 2013-2017=27,059). This increase correlated closely with a rise in avocado consumption in the U.S. (Pearson's Correlation: 0.934, $p < 0.001$) Women comprised 80.1% of injuries. The most common demographic injured were 23 to 39-year old females (32.7%), while the least common was males under the age of 17 (0.9%). Most ED presentations occurred on Saturdays (15.9%) or Sundays (19.9%) and the majority occurred during the months of April through July (45.6%). Injuries were much more common on the left (and likely non-dominant) hand. Conclusion: Avocado-related knife injuries are a preventable cause of hand injury. The incidence has risen significantly in recent years, possibly due to an increased consumption of avocados in the United States. Education on safe avocado preparation techniques and public safety initiatives, such as warning labels, could help prevent serious injuries in the future.

Farley N, Marlow E, **Gappy M**, **Omar H** and **Wolfe J** (2019). "Sutureless intrascleral fixation of intraocular lenses: Three-year clinical outcome review." [Investigative Ophthalmology & Visual Science](#) 60(9).

[Full Text](#)

OUWB Medical Student Author

Department of Ophthalmology

Fidler JL, Gunn ML, Soto JA, Brook OR, Allen BC, Guglielmo FF, Grand DJ, Gee MS, Wells ML, Huete A, Khandalwal A, **Sokhandon F**, Ramalingam V, Al-Hawary MM, LeBedis CA and Park SH (2019). "Society of Abdominal Radiology Gastrointestinal Bleeding Disease-Focused Panel consensus recommendations for CTA technical parameters in the

evaluation of acute overt gastrointestinal bleeding." Abdominal Radiology 44(9): 2957-2962.

[Full Text](#)

Department of Diagnostic Radiology and Molecular Imaging

Purpose: To formulate consensus recommendations for CT angiography technical parameters used to evaluate overt gastrointestinal (GI) bleeding. Methods: An electronic questionnaire consisting of 17 questions was sent to a panel of 16 radiologists with expertise on the imaging of GI bleeding from the Society of Abdominal Radiology GI Bleeding disease-focused panel to obtain consensus agreement on issues related to CTA technical parameters for imaging overt GI bleeding. A multi-round Delphi method of voting was performed to obtain consensus which was defined as $\geq 80\%$ agreement. Results: Consensus agreement was reached in 15/17 (89%) of the questions including the technique for the administration of IV contrast, the number of phases, scan timing, and image reconstruction. Conclusions: A panel of experts on the imaging of GI bleeding from the Society of Abdominal Radiology was able to reach consensus on the majority of technical parameters used for CTA of overt GI bleeding. These recommendations should improve the quality of patient care by adopting these minimal technical requirements for optimal exam performance and lead to less variation in the performance of these exams which will facilitate collecting and comparing published data from different centers. These recommendations will need revisions as additional scientific data become available.

Fischgrund JS (2019). "Answer to the letter to the editor of Y. Li et al. concerning "Intraosseous basivertebral nerve ablation for the treatment of chronic low back pain: a prospective randomized double-blind sham-controlled multi-center study" by Fischgrund JS, et al. Eur Spine J; (2018) 27(5): 1146-1156." European Spine Journal 28(9): 2224-2224.

[Full Text](#)

Department of Orthopaedic Surgery

Folberg R and Pe'er J (2019). "Uveal melanoma: Prognostic factors," In Damato BE and Singh AD (ed). Clinical Ophthalmic Oncology: Uveal Tumors. Cham: Springer International Publishing. pp: 273-278.

[Full Text](#)

Department of Ophthalmology

In the context of the pathology of uveal melanomas, prognostication may be based upon tissue characteristics. The addition of cytogenetic and molecular data extracted from tumor cells may add layers of precision to prognostication. The evolution of parameters associated with prognosis suggests that combinations of tissue-based data, molecular data, and cytogenetic profiling may combine into sophisticated algorithms for prognostication. The development of new molecular markers of prognosis and algorithms suggests that the material presented in this chapter will be subject to ongoing refinement well into the future.

Foster CC, Seiwert TY, MacCracken E, Blair EA, Agrawal N, Melotek JM, Portugal L, **Brisson RJ**, Gooi Z, Spiotto MT, Haraf DJ and Vokes EE (2019). "Dose and volume de-escalation for HPV-positive oropharyngeal cancer is associated with favorable post-treatment functional outcomes." International Journal of Radiation Oncology Biology Physics 105(1): E419-E419.

[Full Text](#)

OUWB Medical Student Author

Foster LM, Squires BS, Ye H, Marvin K, **Seymour ZA** and **Grills IS** (2019). "Radionecrosis (RN) in patients with brain metastases treated with stereotactic radiosurgery (SRS) and immunotherapy." International Journal of Radiation Oncology Biology Physics 105(1): E75-E76.

[Full Text](#)

Department of Radiation Oncology

Fuller TW, Pekala K, Theisen KM, Tapper A, **Burks F** and Rusilko PJ (2019). "Prevalence and surgical management of concurrent adult acquired buried penis and urethral stricture disease." World Journal of Urology 37(7): 1409-1413.

[Full Text](#)

Department of Surgery

Purpose: To describe the prevalence and surgical management of coexistent adult acquired buried penis

(AABP) and urethral stricture disease. AABP patients often have urinary dribbling with resultant chronic local moisture, infection, and inflammation that combine to cause urethral stricture disease. To date, no screening or surgical management algorithms have been described. Methods: A multi-institutional retrospective study was conducted of the surgical management strategies for patients with concurrent AABP and urethral stricture disease from 2010 to 2017. AABP patient demographics, physical exam findings, and comorbidities were compared between those with and without stricture disease to suggest those that would selectively benefit from screening for stricture disease. Results: Of the 42 patients surgically managed for AABP, 13 had urethral stricture disease (31.0%). Stricture location was universal in the anterior urethra. Sixty-one percent (n=8) of strictures were 6cm or longer and managed prior to AABP repair with Kulkarni urethroplasty. Patients with urethral stricture disease were significantly more likely to have clinically diagnosed lichen sclerosus (p=0.00019). There was no significant difference in BMI, age, or comorbidities between patients with and without urethral stricture disease. Conclusions: Extensive anterior urethral stricture is common in patients with AABP. Clinical characteristics cannot predict stricture presence except possibly the presence of lichen sclerosus. Definitive stricture surgical options include extensive Johanson Urethroplasty or Kulkarni Urethroplasty. Kulkarni Urethroplasty prior to AABP repair has the benefits of a single-stage repair, good cosmetic outcome with meatal voiding, and dorsal graft placement to allow safe degloving of the penis in the subsequent AABP repair.

Gallagher PG, Maksimova Y, Lezon-Geyda K, Newburger PE, Medeiros D, Hanson RD, Rothman J, Israels S, Wall DA, Sidonio RF, Sieff C, **Gowans LK**, Mittal N, Rivera-Santiago R, Speicher DW, Baserga SJ and Schulz VP (2019). "Aberrant splicing contributes to severe alpha-spectrin-linked congenital hemolytic anemia." Journal of Clinical Investigation 129(7): 2878-2887.

[Full Text](#)

Department of Pediatrics

The etiology of severe hemolytic anemia in most patients with recessive hereditary spherocytosis (rHS) and the related disorder hereditary pyropoikilocytosis (HPP) is unknown. Whole-exome sequencing of DNA from probands of 24 rHS or HPP kindreds identified numerous mutations in erythrocyte membrane α -spectrin (SPTA1). Twenty-eight mutations were novel, with null alleles frequently found in trans to missense mutations. No mutations were identified in a third of SPTA1 alleles (17/48). WGS revealed linkage disequilibrium between the common rHS-linked α (BH) polymorphism and a rare intron 30 variant in all 17 mutation-negative alleles. In vitro minigene studies and in vivo splicing analyses revealed the intron 30 variant changes a weak alternate branch point (BP) to a strong BP. This change leads to increased utilization of an alternate 3' splice acceptor site, perturbing normal α -spectrin mRNA splicing and creating an elongated mRNA transcript. In vivo mRNA stability studies revealed the newly created termination codon in the elongated transcript activates nonsense-mediated decay leading to spectrin deficiency. These results demonstrate that a unique mechanism of human genetic disease contributes to the etiology of a third of rHS cases, facilitating diagnosis and treatment of severe anemia and identifying a new target for therapeutic manipulation.

Gandhi SD, Wahlmeier ST, Louie P, Sauber R, **Tooley TR**, **Baker KC** and **Park DK** (2019). "Effect of local retropharyngeal steroids on fusion rate after anterior cervical discectomy and fusion." Spine Journal. ePub Ahead of Print.

[Full Text](#)

OUWB Medical Student Author

Department of Orthopaedic Surgery

Background Context: Anterior cervical discectomy and fusion (ACDF) is considered the gold standard surgical intervention for cervical myelopathy and radiculopathy. Obtaining a solid fusion is an important goal of ACDF, and doing so has correlated with favorable clinical outcomes. A common complication after surgery is post-operative dysphagia. Multiple techniques have been utilized in attempt to prevent and treat dysphagia, including use of retropharyngeal steroids. Purpose: To examine the effects of retropharyngeal steroids on fusion rate in ACDF. Study Design: Case Control. Methods: Forty-two patients who received local retropharyngeal steroids during ACDF surgery were the sample patient population. The control group consisted of matched cases based on number of spinal levels treated and age at approximately 1:2 case to control ratio. Data was collected on demographic variables, as well as operative and post-operative courses.

Radiographic data was collected and fusion determined by <2mm motion on flexion/extension views and bridging bone. Data was compared between case and control populations. Continuous variables were compared using Student's t-test and nominal/ordinal values were compared using Z-test. Fusion status was assessed using Pearson Chi-squared test. Results: A total of 121 patients were reviewed based on matching status and sufficient follow-up. The case and control groups were successfully matched based on age, spinal levels treated and smoking status. The case group had an overall fusion rate of 64.7% while the control group had a fusion rate of 91%. When analyzed at each level of attempted fusion, the case group had a fusion rate of 81% compared to 93% in the control group. There was a single patient in the case group that developed esophageal rupture and retropharyngeal abscess requiring surgical intervention with irrigation, debridement and repair at 8 months after index operation. Conclusions: The use of retropharyngeal steroids to mitigate post-operative dysphagia is associated with a decreased rate of radiographic fusion in ACDF surgery.

Ghiam BK, Ghaffarieh A, Mathew AJ, Saber MS and Berry JL (2019). "Specimen processing for ocular tumors: Tips and tricks from the ocular pathologist." *Advances in Ophthalmology and Optometry* 4: 129-145.

[Full Text](#)

OUWB Medical Student Author

Gould DJ (2019). *BRS Neuroanatomy*. Philadelphia, Wolters Kluwer.

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Department of Foundational Medical Studies (OU)

Gould DJ and **Patino G** (2019). *Clinical Neuroanatomy : A Case-Based Approach*. New York, Thieme.

[Full Text](#)

Department of Foundational Medical Studies (OU)

Grudzen CR, Schmucker AM, Shim DJ, Ibikunle A, Cho J, Chung FR, Cohen SE, Bael NE, Barker PC, Berger JT, **Chmielewski A**, Gafford E, Kapo J, Kim A, Lakin JR, Lowy J, Scherer J and Investigators EMO (2019). "Development of an outpatient palliative care protocol to monitor fidelity in the emergency medicine palliative care access trial." *Journal of Palliative Medicine* 22: 66-71.

[Full Text](#)

Department of Internal Medicine

Introduction: Palliative care is recommended for patients with life-limiting illnesses; however, there are few standardized protocols for outpatient palliative care visits. To address the paucity of data, this article aims to: (1) describe the elements of outpatient palliative care that are generalizable across clinical sites; (2) achieve consensus about standardized instruments used to assess domains within outpatient palliative care; and (3) develop a protocol and intervention checklist for palliative care clinicians to document outpatient visit elements that might not normally be recorded in the electronic health record. Methods: As part of a randomized control trial of nurse-led telephonic case management versus specialty, outpatient palliative care in older adults with serious life-limiting illnesses in the Emergency Department, we assessed the structural characteristics of outpatient care clinics across nine participating health care systems. In addition, direct observation of outpatient palliative care visits, consultation from content experts, and survey data were used to develop an outpatient palliative care protocol and intervention checklist. Implementation: The protocol and checklist are being used to document the contents of each outpatient palliative care visit conducted as a part of the Emergency Medicine Palliative Care Access (EMPAllA) trial. Variation across palliative care team staffing, clinic session capacity, and physical clinic model presents a challenge to standardizing the delivery of outpatient palliative care.

Haines DE, Jais P, Pambrun T, Ransbury T, Larson C and Armstrong K (2019). "NADH fluorometric imaging to assess catheter contact and ablation success." *Journal of Cardiovascular Electrophysiology* 30(9): 1734-1734.

[Full Text](#)

Department of Internal Medicine

Hakim S, Orosey M, Edhi A, **Amin M** and **Cappell MS** (2019). "Complete response for 36 months after BRAF and MEK

inhibitor therapy for locally advanced gallbladder melanoma." Minerva Gastroenterologica e Dietologica 65(3): 243-246.

[Request Form](#)

Department of Pathology

Department of Internal Medicine

Hansen TWR, **Maisels MJ**, Ebbesen F, Vreman HJ, Stevenson DK, Wong RJ and Bhutani VK (2019). "Sixty years of phototherapy for neonatal jaundice - from serendipitous observation to standardized treatment and rescue for millions." Journal of Perinatology. ePub Ahead of Print.

[Request Form](#)

Department of Pediatrics

A breakthrough discovery 60 years ago by Cremer et al. has since changed the way we treat infants with hyperbilirubinemia and saved the lives of millions from death and disabilities. "Photobiology" has evolved by inquiry of diverse light sources: fluorescent tubes (wavelength range of 400-520 nm; halogen spotlights that emit circular footprints of light; fiberoptic pads/blankets (mostly, 400-550 nm range) that can be placed in direct contact with skin; and the current narrow-band blue light-emitting diode (LED) light (450-470 nm), which overlaps the peak absorption wavelength (458 nm) for bilirubin photoisomerization. Excessive bombardment with photons has raised concerns for oxidative stress in very low birthweight versus term infants treated aggressively with phototherapy. Increased emphasis on prescribing phototherapy as a "drug" that is dosed cautiously and judiciously is needed. In this historical review, we chronicled the basic to the neurotoxic components of severe neonatal hyperbilirubinemia and the use of standardized interventions.

Heitzer AM, Piercy JC, Peters BN, Mattes AM, **Klarr JM**, Batton B, Ofen N and Raz S (2019). "Cumulative antenatal risk and kindergarten readiness in preterm-born preschoolers." Journal of Abnormal Child Psychology. ePub Ahead of Print.

[Full Text](#)

Department of Pediatrics

A suboptimal intrauterine environment is thought to increase the probability of deviation from the typical neurodevelopmental trajectory, potentially contributing to the etiology of learning disorders. Yet the cumulative influence of individual antenatal risk factors on emergent learning skills has not been sufficiently examined. We sought to determine whether antenatal complications, in aggregate, are a source of variability in preschoolers' kindergarten readiness, and whether specific classes of antenatal risk play a prominent role. We recruited 160 preschoolers (85 girls; ages 3-4 years), born $\leq 33(6)/7$ weeks' gestation, and reviewed their hospitalization records. Kindergarten readiness skills were assessed with standardized intellectual, oral-language, prewriting, and prenumeracy tasks. Cumulative antenatal risk was operationalized as the sum of complications identified out of nine common risks. These were also grouped into four classes in follow-up analyses: complications associated with intra-amniotic infection, placental insufficiency, endocrine dysfunction, and uteroplacental bleeding. Linear mixed model analyses, adjusting for sociodemographic and medical background characteristics (socioeconomic status, sex, gestational age, and sum of perinatal complications) revealed an inverse relationship between the sum of antenatal complications and performance in three domains: intelligence, language, and prenumeracy ($p = 0.003, 0.002, 0.005$, respectively). Each of the four classes of antenatal risk accounted for little variance, yet together they explained 10.5%, 9.8%, and 8.4% of the variance in the cognitive, literacy, and numeracy readiness domains, respectively. We conclude that an increase in the co-occurrence of antenatal complications is moderately linked to poorer kindergarten readiness skills even after statistical adjustment for perinatal risk.

Hoppe BS, Howell RM, Ladra M, Cahlon O, **Hamstra DA**, Constone LS, El Naqa I, Li A, Cohen LE, Skinner R, Kremer L and Ronckers CM (2019). "Spermatogenesis after testicular radiation exposure in children: Initial results from the Pediatric Normal Tissue Effects in the Clinic (PENTEC) initiative." International Journal of Radiation Oncology Biology Physics 105(1): E631-E632.

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Department of Radiation Oncology

Hsu ICJ, Rodgers J, Shinohara K, Purdy JA, Michalski JM, Roach M, Vigneault E, Ivker R, Pryzant RM, Kuettel MR,

Taussky D, **Gustafson GS**, Raben A and Sandler HM (2019). "Long-term results of NRG Oncology/RTOG 0321: A phase II trial of combined high dose rate brachytherapy and external beam radiotherapy for adenocarcinoma of the prostate." [International Journal of Radiation Oncology Biology Physics](#) 105(1): S57-S57.

[Full Text](#)

Department of Radiation Oncology

Hutchinson PJ, Koliass AG, Tajsic T, Adeleye A, Aklilu AT, Apriawan T, Bajamal AH, Barthélemy EJ, Devi BI, Bhat D, Bulters D, Chesnut R, Citerio G, Cooper DJ, Czosnyka M, Edem I, El-Ghandour NMF, Figaji A, Fountas KN, Gallagher C, Hawryluk GWJ, Iaccarino C, Joseph M, Khan T, Laeke T, Levchenko O, Liu B, Liu W, Maas A, Manley GT, Manson P, Mazzeo AT, Menon DK, **Michael DB**, Muehlschlegel S, Okonkwo DO, Park KB, Rosenfeld JV, Rosseau G, Rubiano AM, Shabani HK, Stocchetti N, Timmons SD, Timofeev I, Uff C, Ullman JS, Valadka A, Waran V, Wells A, Wilson MH and Servadei F (2019). "Consensus statement from the International Consensus Meeting on the Role of Decompressive Craniectomy in the Management of Traumatic Brain Injury: Consensus Statement." [Acta Neurochirurgica](#) 161(7): 1261-1274.

[Full Text](#)

Department of Neurosurgery

Background: Two randomised trials assessing the effectiveness of decompressive craniectomy (DC) following traumatic brain injury (TBI) were published in recent years: DECRA in 2011 and RESCUEicp in 2016. As the results have generated debate amongst clinicians and researchers working in the field of TBI worldwide, it was felt necessary to provide general guidance on the use of DC following TBI and identify areas of ongoing uncertainty via a consensus-based approach. Methods: The International Consensus Meeting on the Role of Decompressive Craniectomy in the Management of Traumatic Brain Injury took place in Cambridge, UK, on the 28th and 29th September 2017. The meeting was jointly organised by the World Federation of Neurosurgical Societies (WFNS), AO/Global Neuro and the NIHR Global Health Research Group on Neurotrauma. Discussions and voting were organised around six pre-specified themes: (1) primary DC for mass lesions, (2) secondary DC for intracranial hypertension, (3) peri-operative care, (4) surgical technique, (5) cranial reconstruction and (6) DC in low- and middle-income countries. Results: The invited participants discussed existing published evidence and proposed consensus statements. Statements required an agreement threshold of more than 70% by blinded voting for approval. Conclusions: In this manuscript, we present the final consensus-based recommendations. We have also identified areas of uncertainty, where further research is required, including the role of primary DC, the role of hinge craniotomy and the optimal timing and material for skull reconstruction.

Jolly S, Hochstedler K, Paximadis P, Hayman JA, Dominello MM, Burmeister JW, **Grills IS**, Dess RT, Dragovic AF, Movsas B, Ajlouni M, Fraser C, Kestin LL, Wilson M, Bergsma DP, Spratt DE, Moran JM, Pierce LJ, Schipper M and Matuszak MM (2019). "Changing practice patterns in the radiation treatment delivery for locally advanced lung cancer: Results from a statewide consortium." [International Journal of Radiation Oncology Biology Physics](#) 105(1): E488-E488.

[Full Text](#)

Department of Radiation Oncology

Kadri AN, Zawit M, Al-Adham R, **Hader I**, Nusairat L, Almahmoud MF, Senussi M, Altibi A, Barakat A, Hernandez AV and Masri A (2019). "Prevalence of venous thromboembolism in admissions and readmissions with and without syncope: a nationwide cohort study." [European Heart Journal Quality Care & Clinical Outcomes](#). ePub Ahead of Print.

[Request Form](#)

Department of Internal Medicine

Aims: The Pulmonary Embolism in Syncope Italian Trial reported 17.3% prevalence of pulmonary embolism (PE) in patients admitted with syncope. We investigated the prevalence of venous thromboembolism [VTE, including PE and deep vein thrombosis (DVT)] in syncope vs. non-syncope admissions and readmissions, and if syncope is an independent predictor of VTE. Methods and Results: We conducted an observational study of index admissions of the 2013-14 Nationwide Readmission Database. We excluded patients <18 years, December discharges, died during hospitalization, hospital transfers, and missing length of stay. Encounters were stratified by the presence or absence of DVT/PE and syncope diagnoses. Multivariable logistic regression analysis was used to evaluate the association between syncope and VTE. There were 38 655 570

admissions, of whom 285 511 had syncope. In the overall cohort, syncope occurred in 1.6% of VTE and 1.8% in non-VTE admissions. In a multivariable model, syncope was associated with a lower prevalence of VTE [odds ratio (OR) 0.76, 95% confidence interval (CI) 0.75-0.78; $P < 0.001$]. In index syncope vs. non-syncope admissions, the prevalence of DVT, PE, and VTE were 0.4 +/- 0.06% vs. 1.3 +/- 0.12%, 0.2 +/- 0.04% vs. 1.2 +/- 0.11%, and 0.5 +/- 0.07% vs. 2.1 +/- 0.14% (all $P < 0.001$), respectively. At 30 days, the prevalence of DVT, PE, and VTE in syncope vs. non-syncope were 2.2 +/- 0.14% vs. 2.1 +/- 0.14% ($P = 0.38$), 1.4 +/- 0.12% vs. 1.2 +/- 0.11% ($P = 0.01$), and 2.6 +/- 0.17% vs. 3.0 +/- 0.17% ($P = 0.99$), respectively. Conclusion: Syncope admissions were associated with a lower prevalence of VTE as compared to non-syncope admissions. Syncope should not trigger an automatic PE workup, rather, should be put into context of patient presentation.

Kaleka G, McCormick ME and Krishnan A (2019). "Beta-propeller protein-associated neurodegeneration (BPAN) detected in a child with epileptic spasms." Cureus 11(8).

[Full Text](#)

Department of Pediatrics

Department of Diagnostic Radiology and Molecular Imaging

OUWB Medical Student Author

This report discusses a 13-year-old girl diagnosed with beta-propeller protein-associated neurodegeneration (BPAN). BPAN is an X-linked neurodegeneration disorder associated with a mutation in the WDR45 gene. It typically presents in childhood with encephalopathy, developmental delay, and seizures. Following an initial static phase, these symptoms then progress to dementia, dystonia, and parkinsonism in early adulthood. Our child initially presented with epileptic spasms, global developmental delay, speech delay, hypotonia, spasticity, scoliosis, and gait disturbance. While these symptoms remained unchanged in early childhood, they depicted accelerated deterioration at age 12-13 rather than in adulthood. Her diagnosis was made based on her clinical presentation and review of imaging that led to specific genetic testing confirming the condition. The imaging findings were of markedly low signal on gradient T2* sequences in the globus pallidus and substantia nigra and T1 hyperintensity in the substantia nigra, with associated diffuse brain volume loss. Unlike other cases reported in the literature, there was no classic area of central hypointensity on T1 imaging in the substantia nigra.

Kant S, Dayalan A, Kesarwani P and **Chinnaiyan P** (2019). "Fatty acid oxidation represents a metabolic vulnerability in glioblastoma in nutrient-deprived conditions." Cancer Research 79(13).

[Full Text](#)

Department of Radiation Oncology

Kant S, Kesarwani P, Prabhu A and **Chinnaiyan P** (2019). "Integrative tumor profiling following a ketogenic diet offers a window into the interplay between metabolic vulnerabilities and radiation sensitization in glioblastoma."

International Journal of Radiation Oncology Biology Physics 105(1): E101-E101.

[Full Text](#)

Department of Radiation Oncology

Karpova D, Rettig MP, Ritchey J, Cancilla D, Christ S, Gehrs L, Chendamarai E, **Evbuomwan MO**, Holt M, Jingzhu Z, Abou-Ezzi G, Celik H, Wiercinska E, Wei Y, Feng G, Eissenberg LG, Heier RF, Arnett SD, Meyers MJ and Prinsen MJ (2019). "Targeting VLA4 integrin and CXCR2 mobilizes serially repopulating hematopoietic stem cells." Journal of Clinical Investigation 129(7): 2745-2759.

[Full Text](#)

OUWB Medical Student Author

Mobilized peripheral blood has become the primary source of hematopoietic stem and progenitor cells (HSPCs) for stem cell transplantation, with a five-day course of granulocyte colony stimulating factor (G-CSF) as the most common regimen used for HSPC mobilization. The CXCR4 inhibitor, plerixafor, is a more rapid mobilizer, yet not potent enough when used as a single agent, thus emphasizing the need for faster acting agents with more predictable mobilization responses and fewer side effects. We sought to improve hematopoietic stem cell transplantation by developing a new mobilization strategy in mice through combined targeting of the chemokine receptor CXCR2 and the very late antigen 4 (VLA4) integrin. Rapid and

synergistic mobilization of HSPCs along with an enhanced recruitment of true HSCs was achieved when a CXCR2 agonist was co-administered in conjunction with a VLA4 inhibitor. Mechanistic studies revealed involvement of CXCR2 expressed on BM stroma in addition to stimulation of the receptor on granulocytes in the regulation of HSPC localization and egress. Given the rapid kinetics and potency of HSPC mobilization provided by the VLA4 inhibitor and CXCR2 agonist combination in mice compared to currently approved HSPC mobilization methods, it represents an exciting potential strategy for clinical development in the future.

Kaufman M, Jankowski R, Carlson C, Pruchnic R, Chen M and **Chancellor M** (2019). "Quality of life and symptom severity measures in clinical trials of autologous muscle derived cell therapy for SUI in women with and without prior incontinence surgery." *Neurourology and Urodynamics* 38: S84-S85.

[Full Text](#)

Department of Urology

Kern MJ and **Goldstein JG** (2019). "Preface to the series: Introduction to hemodynamic rounds." *Catheterization and Cardiovascular Interventions* 94(2): 295-295.

[Full Text](#)

Department of Internal Medicine

Kesarwani P, Prabhu A, Kant S and **Chinnaiyan P** (2019). "Metabolic remodeling contributes towards an immune-suppressive phenotype in glioblastoma." *Cancer Immunology Immunotherapy* 68(7): 1107-1120.

[Full Text](#)

Department of Radiation Oncology

Glioblastoma (GBM) is one of the most aggressive tumors. Numerous studies in the field of immunotherapy have focused their efforts on identifying various pathways linked with tumor-induced immunosuppression. Recent research has demonstrated that metabolic reprogramming in a tumor can contribute towards immune tolerance. To begin to understand the interface between metabolic remodeling and the immune-suppressive state in GBM, we performed a focused, integrative analysis coupling metabolomics with gene-expression profiling in patient-derived GBM (n=80) and compared them to low-grade astrocytoma (LGA; n=28). Metabolic intermediates of tryptophan, arginine, prostaglandin, and adenosine emerged as immunometabolic nodes in GBM specific to the mesenchymal and classical molecular subtypes of GBM. Integrative analyses emphasized the importance of downstream metabolism of several of these metabolic pathways in GBM. Using CIBERSORT to analyze immune components from the transcriptional profiles of individual tumors, we demonstrated that tryptophan and adenosine metabolism resulted in an accumulation of Tregs and M2 macrophages, respectively, and was recapitulated in mouse models. Furthermore, we extended these findings to preclinical models to determine their potential utility in defining the biologic and/or immunologic consequences of the identified metabolic programs. Collectively, through integrative analysis, we uncovered multifaceted ways by which metabolic reprogramming may contribute towards immune tolerance in GBM, providing the framework for further investigations designed to determine the specific immunologic consequence of these metabolic programs and their therapeutic potential.

Khalil JG, Gandhi SD, **Park DK** and **Fischgrund JS** (2019). "Cutibacterium acnes in spine pathology: Pathophysiology, diagnosis, and management." *Journal of the American Academy of Orthopaedic Surgeons* 27(14): E633-E640.

[Full Text](#)

Department of Orthopaedic Surgery

Cutibacterium acnes, long thought to be skin flora of pathological insignificance, has seen a surge in interest for its role in spine pathology. C acnes has been identified as a pathogen in native spine infection and osteomyelitis, which has implications in the management compared with more commonly recognized pathogens. In addition, It has also been recognized as a pathogen in postoperative and implant-associated infections. Some evidence exists pointing to C acnes as an unrecognized source of otherwise aseptic pseudarthrosis. Recently, it is hypothesized that low virulent organisms, in particular C acnes, may play a role in degenerative disk disease and the development of Modic end plate changes found in MRI. To this end, controversial implications exist in terms of the use of antibiotics to treat certain patients in the setting of degenerative disk disease. C acnes continues to remain an expanding area of interest in spine pathology,

with important implications for the treating spine surgeon.

Kim HJ, Jae SY, Choo J, Yoon JK, Kim SH, Konigstein K, Schmidt-Trucksass A and **Franklin BA** (2019). "Mediating effects of exercise capacity on the association between physical activity and health-related quality of life among adolescents with complex congenital heart disease." [American Journal of Human Biology](#). ePub Ahead of Print.

[Full Text](#)

Department of Internal Medicine

Objectives: There is little evidence on interrelationships between physical activity, sedentary behaviors, and health-related quality of life (HRQOL) among adolescents with congenital heart disease (CHD). We hypothesized that exercise capacity would have a mediating effect on the associations of either physical activity or sedentary behavior with HRQOL. Methods: Adolescents with complex CHD (n = 111) were consecutively recruited from an outpatient clinic in a general hospital in South Korea. Physical activity and sedentary behavior were assessed using the global physical activity questionnaire. Exercise capacity was directly measured by peak oxygen uptake using a symptom-limited maximal treadmill exercise test. HRQOL was evaluated by both adolescents and their parents using the Pediatric Quality of Life Inventory questionnaire. Results: The self-reported and parent proxy-reported HRQOL were positively associated with physical activity (ss = 0.16, P = .003; ss = 0.12, P = .049) and exercise capacity (ss = 0.63, P < .001; ss = 0.66, P < .001), but not with sedentary behavior in adjusted regression models. When both variables were entered in the same regression models, only exercise capacity remained significantly associated with the self-reported (ss = 0.50, P = .008) and parent proxy-reported HRQOL (ss = 0.62, P = .003). Exercise capacity acted as a full mediator variable on the relationship between physical activity and HRQOL (P < .05 for both). Conclusions: The present findings suggest that exercise capacity mediates the association between physical activity and HRQOL, highlighting the importance of improving exercise capacity to potentially enhance HRQOL in adolescents with complex CHD.

Kishan AU, Wong JK, Romero T, Grogan T, Tendulkar RD, Reddy CA, Dess RT, Levin-Epstein R, Wedde T, Lilleby W, Merrick GS, Stock RG, **Krauss DJ**, Tran PT, DeWeese TL, Demanes DJJ, Steinberg ML, King CR, Elashoff DA and Horwitz EM (2019). "Radical prostatectomy, external beam radiotherapy, or external beam radiotherapy with brachytherapy boost: Comparison of outcomes in a multi-institutional analysis of 4,086 patients with high-risk prostate cancer." [International Journal of Radiation Oncology Biology Physics](#) 105(1): S40-S40.

[Full Text](#)

Department of Radiation Oncology

Koulisis N, Moysidis SN, Yonekawa Y, **Dai YL**, Burkemper B, Wood EH, Lertjirachai I, Todorich B, Khundkar TZ, Chu Z, Wang RK, **Williams GA**, **Drenser KA**, Capone A, Jr., **Trese MT** and Nudleman E (2019). "Correlating changes in the macular microvasculature and capillary network to peripheral vascular pathologic features in familial exudative vitreoretinopathy." [Ophthalmology Retina](#) 3(7): 597-606.

[Full Text](#)

OUWB Medical Student Author

Department of Ophthalmology

Purpose: To evaluate the macular microvasculature in patients with familial exudative vitreoretinopathy (FEVR) using OCT angiography (OCTA) and to assess for peripheral vascular changes using widefield fluorescein angiography (WFA). Design: Multicenter, retrospective, comparative, observational case series. Participants: We identified 411 patients with FEVR, examined between September 2014 and June 2018. Fifty-seven patients with FEVR and 60 healthy controls had OCTA images of sufficient quality for analysis. Methods: Custom software was used to assess for layer-specific, quantitative changes in vascular density and morphologic features on OCTA by way of vessel density (VD), skeletal density (SD), fractal dimension (FD), vessel diameter index (VDI), and foveal avascular zone (FAZ). Widefield fluorescein angiography images were reviewed for peripheral vascular changes including capillary dropout, late-phase angiographic posterior and peripheral vascular leakage (LAPPEL), vascular dragging, venous-venous shunts, and arteriovenous shunts. Main Outcome Measures: Macular microvascular parameters on OCTA and peripheral angiographic findings on WFA. Results: OCT angiography analysis of 117 patients (187 eyes; 92 FEVR patients and 95 control participants) demonstrated significantly reduced VD, SD, and FD and greater VDI in patients with FEVR compared with controls in the nonsegmented retina, superficial retinal layer (SRL), and deep retinal layer

(DRL). The FAZ was larger compared with that in control eyes in the DRL ($P < 0.0001$), but not the SRL ($P = 0.52$). Subanalysis by FEVR stage showed the same microvascular changes compared with controls for all parameters. Widefield fluorescein angiography analysis of 95 eyes (53 patients) with FEVR demonstrated capillary nonperfusion in all eyes: 47 eyes (49.5%) showed LAPPEL, 32 eyes (33.7%) showed vascular dragging, 30 eyes (31.6%) had venous–venous shunts, and 33 eyes (34.7%) had arteriovenous shunts. Decreasing macular VD on OCTA correlated with increasing peripheral capillary nonperfusion on WFA. Decreasing fractal dimension on OCTA correlated with increasing LAPPEL severity on WFA. Conclusions: Patients with FEVR demonstrated abnormalities in the macular microvasculature and capillary network, in addition to the peripheral retina. The macular microvascular parameters on OCTA may serve as biomarkers of changes in the retinal periphery on WFA.

Kuban KCK, Jara H, O'Shea TM, Heeren T, Joseph RM, Fichorova RN, Alshamrani K, Aakil A, Beaulieu F, Horn M, Douglass LM, Frazier JA, Hirtz D, Rollins JV, Cochran D, Paneth N, Ware J, Coster T, Hanson B, Wilson R, McGhee K, Lee P, Asgarian A, Sadhwani A, Perrin E, Neger E, Mattern K, Walkowiak J, Barron S, Shah B, Singh R, Smith A, Klein D, McQuiston S, Venuti L, Powers B, Foley A, Dessureau B, Wood M, Damon-Minow J, Ehrenkranz R, Benjamin J, Romano E, Tsatsanis K, Chawarska K, Kim S, Dieterich S, Bearrs K, Peters N, Brown P, Anusinha E, Waldrep E, Friedman J, Hounshell G, Allred D, Engelke SC, Darden-Saad N, Stainback G, Warner D, Wereszczak J, Bernhardt J, McKeeman J, Meyer E, Pastyrnak S, Rathbun J, Nota S, Crumb T, Lenski M, Weiland D, Lloyd M, Hunter S, Msall M, Ramoskaite R, Wiggins S, Washington K, Martin R, Prendergast B, Scott M, **Klarr J**, Kring B, DeRidder J, Vogt K, Yamamoto H, Ryan S, Junaid D, Dawood H, Beatty N, Luu N, Tang V, Sassi RR, Pasicznyk JM and Investigators ES (2019). "Association of circulating proinflammatory and anti-inflammatory protein biomarkers in extremely preterm born children with subsequent brain magnetic resonance imaging volumes and cognitive function at age 10 years." *Journal of Pediatrics* 210: 81-90.e3.

[Full Text](#)

Department of Pediatrics

Objectives: To examine elevated neonatal inflammatory and neurotrophic proteins from children born extremely preterm in relation to later childhood brain Magnetic Resonance Imaging volumes and cognition. **Study Design:** We measured circulating inflammation-related proteins and neurotrophic proteins on postnatal days 1, 7, and 14 in 166 children at 10 years of age (73 males; 93 females). Top quartile levels on ≥ 2 days ≥ 3 for inflammation-related proteins and for ≥ 4 neurotrophic proteins defined exposure. We examined associations among protein levels, brain Magnetic Resonance Imaging volumes, and cognition with multiple linear and logistic regressions. **Results:** Analyses were adjusted for gestational age at birth and sex. Children with ≥ 3 elevated inflammation-related proteins had smaller grey matter, brain stem/cerebellar, and total brain volumes than those without elevated inflammation-related proteins, adjusted for neurotrophic proteins. When adjusted for inflammation-related proteins, children with ≥ 4 neurotrophic proteins, compared with children with no neurotrophic proteins, had larger grey matter and total brain volumes. Higher grey matter, white matter, and cerebellum and brainstem volumes were significantly correlated with higher IQ. Grey and white matter volumes were correlated with each other ($r = 0.18$; $P = .021$), and cerebellum and brainstem was highly correlated with grey matter ($r = 0.55$; $P < .001$) and white matter ($r = 0.29$; $P < .001$). Adjusting for other brain compartments, cerebellum and brainstem was associated with IQ ($P = .016$), but the association with white matter was marginally significant ($P = .051$). Grey matter was not associated with IQ. After adjusting for brain volumes, elevated inflammation-related proteins remained significantly associated with a lower IQ, and elevated neurotrophic proteins remained associated with a higher IQ. **Conclusions:** Newborn inflammatory and neurotrophin protein levels are associated with later brain volumes and cognition, but their effects on cognition are not entirely explained by altered brain volumes.

Kus KJB, Karia PS, Schmults CD and Ruiz ES (2019). "Identification of skin cancer screening visits using claims data." *Journal of the American Academy of Dermatology*. ePub Ahead of Print.

[Full Text](#)

OUWB Medical Student Author

LaBan MM (2019). "Letter to the editor regarding Paganoni S. "Evidence-Based Physiatry: Managing Low Back Pain Wisely." *Am J Phys Med Rehabil* 2018;97:855." *American Journal of Physical Medicine & Rehabilitation* 98(9): E111-

E111.

[Full Text](#)

Department of Physical Medicine & Rehabilitation

LaBan MM, Braddom RL and Melvin JL (2019). "Ernest W. Johnson, M.D. - Apodictically speaking, a phys-ee-at'-trist for all seasons." PM & R: Journal of Injury, Function & Rehabilitation 11(9): 1020-1026.

[Full Text](#)

Department of Physical Medicine & Rehabilitation

Lai Z, Kumar T, Zhao R, **Li W, Kanaan HD, Zhang PL** and Liu B (2019). "Monoclonal gammopathy of renal significance and its associated experimental models." Annals of Clinical & Laboratory Science 49(4): 439-447.

[Request Form](#)

Department of Pathology

Monoclonal gammopathy of renal significance (MGRS) is a state of circulating monoclonal immunoglobulin (Ig) and light chains that cause kidney injury without definite evidence of multiple myeloma (MM). Although chemotherapy is used to treat many variants of MGRS and has been recently recommended, relatively limited clinical validation studies are available. A few transgenic models of MM reveal renal deposition of monoclonal Ig and light chains. We have demonstrated that the XBP1s-transgenic mouse model from early plasma cell dyscrasia to MM reveals monoclonal IgG/kappa deposition at the subendothelial spaces of the glomeruli, mimicking proliferative glomerulonephritis with monoclonal immunoglobulin deposits. Inhibition of a key immune-modulator, gp96/grp94, genetically or pharmacologically results in a significant reduction of plasma cells within the bone marrow and reduced renal deposition of monoclonal IgG and kappa light chain. This article will review the emerging role of in vitro and animal models from plasma cell dyscrasia to MM in understanding the renal deposition of monoclonal Ig and light chains, along with its potential treatment strategies.

Lau WC, Shannon FL, Hanzel GS, Safian RD, Abbas AE, Chen NW, **Sakwa MP, Almany SL, Hanson ID** and **Fayne RJ** (2019). "Transfemoral transcatheter aortic valve replacement using fascia iliaca block as an alternative approach to conscious sedation as compared to general anesthesia." Cardiovascular Revascularization Medicine. ePub Ahead of Print.

[Full Text](#)

Department of Internal Medicine

Department of Anesthesiology

Department of Surgery

Background/Purpose: General Anesthesia (GA) and conscious sedation (CS) are anesthetics for transfemoral transcatheter aortic valve replacement (TF-TAVR). We compared TF-TAVR outcomes using a novel anesthetic approach with fascia iliaca block (FIB) plus minimal CS (MCS) versus GA. Methods: This retrospective propensity-matched study included consecutive TF-TAVR patients from January 2013 to December 2017 and dichotomized into FIB-MCS vs. GA. Data were collected from electronic records, Society of Thoracic Surgery (STS) database, and the Transcatheter Valve Therapies (TVT) Registry. Primary endpoints were operating room (OR) time, intensive care unit (ICU) and hospital length of stay (LOS). Secondary endpoints were 30-day, 1-year mortality, quality of life, 30-day re-hospitalization rate, failure of FIB-MCS, and hospital safety outcomes. Results: A total of 304 TF-TAVR patients; FIB-MCS (n=219) vs. GA (n=85). Propensity matched 162 patients; FIB-MCS (n=108) vs. GA (n=54). FIB-MCS had shorter OR time (197.6+/-56.3 vs. 248.2+/-46.3min, p<0.001), ICU (67.8+/-71.7 vs. 84.9+/-72.1h, p=0.004) and hospital LOS (3.2+/-3.7 vs. 5.9+/-3.5 d, p<0.001). FIB-MCS had lower rate of blood transfusion. FIB-MCA vs. GA 30-day and 1-year mortality were similar in the entire (2.3 vs. 2.4%, p=1.0; and 8.2 vs. 5.9%, p=0.49) and matched cohorts (0 vs. 3.7%, p=0.11 and 7.4 vs. 5.6%, p=0.75). FIB-MCS were less likely to be re-hospitalized [Odd Ratio: 0.32, CI:0.13-0.76] and 2% to 3% higher KCCQ-12 score. Conclusion: TF-TAVR using FIB-MCS is feasible and safe with shorter OR time, ICU and hospital LOS, lower risk of 30-day re-hospitalization, similar 30-day and 1-year mortality with better quality of life at 1-year follow-up.

Lauter CB and Saravolatz LD (2019). "Partial oral therapy for osteomyelitis and endocarditis." New England Journal of Medicine 381(12): 1183-1183.

[Full Text](#)

Department of Internal Medicine

Le A, **Amin M** and **Cappell MS** (2019). "Case report of a proposed, novel, endoscopic "whitehead pimple" sign of ectopic esophageal sebaceous glands based on their mimicking the dermatologic and histopathologic characteristics of cutaneous whitehead pimples/closed comedones." *Digestive Diseases & Sciences* 64(7): 2049-2053.

[Full Text](#)

Department of Pathology

Department of Internal Medicine

Lee IJ and **Koh JY** (2019). "Impact of clinicopathologic factors on survival in patients with sebaceous carcinoma of the eyelid - a population-based analysis." *Orbit* 38(4): 261-268.

[Request Form](#)

Department of Ophthalmology

OUIB Medical Student Author

Purpose: To evaluate prognostic factors and survival of patients with sebaceous carcinoma of the eyelid through a population-based analysis. Methods: A total of 940 patients with primary sebaceous carcinoma of the eyelid were derived from the Surveillance, Epidemiology, and End Results (SEER) database in the United States from 1973 to 2013. Kaplan-Meier univariate analysis and Cox Regression multivariate analysis were performed to examine prognostic factors in overall survival (OS). 5- and 10-year survival rates, median survival, and prognostic variables with statistical significance were measured. Results: Kaplan-Meier analysis showed that OS is 66% and 44% at 5 years and 10 years respectively. Median OS is 9.4 years. Multivariate Cox regression analysis demonstrated that independent prognostic factors for OS are age at diagnosis (HR = 4.61 [95% CI 1.93-11.0], P = 0.001), surgical treatment (HR = 0.196 [95% CI 0.07-0.55], P = 0.002), combined surgical and radiation treatment (HR = 0.227 [95% CI 0.06-0.81], P = 0.023), and greater tumor size at diagnosis (HR = 3.381, [95% CI 1.77-6.45], P < 0.001). Conclusion: We report the largest population study to date to evaluate prognostic factors of patients with sebaceous carcinoma of the eyelid. Multivariate analysis shows that older age, and greater tumor size correlate with decreased overall survival, whereas surgical treatment or combined surgical and radiation treatment correlate with increased overall survival.

Interestingly, tumor grade, lymph node involvement, and distant extent of tumor have not demonstrated to be independent prognostic factors for overall survival.

Lee Kim E, **Weiner AJ**, Ung C, Roh M, Wang J, **Lee IJ**, **Huang NT**, Stem M, Dahrouj M, Elliott D, Vavvas DG, Young LHY, **Williams GA**, **Garretson BR**, Kim IK, **Hassan TS**, Mukai S, **Ruby AJ**, **Faia LJ**, Capone A, Jr., Comander J, Kim LA, Wu DM, **Drenser KA**, Woodward MA, **Wolfe JD** and Yonekawa Y (2019). "Characterization of epiretinal proliferation in full-thickness macular holes and effects on surgical outcomes." *Ophthalmology Retina* 3(8): 694-702.

[Full Text](#)

OUIB Medical Student Author

Department of Ophthalmology

Purpose: Epiretinal proliferation is a distinct clinical entity from epiretinal membrane that classically is associated with lamellar macular holes, but its prevalence and association with full-thickness macular holes (FTMH) have not been well described. We characterized macular hole-associated epiretinal proliferation (MHEP) and its effects on long-term surgical outcomes. Design: Multicenter, interventional, retrospective case-control study. Participants: Consecutive eyes that underwent surgery for FTMH with a minimum of 12 months follow-up. Methods: All eyes underwent pars plana vitrectomy, removal of any epiretinal membranes, and gas tamponade, with or without internal limiting membrane (ILM) peeling. Spectral-domain OCT imaging was obtained before and after surgery. Main Outcome Measures: Improvement in visual acuity and single-surgery hole closure rates in eyes with, versus without, MHEP at 12 months. Results: Seven hundred twenty-five charts were analyzed, and 113 patients met inclusion criteria. Of 113 eyes with FTMH, 30 (26.5%) showed MHEP. Patients with FTMH and MHEP were older (P < 0.002) and more often men (P = 0.001), and showed more advanced macular hole stages than those without MHEP (P = 0.010). A full posterior vitreous detachment was more common in eyes with MHEP (P < 0.004). Twelve months after surgery, FTMH with MHEP patients showed significantly less improvement in visual acuity (P = 0.019) with higher rates of ellipsoid and external limiting membrane defects (P < 0.05) and with a higher rate of failure

to close with 1 surgery compared to FTMH without MHEP (26.7% vs. 4.8%; $P = 0.002$]). Peeling the ILM was associated with improved rates of hole closure in FTMH with MHEP ($P < 0.001$). Multivariate testing confirmed that the presence of MHEP was an independent risk factor for less visual improvement ($P = 0.031$) and for single-surgery nonclosure ($P = 0.009$) and that ILM peeling improved single-surgery closure rates ($P = 0.026$). Conclusions: We found that FTMH with MHEP showed poorer anatomic and visual outcomes after vitrectomy compared with FTMH without MHEP. Internal limiting membrane peeling was associated with improved closure rates and should be considered when MHEP is detected before surgery.

Lerchenfeldt S and Rosenfeld GC (2019). BRS Pharmacology. Philadelphia, Wolters Kluwer.

[Full Text](#)

Department of Foundational Medical Studies (OU)

Lerchenfeldt S, Mi M and Eng M (2019). "The utilization of peer feedback during collaborative learning in undergraduate medical education: A systematic review." BMC Medical Education 19(1).

[Full Text](#)

Department of Foundational Medical Studies (OU)

Medical Library

Background: Peer evaluation can provide valuable feedback to medical students, and increase student confidence and quality of work. The objective of this systematic review was to examine the utilization, effectiveness, and quality of peer feedback during collaborative learning in medical education. Methods: The PRISMA statement for reporting in systematic reviews and meta-analysis was used to guide the process of conducting the systematic review. Evaluation of level of evidence (Colthart) and types of outcomes (Kirkpatrick) were used. Two main authors reviewed articles with a third deciding on conflicting results. Results: The final review included 31 studies. Problem-based learning and team-based learning were the most common collaborative learning settings. Eleven studies reported that students received instruction on how to provide appropriate peer feedback. No studies provided descriptions on whether or not the quality of feedback was evaluated by faculty. Seventeen studies evaluated the effect of peer feedback on professionalism; 12 of those studies evaluated its effectiveness for assessing professionalism and eight evaluated the use of peer feedback for professional behavior development. Ten studies examined the effect of peer feedback on student learning. Six studies examined the role of peer feedback on team dynamics. Conclusions: This systematic review indicates that peer feedback in a collaborative learning environment may be a reliable assessment for professionalism and may aid in the development of professional behavior. The review suggests implications for further research on the impact of peer feedback, including the effectiveness of providing instruction on how to provide appropriate peer feedback.

Jerma EV, Sparks MA and **Topf JM** (2019). Nephrology Secrets. Philadelphia Elsevier.

[Full Text](#)

Department of Internal Medicine

Lertjirachai I, Wood EH, **Moinuddin O** and **Drenser KA** (2019). "Late re-activation of Coats disease." American Journal of Ophthalmology Case Reports 15.

[Full Text](#)

OUWB Medical Student Author

Department of Ophthalmology

Purpose: To report case of Coats disease with the longest known interval of disease quiescence prior to first reactivation (17 years). Observation: A 25-year-old male was regularly followed for Coats disease since age 4. After initial treatment with cryoablation, disease quiescence was achieved at age 8. The disease activity was well controlled for 17 years after which he developed decreased vision in the right eye at age 25. Late reactivation of Coats disease was diagnosed and multiple treatments ensued. Despite aggressive therapy, the patient experienced progressive exudation warranting surgical management and eventually developed neovascular glaucoma. Conclusion: Once diagnosed with Coats disease, lifelong monitoring is essential to early detection and treatment of potential disease reactivation. The interval between disease quiescence and reactivation is variable, with this case representing the longest known interval of disease quiescence prior to first reactivation (17 years).

Levin-Epstein R, Cook K, Chu FI, Ciezki JP, Stock RG, Merrick GS, Demanes DJJ, Spratt DE, Abu-Isa EI, Pomerantz M, Tran PT, Nguyen PL, Wedde T, Lilleby W, **Krauss DJ**, Alam R, Steinberg ML, Horwitz EM, King CR and Kishan AU (2019). "Clinical outcomes among patients with radiorecurrent Gleason grade group 5 prostate cancer: Impact of initial treatment strategy." International Journal of Radiation Oncology Biology Physics 105(1): E289-E290.

[Full Text](#)

Department of Radiation Oncology

Li X, Liu G, Janssens G, De Wilde O, Bossier V, Lerot X, Pouppez A, **Yan D**, **Stevens CW**, **Kabolizadeh P** and **Ding X** (2019). "The first prototype of spot-scanning proton arc treatment delivery." International Journal of Radiation Oncology Biology Physics 105(1): S242-S242.

[Full Text](#)

Department of Radiation Oncology

Li XQ, Liu G, Janssens G, De Wilde O, Bossier V, Lerot X, Pouppez A, **Yan D**, **Stevens C**, **Kabolizadeh P** and **Ding XF** (2019). "The first prototype of spot-scanning proton arc treatment delivery." Radiotherapy and Oncology 137: 130-136.

[Full Text](#)

Department of Radiation Oncology

Purpose: We report the first prototype of spot-scanning arc treatment (SPArc) delivery on a clinical proton beam therapy machine and evaluate its delivery accuracy and efficiency. Methods and Materials: A new module called Proton Dynamic Arc Delivery (PDAD) was developed to allow simultaneously delivering spot-scanning proton beam treatments while rotating the gantry on an IBA Proteus (R) One proton machine. A series of measurements was performed to validate the basic beam characteristics. Subsequently, patient specific quality assurance (QA) of a brain SPArc plan was performed. Total SPArc treatment delivery time was also recorded and compared to the clinically delivered intensity modulated proton therapy (IMPT) treatment time. Finally, the log file of the SPArc plan was analyzed and processed to reconstruct the actual delivered dose. Results: All the basic beam characteristics were confirmed in the PDAD mode, similar as those measured using fixed gantry deliveries in clinical mode. The brain SPArc plan with similar or superior plan quality was delivered in 4 mins compared to total 11 mins for the clinical treatment of the three-field IMPT plan. The patient QA result showed a good agreement between the measured and calculated dose distributions with the gamma index of 98.6% (3%/3 mm). The analysis of the log file confirmed the accuracy of the SPArc plan delivery, with the gamma index of 98.3% (1%/1 mm) between reconstructed and the planned doses. Conclusion: The first prototype of dynamic proton arc delivery on a clinical proton therapy system was successfully performed. The measurements and simulations demonstrated the feasibility of SPArc treatment within the clinical requirements.

Luehmann NC, **Pastewski JM**, Cirino JA, **Al-Hadidi A**, DeMare AM, Riggs TW, **Novotny NM** and **Akay B** (2019). "Implementation of a pediatric trauma cervical spine clearance pathway." Pediatric Surgery International. ePub Ahead of Print

[Full Text](#)

Department of Surgery

OUIWB Medical Student Author

Purpose: Pediatric cervical spine injuries are rare events. Missed injuries must be weighed against radiation exposure and excess resource utilization in a young population. A universal pediatric cervical spine clearance algorithm does not exist. The study objective is to determine if care improved after the implementation of a standardized cervical spine clearance pathway by evaluating imaging rates, length of stay, speciality consultation, and injury detection. Methods: A multidisciplinary group reviewed relevant literature to develop an algorithm for cervical spine clearance in pediatric trauma patients. We reviewed patient charts 15 months before and after implementation. Categorical comparisons were tested with Chi-square. A p value less than 0.05 was considered statistically significant. Results: The pre- and post-implementation groups were homogenous when comparing demographics, mechanism and severity of injury. Using the cervical spine clearance pathway, patients received fewer plain cervical spine radiographs (34% vs 16%), fewer spine speciality consults (28% vs 13%), and more patients were cleared clinically (44% vs 62%) (p < 0.05). There

were 2 (1.7%) documented injuries in the pre-implementation group and 3 (3%) documented injuries in the post-implementation group. There were no missed injuries. Conclusions: Use of a standardized pathway allows more patients' cervical spines to be cleared clinically and better utilizes resources without compromising patient care.

Lyapichev KA, Pina-Oviedo S, Medeiros LJ, Evans MG, Liu H, Miranda AR, Hunt KK, Clemens MW, Stewart JM, **Amin MB**, Quesada AE, Chai SM, Di Napoli A, Yoga A, Dave SK, Wistuba, II, Wu Y, Bueso-Ramos CE, Schlette EJ, Ferrufino-Schmidt MC, Loghavi S, Khoury JD, Young KH and Miranda RN (2019). "A proposal for pathologic processing of breast implant capsules in patients with suspected breast implant anaplastic large cell lymphoma." *Modern Pathology*. ePub Ahead of Print.

[Full Text](#)

Department of Pathology

Breast implant anaplastic large cell lymphoma is an entity recently recognized by the World Health Organization. The tumor arises around textured-surface breast implants and is usually confined to the surrounding fibrous capsule. Currently, there are no recommendations for handling and sampling of capsules from patients with suspected breast implant anaplastic large cell lymphoma without a grossly identifiable tumor. We analyzed complete capsulectomies without distinct gross lesions from patients with breast implant anaplastic large cell lymphoma. The gross appearance of the capsules as well as the presence, extent and depth of tumor cells on the luminal side and number of sections involved by lymphoma were determined by review of routine stains and CD30 immunohistochemistry. We then used a mathematical model that included the extent of tumor cells and number of positive sections to calculate the minimum number of sections required to identify 95% of randomly distributed lesions. We identified 50 patients with breast implant anaplastic large cell lymphoma who had complete capsulectomies. The implants were textured in all 32 (100%) cases with available information. Anaplastic large cell lymphoma was found in 44/50 (88%) capsules; no tumor was found in six (12%) patients who had lymphoma cells only in the effusion. The median number of sections reviewed was 20 (range, 2-240), the median percentage of sections involved by tumor was 6% (range, 0-90%), and the median percentage of sections involved by lymphoma was 10% (range, 0-90%). Invasion deep into or through the capsule was identified in 18/50 (36%) patients. In patients with breast implant anaplastic large cell lymphoma without a grossly identifiable tumor we identified a spectrum of involvement and we propose a protocol for handling, sampling and reporting these cases. The number of sections to exclude the presence of lymphoma with more than 95% certainty was supported by a mathematic rationale.

Macias S, Kirma J, Yilmaz A, Moore SE, McKinley MC, McKeown PP, Woodside JV, **Graham SF** and Green BD (2019). "Application of 1H-NMR metabolomics for the discovery of blood plasma biomarkers of a Mediterranean diet." *Metabolites* 9(10).

[Full Text](#)

Department of Obstetrics & Gynecology

The Mediterranean diet (MD) is a dietary pattern well-known for its benefits in disease prevention. Monitoring adherence to the MD could be improved by discovery of novel dietary biomarkers. The MEDiterranean Diet in Northern Ireland (MEDDINI) intervention study monitored the adherence of participants to the MD for up to 12 months. This investigation aimed to profile plasma metabolites, correlating each against the MD score of participants (n = 58). Based on an established 14-point scale MD score, subjects were classified into two groups ("low" and "high"). 1H-Nuclear Magnetic Resonance (1H-NMR) metabolomic analysis found that citric acid was the most significant metabolite ($p = 5.99 \times 10^{-4}$; $q = 0.03$), differing between 'low' and 'high'. Furthermore, five additional metabolites significantly differed ($p < 0.05$; $q < 0.35$) between the two groups. Discriminatory metabolites included: citric acid, pyruvic acid, betaine, mannose, acetic acid and myo-inositol. Additionally, the top five most influential metabolites in multivariate models were also citric acid, pyruvic acid, betaine, mannose and myo-inositol. Metabolites significantly correlated with the consumption of certain food types. For example, citric acid positively correlated fruit, fruit juice and vegetable constituents of the diet, and negatively correlated with sweet foods alone or when combined with carbonated drinks. Citric acid was the best performing biomarker and this was enhanced by paired ratio with pyruvic acid. The present study demonstrates the utility of metabolomic profiling for effectively assessing adherence to MD and the discovery of novel dietary biomarkers.

Majeske AJ, Geddes TJ, **Keidan R** and **Wilson GD** (2019). "Development of a gene signature to predict positive or negative sentinel nodes as a prognostic marker in melanoma." Cancer Research 79(13).

[Full Text](#)

Department of Radiation Oncology

Department of Surgery

Major M, **Long G**, Eden C, Studzinski D and **Brown OW** (2019). "Long-term outcomes and interventions of postoperative type IA endoleaks after elective endovascular aneurysm repair." Journal of Vascular Surgery 70(3): E78-E78.

[Full Text](#)

Department of Surgery

Mankuzhy N, Petrescu I, Quinn TJ, Ye H, **Gallagher M** and **Grills IS** (2019). "Cardiac function after definitive standard fractionated radiotherapy for locally advanced non-small cell lung cancer." International Journal of Radiation Oncology Biology Physics 105(1): E518-E518.

[Full Text](#)

OUWB Medical Student Author

Department of Internal Medicine

Department of Radiation Oncology

Mankuzhy N, Quinn TJ, Ye H and **Grills IS** (2019). "Cardiac toxicity after definitive standard fractionated radiotherapy for locally advanced non-small cell lung cancer (LA-NSCLC)." International Journal of Radiation Oncology Biology Physics 105(1): E518-E519.

[Full Text](#)

Department of Radiation Oncology

OUWB Medical Student Author

Mankuzhy NP, Anderson B, Kumar C, Heider A, Koschmamn C and Mody RJ (2019). "BCOR alterations in pediatric and young adult patients with sarcomas and high-grade glial malignancies: A case series." JCO Precision Oncology(3): 1-8.

[Full Text](#)

OUWB Medical Student Author

Moinuddin IA, **Millward P** and **Fletcher CH** (2019). "Acute intravascular hemolysis following an ABO non-identical platelet transfusion: A case report and literature review." American Journal of Case Reports 20: 1075-1079.

[Full Text](#)

Department of Pathology

Objective: Rare disease Background: Platelet transfusion is a common clinical practice required for therapeutic purposes in the setting of symptomatic thrombocytopenia, and, in some cases, prophylactically for asymptomatic thrombocytopenia. Crossmatch compatibility is not routinely done for platelet transfusions, and transfusion of ABO non-identical platelets has been adapted as an acceptable clinical practice. Acute intravascular hemolysis due to ABO non-identical platelets is a rare but clinically significant entity. Our case report reinforces the importance of a vigilant clinical approach in case of ABO non-identical platelet transfusions. Case Report: We report the case of 61-year-old woman with blood group A, with chemotherapy-induced asymptomatic thrombocytopenia, who developed acute intravascular hemolysis following transfusion of group O single-donor platelets (SDPs). The patient was transfused 1 unit of single-donor platelets for bleeding prophylaxis, as her platelet count dropped to less than $10 \times 10^9/L$ due to chemotherapy that she was receiving for acute myeloid leukemia (AML). Immediately after transfusion, the patient noticed cherry-colored urine; and within 12 h of transfusion, her hemoglobin dropped by more than 2.5 g/dL. A post-transfusion immunohematology work-up showed positive DAT and high titers of anti-A1 isohemagglutinins in the platelet donor, supporting the diagnosis of acute intravascular hemolysis due to ABO non-identical platelets. Conclusions: The possibility of acute intravascular hemolysis should be kept in mind in cases of transfusion of group O single donor platelets to non-group O recipients. ABO non-identical

platelets, even with low isohemagglutinin titers, can cause significant adverse effects, particularly in newborns, children, and immunosuppressed and transfusion-dependent patients; therefore, a cautious clinical approach is recommended.

Nair GB and Castillo E (2019). "Longitudinal lung compliance imaging in idiopathic pulmonary fibrosis." [Radiology](#) 293(2): 272.

[Request Form](#)

Department of Internal Medicine

Nair GB, Castillo E, Myzuik N, **Grills I**, **Stevens C** and **Guerrero T** (2019). "Differential ventilation pattern on novel functional imaging in a patient with unilateral bronchial obstruction caused by adenoid cystic carcinoma." [American Journal of Respiratory and Critical Care Medicine](#). ePub Ahead of Print.

[Request Form](#)

Department of Internal Medicine

Department of Radiation Oncology

Navin MC and **Wasserman JA** (2019). "Guidance and intervention principles in pediatrics: The need for pluralism." [Journal of Clinical Ethics](#) 30(3): 201-206.

[Request Form](#)

Department of Foundational Medical Studies

Two core questions in pediatric ethics concern when and how physicians are ethically permitted to intervene in parental treatment decisions (intervention principles), and the goals or values that should direct physicians' and parents' decisions about the care of children (guidance principles). Lainie Friedman Ross argues in this issue of *The Journal of Clinical Ethics* that constrained parental autonomy (CPA) simultaneously answers both questions: physicians should intervene when parental treatment preferences fail to protect a child's basic needs or primary goods, and both physicians and parents should be guided by a commitment to protect a child's basic needs and primary goods. In contrast, we argue that no principle—neither Ross's CPA, nor the best interest standard or the harm threshold—can serve as both an intervention principle and a guidance principle. First, there are as many correct intervention principles as there are different kinds of interventions, since different kinds of interventions can be justified under different conditions. Second, physicians and parents have different guidance principles, because the decisions physicians and parents make for a child should be informed by different values and balanced by different (potentially) conflicting commitments.

Newton MD, Mark AA, Planalp M, **Park DK**, **Baker KC** and Maerz T (2019). "Longitudinal characterization of intervertebral disc remodeling following acute annular injury in a rat model of degenerative disc disease." [Connective Tissue Research](#). ePub Ahead of Print.

[Request Form](#)

Department of Orthopaedic Surgery

Objective: Characterize 3D remodeling of the rat intervertebral disc (IVD) following acute annular injury via in vivo micro-computed tomography (mu CT), ex vivo contrast-enhanced (CE)-mu CT, and histology. Design: Female Lewis rats (N = 4/group) underwent either sham surgery or anterior annular puncture to L3-L4 and L5-L6 (n = 8 IVDs/group) to induce IVD degeneration. Rats were allowed ad libitum cage activity before and after surgery and underwent in vivo mu CT scanning at baseline and every 2 weeks post-op for 12 weeks to characterize longitudinal changes in IVD height. At 12 weeks, lumbar spines were dissected and underwent CE-mu CT scanning to characterize endpoint glycosaminoglycan distribution and nucleus pulposus (NP) volume ratio. Spines were processed for safranin-O-stained sagittal histology, and IVD degeneration was graded via the Rutges scale. Results: Puncture IVDs exhibited loss of IVD height at all time points from 4 weeks onward compared to Sham—the most severe height loss occurred posteriorly, with significant changes also occurring in the NP and laterally. Puncture IVDs exhibited higher CE-mu CT attenuation, indicative of lower glycosaminoglycan content, and reduced NP volume ratio compared to Sham. Histologically, Puncture IVDs had higher Rutges damage scores and exhibited reduced NP cellularity and hydration, disorganized annulus fibrosus (AF) lamellae with evidence of the stab tract, and indistinct AF-NP border compared to Sham. Conclusions: Characterization of the complex, 3D alterations involved in the onset and early

progression of IVD degeneration can foster greater understanding of the pathoetiology of IVD degeneration and may inform future studies assessing more sensitive diagnostic techniques or novel therapies.

Nickel JC, Moldwin R, Hanno P, Dmochowski R, **Peters KM**, Payne C and Wein A (2019). "Targeting the SHIP1 pathway fails to show treatment benefit in interstitial cystitis/bladder pain syndrome: Lessons learned from evaluating potentially effective therapies in this enigmatic syndrome." Journal of Urology 202(2): 301-308.

[Request Form](#)

Department of Urology

Purpose: In this 12-week, randomized, double-blind, placebo controlled, multicenter, 3-arm, parallel group, phase 3 trial we assessed the effects of a novel SHIP1 activator on bladder pain and urinary symptoms in patients with interstitial cystitis/bladder pain syndrome. Materials and Methods: Subjects with interstitial cystitis/bladder pain syndrome and a mean pain score of 5 or greater on an 11-point scale despite treatment were randomized to 100 or 200 mg of an oral SHIP1 activator or placebo once daily for 12 weeks. Maximum pain scores and urinary frequency were recorded in an e-diary. The ICSI (O'Leary-Sant Interstitial Cystitis Symptom Index) and BPIC-SS (Bladder Pain Interstitial Cystitis Symptom Score) questionnaires were administered. Safety was monitored through 12 weeks of treatment. Results: A total of 298 female subjects with moderate to severe symptoms of interstitial cystitis/bladder pain syndrome were treated with 100 or 200 mg SHIP1 activator orally once daily for 12 weeks. Treatment demonstrated no difference in maximum daily bladder pain compared to placebo. There was no treatment benefit over that of placebo in the secondary end points of urinary voiding frequency, the BPIC-SS, the ICSI and a global response assessment. Exploratory analysis in 87 male subjects yielded a similar result, that is no difference from placebo. Treatment was generally well tolerated at both doses. Conclusions: SHIP1 activation is a safe but ineffective therapeutic approach to interstitial cystitis/bladder pain syndrome. Although this was a negative trial, the important lessons learned from this study in respect to inflammatory phenotype differentiation, including the potential importance of cystoscopy based classification, will improve current treatment in patients with interstitial cystitis/bladder pain syndrome and allow for better future trial design in those with this difficult urological chronic pain syndrome.

Niedermaier MS, **Nair GB**, Matt U, Herold S, Pennington K, Crothers K, Cummings M and Schluger NW (2019). "Update in lung infections and tuberculosis 2018." American Journal of Respiratory & Critical Care Medicine 200(4): 414-422.

[Request Form](#)

Department of Internal Medicine

Noorulla F, **Dedon R** and **Maisels MJ** (2019). "Association of early direct bilirubin levels and biliary atresia among neonates." JAMA Network Open 2(10): e1913321.

[Full Text](#)

Department of Pediatrics

OUWB Medical Student Author

Omar H, Yue R, Amen A, Kowalenko T and **Walters BL** (2019). "Reassessment of violence toward emergency medicine physicians in Michigan." American Journal of Emergency Medicine: 158427.

[Request Form](#)

OUWB Medical Student Author

Department of Emergency Medicine

Parzen JS, Siddiqui ZA, **Jawad MS, Dilworth JT** and **Chen PY** (2019). "Reirradiation with concurrent hyperthermia for recurrent breast cancer is safe and effective." International Journal of Radiation Oncology Biology Physics 105(1): E45-E45.

[Full Text](#)

Department of Radiation Oncology

Pawlicki KS (2019). "Inaugural address of the incoming president." American Journal of Health System Pharmacy 76(18): 1426-1428.

[Full Text](#)

Department of Foundational Medical Studies (BHS)

Peyronnet B, O'Connor E, Khavari R, Capon G, Manunta A, Allue M, Hascoet J, Nitti VW, Game X, **Gilleran J**, Castro-Sader L, Cornu JN, Waltregny D, Ahyai S, Chung E, Elliott DS, Fournier G and Brucker BM (2019). "AMS-800 Artificial urinary sphincter in female patients with stress urinary incontinence: A systematic review." Neurourology and Urodynamics 38: S28-S41.

[Full Text](#)

Department of Urology

Aims: To perform a systematic review of studies reporting the outcomes of AMS-800 artificial urinary sphincter (AUS) implantation in female patients with stress urinary incontinence (SUI) resulting from intrinsic sphincter deficiency (ISD). **Methods:** A systematic literature search of the Medline and Embase databases was performed in June 2018 in accordance with the PRISMA statement. No time limit was used. The protocol was registered in PROSPERO (CRD42018099612). **Study:** selection and data extraction were performed by two independent reviewers. **Results:** Of 886 records screened, 17 were included. All were retrospective or prospective non-comparative case series. One study reported on vaginal AUS implantation, 11 on open AUS implantation, two on laparoscopic AUS implantation, two on robot-assisted AUS implantation and one compared open and robot-assisted implantations. The vast majority of patients had undergone at least one anti-incontinence surgical procedure prior to AUS implantation (69.1-100%). The intraoperative bladder neck injury rates ranged from 0% to 43.8% and the intraoperative vaginal injury rates ranged from 0 to 25%. After mean follow-up periods ranging from 5 to 204 months, the complete continence rates ranged from 61.1% to 100%. The rates of explantation, erosion and mechanical failure varied from 0% to 45.3%, 0% to 22.2% and 0% to 44.1%, respectively. **Conclusions:** AMS-800 AUS can provide excellent functional outcomes in female patients with SUI resulting from ISD but at the cost of a relatively high morbidity. High level of evidence studies are needed to help better define the role of AUS in the female SUI armamentarium.

Pontone G, Weir-McCall JR, Baggiano A, Del Torto A, Fusini L, Guglielmo M, Muscogiuri G, Guaricci AI, Andreini D, Patel M, Nieman K, Akasaka T, Rogers C, Norgaard BL, Bax J, **Raff GL, Chinnaiyan K**, Berman D, Fairbairn T, Koweek LH and Leipsic J (2019). "Determinants of rejection rate for coronary CT angiography fractional flow reserve analysis." Radiology 292(3): 597-605.

[Full Text](#)

Department of Internal Medicine

Background: Coronary artery fractional flow reserve (FFR) derived from CT angiography (FFRCT) enables functional assessment of coronary stenosis. Prior clinical trials showed 13%-33% of coronary CT angiography studies had insufficient quality for quantitative analysis with FFRCT. **Purpose:** To determine the rejection rate of FFRCT analysis and to determine factors associated with technically unsuccessful calculation of FFRCT. **Materials and Methods:** Prospectively acquired coronary CT angiography scans submitted as part of the Assessing Diagnostic Value of Noninvasive FFRCT in Coronary Care (ADVANCE) registry (<https://ClinicalTrials.gov>: NCT02499679) and coronary CT angiography series submitted for clinical analysis were included. The primary outcome was the FFRCT rejection rate (defined as an inability to perform quantitative analysis with FFRCT). Factors that were associated with FFRCT rejection rate were assessed with multiple linear regression. **Results:** In the ADVANCE registry, FFRCT rejection rate due to inadequate image quality was 2.9% (80 of 2778 patients; 95% confidence interval [CI]: 2.1%, 3.2%). In the 10 621 consecutive patients who underwent clinical analysis, the FFRCT rejection rate was 8.4% (n = 892; 95% CI: 6.2%, 7.2%; P<.001 vs the ADVANCE cohort). The main reason for the inability to perform FFRCT analysis was the presence of motion artifacts (63 of 80 [78%] and 729 of 892 [64%] in the ADVANCE and clinical cohorts, respectively). At multivariable analysis, section thickness in the ADVANCE (odds ratio [OR], 1.04; 95% CI: 1.001, 1.09; P = .045) and clinical (OR, 1.03; 95% CI: 1.02, 1.04; P < .001) cohorts and heart rate in the ADVANCE (OR, 1.05; 95% CI: 1.02, 1.08; P<.001) and clinical (OR, 1.06; 95% CI: 1.05, 1.07; P < .001) cohorts were independent predictors of rejection. **Conclusion:** The rates for technically unsuccessful CT-derived fractional flow reserve in the ADVANCE registry and in a large clinical cohort were 2.9% and 8.4%, respectively. Thinner CT section thickness and lower patient heart rate may increase rates of completion of CT fractional flow reserve analysis. Published under a CC BY 4.0 license.

Prabhu AH, Kant S, Kesarwani P and **Chinnaiyan P** (2019). "Branched chain amino acids represent indispensable

metabolic substrates in glioblastoma." [Cancer Research](#) 79(13).

[Full Text](#)

Department of Radiation Oncology

Prabhu RS, Turner BE, Asher A, Marcrom S, Fiveash JB, Foreman PM, Press RH, Patel K, Curran WJ, Breen W, Brown PD, Jethwa KR, **Grills IS**, Arden JD, **Foster LM**, Manning M, Stern JD, Soltys SG and Burri SH (2019). "A multi-institutional analysis of patterns of salvage therapy for leptomeningeal disease after surgical resection and radiosurgery for brain metastases." [International Journal of Radiation Oncology Biology Physics](#) 105(1): E86-E87.

[Full Text](#)

Department of Radiation Oncology

OUWB Medical Student Author

Price J, Xiao J, Tausch K, **Hang B** and **Bahl A** (2019). "Single versus double tourniquet technique for ultrasound-guided venous catheter placement." [Western Journal of Emergency Medicine: Integrating Emergency Care with Population Health](#) 20(5): 719-725.

[Full Text](#)

Department of Emergency Medicine

Introduction: Peripheral, ultrasound-guided intravenous (IV) access occurs frequently in the emergency department, but certain populations present unique challenges for successfully completing this procedure. Prior research has demonstrated decreased compressibility under double tourniquet technique (DT) compared with single tourniquet (ST). We hypothesized that catheters inserted under DT method would have a higher first-stick success rate compared with those inserted under ST method. Methods: We randomized 100 patients with a history of difficult IV access, as defined by past ultrasound IV, prior emergency visit with two or more attempts required for vascular access, history of IV drug abuse, history of end stage renal disease on hemodialysis or obesity, to ultrasound-guided IV placement under either DT or ST method. We measured the vein characteristics measured under ultrasound, and recorded the number of attempts and location of attempts at vascular access. Results: Of an initial 100 patients enrolled, we analyzed a total of 99 with 48 placed under ST and 51 placed under DT. Attending physicians inserted 41.7% of ST and 41.2% of DT, with non-attending inserters (including residents, nurses, and technicians) inserted the remainder. First-stick success rate was observed at 64.3% in ST and 66.7% in DT ($p=0.93$). Attendings had an overall higher firststick success rate (95.1%) compared to non-attending inserters (65.5%) ($p<0.001$). The average vein depth measured in ST was 0.73 centimeters (cm) compared with 0.87 cm in DT ($p=0.02$). Conclusion: DT technique did not produce a measureable increase in first-stick success rate compared to ST, including after adjusting for level of training of inserter. However, a significant difference in average vein depth between the study arms may have limited the reliability of our overall results. Future studies controlling for this variable may be required to more accurately compare these two techniques.

Probst MA, Su E, Weiss RE, Yagapen AN, Malveau SE, Adler DH, **Bastani A**, Baugh CW, Caterino JM, **Clark CL**, Diercks DB, Hollander JE, Nicks BA, Nishijima DK, Shah MN, Stiffler KA, Storrow AB, Wilber ST and Sun BC (2019). "Clinical benefit of hospitalization for older adults with unexplained syncope: A propensity-matched analysis." [Annals of Emergency Medicine](#) 74(2): 260-269.

[Full Text](#)

Department of Emergency Medicine

Study Objective: Many adults with syncope are hospitalized solely for observation and testing. We seek to determine whether hospitalization versus outpatient management for older adults with unexplained syncope is associated with a reduction in postdisposition serious adverse events at 30 days. Methods: We performed a propensity score analysis using data from a prospective, observational study of older adults with unexplained syncope or near syncope who presented to 11 emergency departments (EDs) in the United States. We enrolled adults (≥ 60 years) who presented with syncope or near syncope. We excluded patients with a serious diagnosis identified in the ED. Clinical and laboratory data were collected on all patients. The primary outcome was rate of post-ED serious adverse events at 30 days. Results: We enrolled 2,492 older adults with syncope and no serious ED diagnosis from April 2013 to September 2016. Mean age was 73 years (SD 8.9 years), and 51% were women. The incidence of serious adverse events within 30 days after the index visit was 7.4% for hospitalized patients and 3.19% for discharged patients, representing an unadjusted

difference of 4.2% (95% confidence interval 2.38% to 6.02%). After propensity score matching on risk of hospitalization, there was no statistically significant difference in serious adverse events at 30 days between the hospitalized group (4.89%) and the discharged group (2.82%) (risk difference 2.07%; 95% confidence interval -0.24% to 4.38%). Conclusion: In our propensity-matched sample of older adults with unexplained syncope, for those with clinical characteristics similar to that of the discharged cohort, hospitalization was not associated with improvement in 30-day serious adverse event rates.

Quinn TJ, Alnahariq MF, Siddiqui ZA, Thompson AB, Hannstra DA, **Kabolizadeh P**, **Gowans KL** and **Chen PY** (2019). "Trimodality therapy for atypical teratoid/rhabdoid tumor is associated with improved overall survival: A surveillance, epidemiology, and end results analysis." [Pediatric Blood & Cancer](#). ePub Ahead of Print.

[Full Text](#)

Department of Pediatrics

Department of Radiation Oncology

Background: Atypical teratoid/rhabdoid tumors (AT/RTs) are rare aggressive central nervous system tumors. The use of radiation therapy (RT) remains controversial, especially for patients younger than three years of age. The purpose of the current investigation is to robustly analyze the impact of RT among pediatric AT/RT patients using the Surveillance, Epidemiology, and End Results (SEER) database. Methods: SEER 18 Custom Data registries were queried for AT/RT (ICD-0-3 9508/3). A total of 190 pediatric AT/RT patients were identified, of whom 102 underwent surgery + chemotherapy and 88 underwent trimodality therapy. Univariate and multivariable analyses using Kaplan-Meier and Cox proportional hazards regression modeling were performed. Propensity-score matched analysis with inverse probability of treatment weighting was performed to account for indication bias. The landmark method was used to account for immortal time bias. Results: The majority of patients were <3 years old (75.8%). Patients <3 were more likely to be treated without RT as compared with older patients (62% vs 38%). Doubly robust MVA identified distant disease as a negative prognostic factor (HR 2.1, P = 0.003), whereas trimodality therapy was strongly protective (HR 0.39, P < 0.001). Infants (<1), toddlers (1-2), and older children (3+) all benefited from trimodality therapy, with largest benefit for infants (HR 0.34, P = 0.02) and toddlers (HR 0.31, P < 0.001). Conclusion: The current study provides further evidence that trimodality therapy improves clinical outcomes among patients with AT/RT. This finding was most pronounced for younger patients; therefore, further studies are needed to confirm this finding in this vulnerable population.

Quinn TJ, **Ding X**, **Li X**, **Wilson GD**, Buelow K, Sivananthan AP, Thermoziar S, Henderson A, Epperly M, Franicola D, Wipf P, Greenberger JS, **Stevens CW** and **Kabolizadeh P** (2019). "JP4-039-induced amelioration of mucositis and abscopal bone marrow suppression in Fanconi Anemia Fanca(-/-) mice during pencil beam scanning proton therapy." [International Journal of Radiation Oncology Biology Physics](#) 105(1): E656-E656.

[Full Text](#)

Department of Radiation Oncology

Quinn TJ and **Kabolizadeh P** (2019). "Combined NCDB/SEER analysis of the rising incidence, stage migration, and overall survival among a cohort of younger rectal cancer patients." [International Journal of Radiation Oncology Biology Physics](#) 105(1): E449-E450.

[Full Text](#)

Department of Radiation Oncology

Quinn TJ, Kesarwani P, Kant S, Prabhu A and **Chinnaiyan P** (2019). "Characterization of GBM immunophenotype in murine heterotopic and orthotopic models, implications for novel treatment modalities." [International Journal of Radiation Oncology Biology Physics](#) 105(1): E647-E647.

[Full Text](#)

Department of Radiation Oncology

Rao P, Lertjirachai I, Yonekawa Y, Hasbrook M, Thomas BJ, Wood EH, Mehta N, Mane G, **Drenser KA**, **Trese MT** and **Capone AJ** (2019). "Etiology and clinical characteristics of macular edema in patients with familial exudative vitreoretinopathy." [RETINA](#). ePub Ahead of Print.

[Full Text](#)

Department of Ophthalmology

Purpose: To describe the etiology and clinical characteristics of macular edema (ME) in patients with familial exudative vitreoretinopathy. Methods: Observational, retrospective case series of 30 patients (34 eyes) with ME and familial exudative vitreoretinopathy who underwent spectral-domain optical coherence tomography imaging between 2009 and 2016. Baseline and follow-up optical coherence tomographies were correlated with color fundus photography and fluorescein angiography. Results: The average age was 20.6 years (6.6–68.7). Eighteen eyes exhibited cystoid ME (52.9%), 14 noncystoid ME (41.2%), and 2 eyes (5.9%) with both. Macular edema was foveal in 52.9% (n = 18). Eighteen of 24 eyes (64.3%) with an available fluorescein angiography showed leakage from ME. The most common structural feature was posterior hyaloidal organization/contraction (n = 15). Sixteen eyes were treated with topical or intravitreal steroids (n = 6), intravitreal anti-vascular endothelial growth factor (n = 3), or pars plana vitrectomy with membrane stripping (n = 7). There was no difference between mean preoperative and postoperative LogMAR visual acuity (0.63 [20/85] vs. 0.87 [20/148], P = 0.35) after vitrectomy despite a statistical improvement in the mean central foveal thickness (596 mm³ vs. 303 mm³, P = 0.04). Conclusion: Macular edema in familial exudative vitreoretinopathy occurs most commonly because of traction. Vitrectomy is effective for relieving tractional forces with anatomical improvement. Reprint requests: Antonio Capone, MD, Department of Ophthalmology, William Beaumont School of Medicine, Neuroscience Center Building, 3555 W. 13 Mile Road, Suite LL-20, Royal Oak, MI 48073; e-mail: acaponejr@arcpc.net American Society of Retina Specialists, August 13th 2017 (Poster). Y. Yonekawa is a consultant for Allergan. The remaining authors have no financial/conflicting interests to disclose.

Rizik DG, **Burke RF** and **Goldstein JA** (2019). "Urgent mechanical circulatory support and transcatheter mitral valve repair for refractory hemodynamic compromise." [Catheterization and Cardiovascular Interventions](#). ePub Ahead of Print.

[Full Text](#)

Department of Internal Medicine

Patients presenting with hemodynamic instability attributable to left ventricular systolic dysfunction and concomitant severe mitral regurgitation (MR) are increasingly recognized and pose complex management challenges. Surgical therapy is typically precluded owing to prohibitive mortality. The role of percutaneous mechanical circulatory support in such cases is well established; however, such interventions may be neither sufficient to achieve optimal stability nor prove definitive. The advent of novel catheter-based mitral repair modalities now offers primary decisive therapeutic intervention. Three cases of cardiogenic shock with severe MR illustrate the salutary hemodynamic and clinical responses to percutaneous mechanical support and valve repair by mitral clip.

Robertson J, Rutka E and Ye H (2019). "Patient satisfaction in radiation oncology." [International Journal of Radiation Oncology Biology Physics](#) 105(1): E590-E590.

[Full Text](#)

Department of Radiation Oncology

Rubin AD and Codino J (2019). "The art of caring for the professional singer." [Otolaryngologic Clinics of North America](#) 52(4): 769-778.

[Full Text](#)

Department of Surgery

Training in care of the voice for the general otolaryngologist has improved with the presence of more fellowship-trained laryngologists within academic training programs. However, preparation for caring for the professional singer goes beyond the basic understanding of voice evaluation, laryngeal imaging, and microlaryngeal surgery. The otolaryngologist must have a deeper understanding of the demands, vocabulary, psyche, and economics of the professional singer to provide optimal care. The ramification of recommendations made or procedures undertaken by the otolaryngologist can have serious consequences in a singer's career. This article introduces the otolaryngologist to the specifics of caring for professional singers.

Rubin AD, Jackson-Menaldi C, Kopf LM, Marks K, Skeffington J, Skowronski MD, Shrivastav R and Hunter EJ (2019).

"Comparison of pitch strength with perceptual and other acoustic metric outcome measures following medialization laryngoplasty." *Journal of Voice* 33(5): 795-800.

[Full Text](#)

Department of Surgery

Introduction: The diagnoses of voice disorders, as well as treatment outcomes, are often tracked using visual (eg, stroboscopic images), auditory (eg, perceptual ratings), objective (eg, from acoustic or aerodynamic signals), and patient report (eg, Voice Handicap Index and Voice-Related Quality of Life) measures. However, many of these measures are known to have low to moderate sensitivity and specificity for detecting changes in vocal characteristics, including vocal quality. Objective: The objective of this study was to compare changes in estimated pitch strength (PS) with other conventionally used acoustic measures based on the cepstral peak prominence (smoothed cepstral peak prominence, cepstral spectral index of dysphonia, and acoustic voice quality index), and clinical judgments of voice quality (GRBAS [grade, roughness, breathiness, asthenia, strain] scale) following laryngeal framework surgery. Methods: This study involved post hoc analysis of recordings from 22 patients pretreatment and post treatment (thyroplasty and behavioral therapy). Sustained vowels and connected speech were analyzed using objective measures (PS, smoothed cepstral peak prominence, cepstral spectral index of dysphonia, and acoustic voice quality index), and these results were compared with mean auditory-perceptual ratings by expert clinicians using the GRBAS scale. Results: All four acoustic measures changed significantly in the direction that usually indicates improved voice quality following treatment ($P < 0.005$). Grade and breathiness correlated the strongest with the acoustic measures ($|r| \sim 0.7$) with strain being the least correlated. Conclusions: Acoustic analysis on running speech highly correlates with judged ratings. PS is a robust, easily obtained acoustic measure of voice quality that could be useful in the clinical environment to follow treatment of voice disorders.

Saager L, Maiese EM, Bash LD, Meyer TA, Minkowitz H, Groudine S, Philip BK, Tanaka P, Gan TJ, Rodriguez-Blanco Y, **Soto R** and Heisel O (2019). "Incidence, risk factors, and consequences of residual neuromuscular block in the United States: The prospective, observational, multicenter RECITE-US study." *Journal of Clinical Anesthesia* 55: 33-41.

[Full Text](#)

Department of Anesthesiology

Study Objective: To determine the incidence burden and associated risk factors of residual neuromuscular block (rNMB) during routine U.S. hospital care. Design: Blinded multicenter cohort study. Setting: Operating and recovery rooms of ten community and academic U.S. hospitals. Patients: Two-hundred fifty-five adults, ASA PS 1-3, underwent elective abdominal surgery with general anesthesia and ≥ 1 dose of non-depolarizing neuromuscular blocking agent (NMBA) for endotracheal intubation and/or maintenance of NMB between August 2012 and April 2013. Interventions: TOF measurements using acceleromyography were performed on patients already receiving routine anesthetic care for elective open or laparoscopic abdominal surgery. Measurements allowed assessment of the presence of residual neuromuscular block (rNMB), defined as a train-of-four (TOF) ratio < 0.9 at tracheal extubation. We recorded patient and procedural characteristics and assessed TOF ratios (T4/T1) at various times throughout the procedure and at tracheal extubation. Differences in patient and clinical characteristics were compared using Fisher's exact test for categorical variables and t-test for continuous variables. Multivariate logistic regression assessed risk factors associated with rNMB at extubation. Main Results: Most of the study population, 64.7% ($n = 165$) had rNMB (TOF ratio < 0.9), among them, 31.0% with TOF ratio < 0.6 . Among those receiving neostigmine and/or qualitative peripheral nerve stimulation per clinical decision, 65.0% had rNMB. After controlling for confounders, we observed male gender (odds ratio: 2.60, $P = 0.008$), higher BMI (odds ratio: 1.04/unit, $P = 0.043$), and surgery at a community hospital (odds ratio: 3.15, $P = 0.006$) to be independently associated with increased odds of rNMB. Conclusions: Assessing TOF ratios blinded to the care team, we found that the majority of patients (64.7%) in this study had rNMB at tracheal extubation, despite neostigmine administration and qualitative peripheral nerve stimulation used for routine clinical care. Qualitative neuromuscular monitoring and clinical judgement often fails to detect rNMB after neostigmine reversal with potential severe consequences to the patient. Our data suggests that clinical care could be improved by considering quantitative neuromuscular monitoring for routine care.

Saeed A, Khairnar R, Sharma AM, Larson GL, Gondi V, Tsai HK, Wang CJ, Laramore GE, **Stevens CW**, Vargas CE and Mishra MV (2019). "Clinical outcomes in patients with recurrent glioblastoma treated with proton beam therapy

reirradiation: Analysis of the multi-institutional proton collaborative group registry." International Journal of Radiation Oncology Biology Physics 105(1): E107-E107.

[Full Text](#)

Department of Radiation Oncology

Salimnia H, **Robinson-Dunn B**, Gundel A, Campbell A, Mitchell R, Taylor M and Fairfax MR (2019). "Suggested modifications to improve the sensitivity and specificity of the 2010 CDC-recommended routine streptococcus agalactiae screening culture for pregnant women." Journal of Clinical Microbiology 57(8).

[Full Text](#)

Department of Pathology

Sandrone S, Berthaud JV, Carlson C, Cios J, Dixit N, Farheen A, Kraker J, Owens JWM, **Patino G**, Sarva H, Weber D and Schneider LD (2019). "Education research: Flipped classroom in neurology: Principles, practices, and perspectives." Neurology 93(1): e106-e111.

[Full Text](#)

Department of Foundational Medical Studies (OU)

How to most effectively deliver a large amount of information in an engaging environment that encourages critical thinking is a question that has long plagued educators. With ever-increasing demands on both resident and faculty time, from shrinking duty hours to increased patient complexity, combined with the exponential growth of medical knowledge and unequal access to the spectrum of neurologic subspecialties around the country, this question has become especially pertinent to neurology residency training. A team of educators from the American Academy of Neurology's A.B. Baker Section on Neurological Education sought to review the current evidence regarding the implementation of the flipped classroom format. This educational model has only recently been applied to health care education along the training continuum, and a small collection of articles has, so far, used disparate methods of curricular implementation and assessment. While the feedback from learners is generally positive, a number of obstacles to implementation exist, most notably learner time commitments. These are presented with discussion of potential solutions along with suggestions for future studies.

Schmidt BM, Allison S and Wrobel JS (2019). "Describing normative foot temperatures in patients with diabetes-related peripheral neuropathy." Journal of Diabetes Science and Technology: 1932296819864664.

[Full Text](#)

OUWB Medical Student Author

Background: Prior research shows increased foot temperatures are predictive of diabetes-related foot complications. Our aim was to describe normative skin foot temperatures for individuals with diabetic peripheral neuropathy to better inform new technologies. We also explored for potential risk factors which correlate with changes in foot temperatures. Methods: We conducted a retrospective chart review of adult patients >18 years of age with diabetes mellitus and clinically diagnosed diabetic peripheral neuropathy with pedal digital thermometry performed between 2009 and 2018. A total of 58 patients met these criteria. Univariate modeling was based on covariates that may affect foot temperature including age, peripheral arterial disease, toe pressure, seasonality of measurement, smoking pack-years, caffeine use, insulin use, and calcium channel blocker use. Results: In patients with diabetic peripheral neuropathy, mean toe temperatures of 27.67 degrees C (6.300 degrees C), forefoot of 28.58 degrees C (5.36 degrees C), midfoot of 29.21 degrees C (3.81 degrees C), and rearfoot of 29.88 degrees C (3.83 degrees C) were demonstrated. A modest negative correlation between seasonality and toe and metatarsal temperatures ($r = -0.38, P < .05$; $r = -0.43, P < .01$, respectively) was demonstrated. Midfoot temperatures were modestly and positively correlated to the presence of small fiber symptoms ($r = 0.33, P = .03$). Positive modest correlation with rearfoot temperatures and amount of pack-year history ($r = 0.30, P = .03$) was seen. Conclusion: Normative foot temperatures in neuropathic patients were found to be inversely associated with seasonality at the toe and metatarsal level. Smoking and pack-year history demonstrate modest correlation previously unseen in temperature analyses and warrant further exploration. Normative temperatures in neuropathic patients can better inform new technologies for the prevention of diabetic foot ulcer and Charcot neuroarthropathy.

Seymour ZA, Pinkawa M, Daignault-Newton S, Bosch WR, Michalski JM, Gay HA and **Hamstra DA** (2019). "Long-term

follow-up after radiotherapy for prostate cancer with and without rectal hydrogel spacer: A pooled prospective evaluation of sexual function of men with good baseline sexual function." [International Journal of Radiation Oncology Biology Physics](#) 105(1): S97-S97.

[Full Text](#)

Department of Radiation Oncology

Siddiqui ZA, **Gustafson GS**, Ye H, Martinez AA, Mitchell B, Sebastian E, Limbacher A and **Krauss DJ** (2019). "Five-year outcomes of a single-institution prospective trial of 19-Gy single-fraction high-dose-rate brachytherapy for low- and intermediate-risk prostate cancer." [International Journal of Radiation Oncology Biology Physics](#) 104(5): 1038-1044.

[Full Text](#)

Department of Radiation Oncology

Purpose: To update outcome and toxicity results of a prospective trial of 19-Gy single-fraction high-dose-rate (HDR) brachytherapy for men with low- and intermediate-risk prostate cancer. Methods and Materials: Patients were treated on a prospective study of single-fraction HDR brachytherapy. All patients had low- or intermediate-risk prostate cancer. Patients with prostate volumes >50 cm³, taking alpha-blockers for urinary symptoms, or with baseline American Urologic Association symptom scores >12 were ineligible. Patients underwent transrectal ultrasound-guided interstitial implant of the prostate followed by single-fraction HDR brachytherapy to a prescription dose of 19 Gy. Results: Sixty-eight patients were enrolled with a median follow-up of 3.9 years. Median age was 62 years. Median gland volume at the time of treatment was 35 cm³, 92.6% of patients had T1 disease, 63.2% had a Gleason score of 6, and median pretreatment prostate-specific antigen was 5.0 ng/mL. Chronic grade 2 genitourinary toxicity was 14.7%. No grade 3 urinary toxicity occurred. A single patient experienced grade 2+ rectal toxicity (grade 3 diarrhea) that was transient and resolved with medical management. The 5-year estimated disease-free survival was 77.2% with no significant difference between low- and intermediate-risk patients. A single patient developed distant metastases during the follow-up period. Biopsy-proven local failure at 5 years was 18.8%, occurring at a median interval of 4.0 years posttreatment. No deaths occurred during follow-up. Conclusions: With extended follow-up, toxicity rates after single-fraction 19-Gy HDR brachytherapy remain low. Higher-than-expected rates of biochemical and local failure, however, raise concerns regarding the adequacy of this dose. Additional investigation to define the optimal single-fraction HDR brachytherapy dose is warranted, and single-fraction treatment currently should not be offered outside the context of a clinical trial.

Siddiqui ZA, Quinn TJ, Almahariq M, **Chen PY**, **Gustafson GS**, **Jawad MS** and **Dilworth JT** (2019). "Association of postmastectomy radiation therapy with overall survival for women with pT3N0 breast cancer: An NCCDB analysis." [International Journal of Radiation Oncology Biology Physics](#) 105(1): E7-E7.

[Full Text](#)

Department of Radiation Oncology

Siljander MP, Gehrke CK, Wheeler SD, Sobh AH, **Moore DD**, **Flierl MA** and **Baker EA** (2019). "Does taper design affect taper fretting corrosion in ceramic-on-polyethylene total hip arthroplasty? A retrieval analysis." [Journal of Arthroplasty](#) 34(7): S366-S372.e2.

[Full Text](#)

Department of Orthopaedic Surgery

Background: Ceramic-on-polyethylene (CoP) implants have exhibited lower fretting and corrosion scores than metal-on-polyethylene implants. This study aims at investigating the effect of taper design on taper corrosion and fretting in modular CoP total hip arthroplasty (THA) systems. Methods: Under an institutional review board-approved protocol, a query of an implant retrieval library from 2002 to 2017 identified 120 retrieved CoP THA systems with zirconia toughened alumina femoral heads. Femoral stem trunnions were visually evaluated and graded for fretting, corrosion, and damage at the taper interface. Medical records were reviewed for patient demographics and implant characteristics. Data were statistically analyzed using Spearman correlation and rank-sum tests with a Dunn's post hoc test, with a significance level of alpha = 0.05. Results: Four different taper designs were evaluated: 11/13 (n = 18), 12/14 (n = 53), 16/18 (n = 21), and V40 (n = 28). There were no statistically significant demographic differences between taper groups for duration of implantation, laterality, patient age, and patient sex, but patients with 16/18 tapers had a higher body mass index than V40 tapers (P=.012). Duration of implantation had a weak positive correlation with

both trunnion fretting ($\rho=0.224$, $P=.016$) and corrosion ($\rho=0.253$, $P=.006$). Summed fretting and corrosion scores were significantly greater on the V40 and 16/18 tapers compared with the 12/14 tapers (all $P \leq .001$). Conclusion: Taper fretting and corrosion were observed in CoP THA implants and were greatest with V40 and 16/18 tapers and lowest with 12/14 tapers. Differences in taper design characteristics may lead to greater micromotion at the taper-head interface, leading to increased fretting and corrosion.

Slivkoff MD, Bahner I, Bonaminio G, Brenneman A, Brooks WS, Chinn C, El-Sawi N, Haight M, Hurtubise L, **McAuley RJ**, Michaelsen V, Rowe R, Vari RC and Yoon M (2019). "The role of basic science in 21st century medical education." Medical Science Educator 29(3): 881-883.

[Full Text](#)

Department of Foundational Medical Studies (OU)

Smith K, Ferrer JM, Smith BL, Hwang ES, Hunt KK, Dodge DG, Karp SE, Valente SA, Wapnir IL, Clark LP, Carr DR, Beitsch PD, Dyess DL, Lesnikoski BA, Blumencranz PW, **Dekhne NS**, Gold LP, Chagpar A, Kacena K, Gjylameti L and Geissler F (2019). "Expansion into multiple institutions for training in the use of the LUM Imaging System for intraoperative detection of residual cancer in the tumor bed of female subjects with breast cancer." Cancer Research 79(13).

[Full Text](#)

Department of Surgery

Sobol E, Francis JH, Greenberg M, **Folberg R** and Abramson DH (2019). "Optical Coherence Tomography (OCT) characteristics of the choroid underlying congenital hypertrophy of the retinal pigment epithelium (CHRPE)." Investigative Ophthalmology & Visual Science 60(9).

[Full Text](#)

Department of Ophthalmology

Sosa LE, Njie GJ, Lobato MN, Morris SB, Buchta W, Casey ML, Goswami ND, Gruden M, Hurst BJ, Khan AR, Kuhar DT, Lewinsohn DM, **Mathew TA**, Mazurek GH, Reves R, Paulos L, Thanassi W, Will L and Belknap R (2019). "Tuberculosis screening, testing, and treatment of US health care personnel: Recommendations from the National Tuberculosis Controllers Association and CDC, 2019." American Journal of Transplantation 19(8): 2383-2387.

[Full Text](#)

Department of Internal Medicine

This article presents updated recommendations for screening health care workers for tuberculosis, including eliminating serial screening in the absence of exposure or ongoing transmission.

Soupal J, Petruzelkova L, **Grunberger G**, Haskova A, Flekac M, Matoulek M, Mikes O, Pelcl T, Skrha J, Jr., Horova E, Skrha J, Parkin CG, Svacina S and Prazny M (2019). "Glycemic outcomes in adults with T1D are impacted more by continuous glucose monitoring than by insulin delivery method: 3 years of follow-up from the COMISAIR study." Diabetes Care. ePub Ahead of Print.

[Full Text](#)

Department of Internal Medicine

Objective: This study assessed the clinical impact of four treatment strategies in adults with type 1 diabetes (T1D): real-time continuous glucose monitoring (rtCGM) with multiple daily insulin injections (rtCGM+MDI), rtCGM with continuous subcutaneous insulin infusion (rtCGM+CSII), self-monitoring of blood glucose with MDI (SMBG+MDI), and SMBG with CSII (SMBG+CSII). Research Design and Methods: This 3-year, nonrandomized, prospective, real-world, clinical trial followed 94 participants with T1D (rtCGM+MDI, $n = 22$; rtCGM+CSII, $n = 26$; SMBG+MDI, $n = 21$; SMBG+CSII, $n = 25$). The main end points were changes in A1C, time in range (70-180 mg/dL [3.9-10 mmol/L]), time below range (<70 mg/dL [<3.9 mmol/L]), glycemic variability, and incidence of hypoglycemia. Results: At 3 years, the rtCGM groups (rtCGM+MDI and rtCGM+CSII) had significantly lower A1C (7.0% [53 mmol/mol], $P = 0.0002$, and 6.9% [52 mmol/mol], $P < 0.0001$, respectively), compared with the SMBG+CSII and SMBG+MDI groups (7.7% [61 mmol/mol], $P = 0.1.000$, and 8.0% [64 mmol/mol], $P = 0.3574$, respectively), with no significant difference between the rtCGM groups. Significant improvements in percentage of time in range were observed only in the rtCGM subgroups (rtCGM+MDI, 48.7-69.0%, $P < 0.0001$; and rtCGM+CSII, 50.9-72.3%, $P < 0.0001$) and significant reductions in time below range (9.4-5.5%, $P = 0.0287$; and 9.0-5.3%, $P = 0.0325$, respectively). Seven severe

hypoglycemia episodes occurred: SMBG groups, n = 5; sensor-augmented insulin regimens (SAIR) groups, n = 2. Conclusions: rtCGM was superior to SMBG in reducing A1C, hypoglycemia, and other end points in individuals with T1D regardless of their insulin delivery method. rtCGM+MDI can be considered an equivalent but lower-cost alternative to sensor-augmented insulin pump therapy and superior to treatment with SMBG+MDI or SMBG+CSII therapy.

Stallion A (2019). "2018 SBAS Presidential Address - Sustainability, Relevancy and the Society of Black Academic Surgeons: The making of an academic surgeon." [American Journal of Surgery](#) 218(3): 467-475.

[Full Text](#)

Department of Surgery

Stem MS, Rao P, **Williams GA** and **Ruby AJ** (2019). "Reply." [Ophthalmology Retina](#) 3(8): e7-e8.

Department of Ophthalmology

Subahi A, **Osman M**, Adegba O, Abubakar H, Kheiri B, Yassin AS, Khalid M, Akintoye E, Eljack A, Osman K and Alkhouli M (2019). "Clinical and economic burden of heparin-induced thrombocytopenia in hospitalized patients undergoing percutaneous peripheral arterial interventions." [Vascular](#): 1708538119868615.

[Request Form](#)

Department of Pediatrics

Tapper A, **Leale D**, Megahan G, Nacker K, Killinger K and **Hafron J** (2019). "Author reply." [Urology](#) 131: 129.

[Full Text](#)

OUIWB Medical Student Author

Department of Urology

Tapper A, **Leale D**, Megahan G, Nacker K, Killinger K and **Hafron J** (2019). "Robotic instrument failure: A critical analysis of cause and quality improvement strategies." [Urology](#) 131: 125-129.

[Full Text](#)

OUIWB Medical Student Author

Department of Urology

Objective: To introduce a quality improvement initiative tracking robotic instrument failures on a per case basis. It is imperative to understand rates of failure, financial implications of failures, and identify factors suggesting common mechanisms of failure. Materials and Methods: Starting in January 1, 2014 a quality reporting system for failed robotic equipment began. Staff was instructed to submit an incident report when a robotic instrument failed and the instrument returned to central processing. Instruments were then returned to the manufacturer (Intuitive Surgical Inc, Sunnyvale, CA) for analysis and reimbursement. Results of failure analysis by the manufacturer, including reimbursement rates, were recorded and correlated with the procedure and surgical specialty. Results: A total of 3935 robotic cases were performed during the study period with a reported instrument failure incidence of 6.2% (247 total instruments). Etiology of instrument failure was as follows: tip or wrist (46.9%), cable (30.0%), unknown (12.6%), control housing (5.3%), and shaft (3.2%). Highest instrument failure incidence was seen in colorectal surgery cases at 4.0%, Urology had the lowest at 2.7%. Manufacturer reimbursement rate was 57.9%; the most common reason for denial being mishandling/misuse of equipment, determined by manufacturer analysis. Conclusion: Herein, we have demonstrated that improved process flow of reporting is necessary to better track incidence and etiology of instrument failures. Cost savings comes from improved training of not only surgeons but operating room and central processing staff in handling equipment to prevent high rates of reimbursement denial.

Tausif HN, **Nyalakonda R** and **Gupta C** (2019). "Corneal edema in setting of routine cataract surgery and use of intracameral moxifloxacin." [Investigative Ophthalmology & Visual Science](#) 60(9).

[Full Text](#)

Department of Ophthalmology

OUIWB Medical Student Author

Thomas RJ, Beatty AL, Beckie TM, Brewer LC, Brown TM, Forman DE, **Franklin BA**, Keteyian SJ, Kitzman DW,

Regensteiner JG, Sanderson BK and Whooley MA (2019). "Home-based cardiac rehabilitation: A scientific statement from the American Association of Cardiovascular and Pulmonary Rehabilitation, the American Heart Association, and the American College of Cardiology." Journal of the American College of Cardiology 74(1): 133-153.

[Full Text](#)

Department of Internal Medicine

Cardiac rehabilitation (CR) is an evidence-based intervention that uses patient education, health behavior modification, and exercise training to improve secondary prevention outcomes in patients with cardiovascular disease. CR programs reduce morbidity and mortality rates in adults with ischemic heart disease, heart failure, or cardiac surgery but are significantly underused, with only a minority of eligible patients participating in CR in the United States. New delivery strategies are urgently needed to improve participation. One potential strategy is home-based CR (HBCR). In contrast to center-based CR services, which are provided in a medically supervised facility, HBCR relies on remote coaching with indirect exercise supervision and is provided mostly or entirely outside of the traditional center-based setting. Although HBCR has been successfully deployed in the United Kingdom, Canada, and other countries, most US healthcare organizations have little to no experience with such programs. The purpose of this scientific statement is to identify the core components, efficacy, strengths, limitations, evidence gaps, and research necessary to guide the future delivery of HBCR in the United States. Previous randomized trials have generated low-to moderate-strength evidence that HBCR and center-based CR can achieve similar improvements in 3- to 12-month clinical outcomes. Although HBCR appears to hold promise in expanding the use of CR to eligible patients, additional research and demonstration projects are needed to clarify, strengthen, and extend the HBCR evidence base for key subgroups, including older adults, women, underrepresented minority groups, and other higher-risk and understudied groups. In the interim, we conclude that HBCR may be a reasonable option for selected clinically stable low-to moderate-risk patients who are eligible for CR but cannot attend a traditional center-based CR program.

Thomas RJ, Beatty AL, Beckie TM, Brewer LC, Brown TM, Forman DE, **Franklin BA**, Keteyian SJ, Kitzman DW, Regensteiner JG, Sanderson BK and Whooley MA (2019). "Home-based cardiac rehabilitation: A scientific statement from the American Association of Cardiovascular and Pulmonary Rehabilitation, the American Heart Association, and the American College of Cardiology." Circulation 140(1): E69-E89.

[Full Text](#)

Department of Internal Medicine

Cardiac rehabilitation (CR) is an evidence-based intervention that uses patient education, health behavior modification, and exercise training to improve secondary prevention outcomes in patients with cardiovascular disease. CR programs reduce morbidity and mortality rates in adults with ischemic heart disease, heart failure, or cardiac surgery but are significantly underused, with only a minority of eligible patients participating in CR in the United States. New delivery strategies are urgently needed to improve participation. One potential strategy is home-based CR (HBCR). In contrast to center-based CR services, which are provided in a medically supervised facility, HBCR relies on remote coaching with indirect exercise supervision and is provided mostly or entirely outside of the traditional center-based setting. Although HBCR has been successfully deployed in the United Kingdom, Canada, and other countries, most US healthcare organizations have little to no experience with such programs. The purpose of this scientific statement is to identify the core components, efficacy, strengths, limitations, evidence gaps, and research necessary to guide the future delivery of HBCR in the United States. Previous randomized trials have generated low- to moderate-strength evidence that HBCR and center-based CR can achieve similar improvements in 3- to 12-month clinical outcomes. Although HBCR appears to hold promise in expanding the use of CR to eligible patients, additional research and demonstration projects are needed to clarify, strengthen, and extend the HBCR evidence base for key subgroups, including older adults, women, underrepresented minority groups, and other higher-risk and understudied groups. In the interim, we conclude that HBCR may be a reasonable option for selected clinically stable low- to moderate-risk patients who are eligible for CR but cannot attend a traditional center-based CR program.

Thompson A, **Ding X**, Abbott V, Puzzonja JA, Palermino J, Frankenfield A, **Kabolizadeh P** and **Krauss DJ** (2019). "Proton stereotactic body radiotherapy as a nephron-sparing approach for patients with localized renal cell carcinoma: A dosimetric analysis." International Journal of Radiation Oncology Biology Physics 105(1): E713-E713.

[Full Text](#)

Department of Radiation Oncology

Thompson A, Siddiqui ZA, Porter E and **Guerrero TM** (2019). "A novel deep learning architecture for deformable imaging registration applied to image-guided radiotherapy." International Journal of Radiation Oncology Biology Physics 105(1): S199-S199.

[Full Text](#)

Department of Radiation Oncology

Thompson A, Siddiqui ZA, Porter E, **Krauss DJ** and **Kabolizadeh P** (2019). "DVH analysis: A custom, scalable software platform designed for flexible dosimetric quantitative evaluation." International Journal of Radiation Oncology Biology Physics 105(1): E129-E129.

[Full Text](#)

Department of Radiation Oncology

Todorich B, Thanos A, Yonekawa Y, Korot E, **Trese MT**, **Drenser KA** and **Capone AJ** (2019). "Surgical management of tractional retinoschisis associated with vitreous hemorrhage in retinopathy of prematurity." Retinal Cases and Brief Reports 13(1): 72-74.

[Full Text](#)

Department of Ophthalmology

Purpose: The tractional retinoschisis is a poorly understood, rare, and likely underappreciated entity in retinopathy of prematurity. The purpose of this article is to describe clinical findings and surgical management of tractional retinoschisis in retinopathy of prematurity, masquerading as Stage 4 retinopathy of prematurity retinal detachment. Methods: A retrospective review of a single case with literature review and case discussion. Results: In this report, we describe a child with retinopathy of prematurity and tractional schisis, who initially presented with vitreous hemorrhage and was effectively managed by vitrectomy and inner wall retinectomy. At 5 months after vitrectomy, the child demonstrated complete collapse of the retinoschisis with intact posterior pole and brisk light perception. Conclusion: Vitrectomy with or without inner wall retinectomy is effective in the management of tractional retinoschisis.

Turner-Lawrence D and **Todd BR** (2019). "Monthly progression of emergency medicine resident efficiency: What can we expect of our residents throughout training?" Journal of Emergency Medicine 57(1): 77-81.

[Full Text](#)

Department of Emergency Medicine

Background: Developing the capacity for efficient patient care is essential during emergency medicine (EM) residency training. Previous studies have demonstrated that resident efficiency improves during each year of training. Objectives: This study assessed the progression of EM resident efficiency monthly and sought to develop a model that describes this progression in terms of patients per hour (pts/h) weighted by month of training. Methods: We performed a retrospective review of EM resident efficiency as determined by pts/h using EM resident monthly patient logs from a postgraduate year (PGY) 1-3 EM training program. Mean pts/h and standard deviation (SDs) were calculated based on month of training. One-way analysis of variance compared year-to-year training. We formulated several linear regression models to describe this progression. Results: We analyzed 51 consecutive months of patient logs from 110 residents. The mean pts/h for PGY1 was 1.201 (n = 85, SD = 0.241), for PGY2 was 1.497 (n = 82, SD = 0.218), and for PGY3 was 1.676 (n = 80, SD = 0.224). Linear regression was used to describe patients seen per hour by the month of training. A significant regression was found with an R² of 0.437 and p < 0.000. Over 36 months of training, a resident's predicted pts/h is equal to 1.113 + (0.018 x month of training). Conclusions: EM resident efficiency increases monthly, with most improvement occurring in the PGY1 year. Understanding this improvement may aid in resident performance evaluation and the understanding of predicted resident workflow.

Valenca MP, da Silva JC, Santos I, Calado AA, Chancellor DD, **Chancellor MB** and Cavalcanti GD (2019). "Translation, cross-cultural adaptation and validation of the underactive bladder questionnaire to Portuguese." International Urology and Nephrology 51(8): 1329-1334.

[Full Text](#)

Department of Urology

Objective: The aim of the current study was to perform the translation, cross-cultural adaptation and validation of the Underactive Bladder Questionnaire (UAB-q). Methods: The study design included the Portuguese translation, cross-cultural adaptation and validation of the UAB-q in 90 patients from a urology outpatient clinic following international methodology. The psychometric properties tested were the validity, reliability, internal consistency and stability of the instrument. Results: The content validity index at the item (I-CVI) and scale level (S-CVI) were above 0.80 and did not require changes. Regarding the reliability analysis, Cronbach's alpha was 0.79. The internal consistency and the base time stability (test-retest) had excellent indexes; all were above 0.90. Conclusions: These results indicate that the UAB-q is a valid, reproducible and reliable instrument for screening underactive bladders and is a potentially useful tool to guide health actions and improve the care of underactive patients.

Van Rosendael AR, Al'Aref SJ, Dwivedi A, Kim TS, Peña JM, Dunham PC, Kim YJ, **Chinnaiyan K**, Feuchtner G, Plank F, Berman DS, Shaw LJ, Chang HJ, Lin FY, Bax JJ, Narula J and Min JK (2019). "Quantitative evaluation of high-risk coronary plaque by coronary CTA and subsequent acute coronary events." JACC: Cardiovascular Imaging 12(8P1): 1568-1571.

[Full Text](#)

Department of Internal Medicine

Vayntraub A, Quinn TJ, Thompson A, **Gustafson GS, Chen PY** and **Dilworth JT** (2019). "Left anterior descending artery avoidance in patients receiving breast irradiation." International Journal of Radiation Oncology Biology Physics 105(1): E61-E61.

[Full Text](#)

Department of Radiation Oncology

Vijay V, Miller R, Vue GS, Pezeshkian MB, **Maywood M**, Ast AM, Drusbosky LM, Pompeu Y, Salgado AD, Lipten SD, Geddes T, **Blenc AM**, Ge YB, Ostrov DA, Cogle CR and Madlambayan GJ (2019). "Interleukin-8 blockade prevents activated endothelial cell mediated proliferation and chemoresistance of acute myeloid leukemia." Leukemia Research 84.

[Full Text](#)

OUWB Medical Student Author

Department of Pathology

One of the greatest challenges in treating acute myeloid leukemia (AML) is chemotherapy refractory disease. Previously, we demonstrated a novel mechanism whereby AML-induced endothelial cell (EC) activation leads to subsequent leukemia cell adherence, quiescence and chemoresistance, identifying activated ECs as potential mediators of relapse. We now show mechanistically that EC activation induces the secretion of interleukin-8 (IL-8) leading to significant expansion of non-adherent AML cells and resistance to cytarabine (Ara-C). Through crystallography and computational modeling, we identified a pocket within IL-8 responsible for receptor binding, screened for small molecules that fit within this pocket, and blocked IL-8 induced proliferation and chemo-protection of AML cells with a hit compound. Results from this study show a new therapeutic strategy for targeting the sanctuary of an activated leukemia microenvironment.

Vinogradskiy Y, Diot Q, Jones BL, Castillo R, Castillo E, Kwak J, Bowles DW, **Grills IS, Guerrero TM, Stevens CW**, Schefter T, Gaspar LE, Kavanagh BD, Miften M and Rusthoven CG (2019). "Evaluating PET-based functional imaging changes in the heart after thoracic chemo-radiation." International Journal of Radiation Oncology Biology Physics 105(1): S235-S235.

[Full Text](#)

Department of Radiation Oncology

Wanamaker BL, Seth MM, Sukul D, **Dixon SR**, Bhatt DL, Madder RD, Rumsfeld JS and Gurm HS (2019). "Relationship between troponin on presentation and in-hospital mortality in patients with ST-segment-elevation myocardial infarction undergoing primary percutaneous coronary intervention." Journal of the American Heart Association 8(19): e013551.

[Full Text](#)

Department of Internal Medicine

Background: Troponin release in ST-segment-elevation myocardial infarction (STEMI) has predictable kinetics with early levels reflective of ischemia duration. Little research has examined the value of admission troponin levels in STEMI patients undergoing primary percutaneous coronary intervention. We investigated the relationship between troponin on presentation and mortality in a large, real-world cohort of STEMI patients undergoing primary percutaneous coronary intervention. Methods and Results: We used multivariable adaptive regression modeling to examine the association between admission troponin levels and in-hospital mortality for patients who underwent primary percutaneous coronary intervention for STEMI. We adjusted for known clinical risk factors using a validated mortality risk model derived from the NCDR (National Cardiovascular Data Registry) CathPCI database, and this same model was used to calculate patients' predicted mortality based on clinical and demographic factors. Patients were then stratified by troponin groups to compare predicted versus observed mortality. Of the 14 061 patients included in the cohort, 47.2% had initial troponin levels that were undetectable or within the reference range. Admission troponin was an independent predictor of in-hospital mortality, and any value above the reference range was associated with increased mortality (1.8% versus 5.1%, [standardized difference, 18.2%]). Patients with the highest predicted risk for mortality (13% predicted) in the highest admission troponin grouping experienced an observed mortality of 19.5%. Patients in low troponin groupings consistently demonstrated lower than predicted mortality based on their clinical and demographic risk profile. Conclusions: Nearly half of patients undergoing primary percutaneous coronary intervention had normal troponin on presentation and had a relatively good outcome. Mortality increases with elevated admission troponin levels, regardless of baseline clinical risk. The substantial number of patients who present with markedly elevated troponin and their relatively worse outcomes highlights the need for continued improvement in prehospital STEMI detection and care.

Wang C, Kraus CN, **Patel KG**, Ganesan AK and Grando SA (2019). "Real-world experience of dupilumab treatment for atopic dermatitis in adults: a retrospective analysis of patients' records." [International Journal of Dermatology](#). ePub Ahead of Print.

[Full Text](#)

OUWB Medical Student Author

Background: Clinical trial data for dupilumab, a monoclonal antibody against the interleukin-4 receptor (IL-4R alpha), have shown that it is safe and effective for the treatment of moderate to severe atopic dermatitis in patients whose disease is resistant to other therapies. However, little real-world experience with dupilumab use has been reported thus far. The aim of this retrospective study was to assess overall outcomes in adult patients with atopic dermatitis (AD) treated with dupilumab. Methods: A retrospective review of electronic medical records was conducted for patients treated with dupilumab in the Department of Dermatology at the University of California, Irvine. Results: We analyzed the medical records of 77 AD patients who received dupilumab according to standard dosing and had at least one documented follow-up visit. In 66 patients (86%), dupilumab improved clinical disease severity, with 23 patients (30%) experiencing complete clearance on dupilumab. Dupilumab was generally well-tolerated and caused no serious adverse events. The most common side effects included dry eyes, conjunctivitis, and keratitis. The most common reason for discontinuation of treatment was lack of substantial clinical improvement or progression of disease severity, followed by ophthalmologic side effects. Conclusions: Overall, dupilumab was well-tolerated and resulted in clinical improvement in our patient population. These results provide additional important information on the safety and utility of dupilumab treatment for moderate to severe atopic dermatitis in the real-world clinical setting.

Wang HJ, Tyagi P, Chen YM, **Chancellor MB** and Chuang YC (2019). "Low energy shock wave therapy inhibits inflammatory molecules and suppresses prostatic pain and hypersensitivity in a capsaicin induced prostatitis model in rats." [International Journal of Molecular Science](#) 20(19).

[Full Text](#)

Department of Urology

The effect of low energy shock wave (LESW) therapy on the changes of inflammatory molecules and pain reaction was studied in a capsaicin (10 mM, 0.1 cc) induced prostatitis model in rats. Intraprostatic capsaicin injection induced a pain reaction, including closing of the eyes, hypolocomotion, and tactile allodynia, which

effects were ameliorated by LESW treatment. LESW therapy (2Hz, energy flux density of 0.12 mJ/mm²) at 200 and 300 shocks significantly decreased capsaicin-induced inflammatory reactions, reflected by a reduction of tissue edema and inflammatory cells, COX-2 and TNF-alpha stained positive cells, however, the therapeutic effects were not observed at 100 shocks treated group. Capsaicin-induced IL-1beta, COX-2, IL-6, caspase-1, and NGF upregulation on day 3 and 7, while NALP1 and TNF-alpha upregulation was observed on day 7. LESW significantly suppressed the expression of IL-1beta, COX-2, caspase-1, NGF on day 3 and IL-1beta, TNF-alpha, COX-2, NALP1, caspase-1, NGF expression on day 7 in a dose-dependent fashion. LESW has no significant effect on IL-6 expression. Intraprostatic capsaicin injection activates inflammatory molecules and induces prostatic pain and hypersensitivity, which effects were suppressed by LESW. These findings might be the potential mechanisms of LESW therapy for nonbacterial prostatitis in humans.

White JR, Winter K, Cecchini RS, Vicini FA, Arthur DW, Kuske RR, Rabinovitch RA, Sehkun A, Khan AJ, Chmura SJ, Shaitelman SF, McCormick B, Julian TB, Rogers CL, Bear HD, Petersen IA, **Gustafson GS**, Grossheim LD, Mamounas E and Ganz PA (2019). "Cosmetic outcome from post lumpectomy whole breast irradiation (WBI) versus partial breast irradiation (PBI) on the NRG oncology/NSABP B39-RTOG 0413 phase III clinical trial." International Journal of Radiation Oncology Biology Physics 105(1): S3-S4.

[Full Text](#)

Department of Radiation Oncology

Wilkie JR, Hochstedler K, Schipper M, Matuszak MM, Paximadis P, Dominello MM, **Grills IS**, Hayman JA, Dess RT, Pierce LJ, Spratt DE, Bergsma DP, Movsas B and Jolly S (2019). "Association between adverse events and quality of life in patients treated with radiotherapy for locally advanced non-small cell lung cancer." International Journal of Radiation Oncology Biology Physics 105(1): S95-S96.

[Full Text](#)

Department of Radiation Oncology

Wood EH, **Drenser KA** and **Capone A, Jr** (2019). "Diagnosis and management of familial exudative vitreoretinopathy: A lifelong, progressive, and often asymmetric disease." JAMA Ophthalmology 137(9): 1059-1060.

[Full Text](#)

Department of Ophthalmology

Familial exudative vitreoretinopathy (FEVR) is an inherited vitreoretinal disease characterized by abnormal retinal vascular development with progressive vitreoretinal features, including retinal capillary dropout; vessel dragging; retinal folds; exudation; hemorrhage; neovascularization; vitreoretinal interface changes; and serous, tractional, and/or combined retinal detachment. Genetic testing is fundamental to diagnostic inquiry, in which approximately 50% of cases exhibit a mutation in 4 Wnt-signaling genes (LRP5, FZD4, NDP, and TSPAN12) or the transcription factor ZNF408. The Wnt signaling pathway is an evolutionarily conserved signal-transduction pathway that guides the fate of cells during embryologic development and functions in the process of maintenance and self-renewal of adult tissues. Genetic testing is important in FEVR because clinical examination often does not presume genetic diagnosis owing to (1) genetic heterogeneity, or similar phenotypes associated with mutations in many different genes (eg, mutations in various disease-associated Wnt genes may result in an identical phenotype), and (2) phenotypic heterogeneity, or mutations within the same gene associated with several different phenotypes (eg, NDP mutations have been associated with FEVR, Norrie disease, Coats disease, and retinopathy of prematurity). Incomplete penetrance and variable expressivity (within a family sharing the same mutation, as well as between eyes in the same individual) are common in FEVR.

Wood EH, **Moinuddin O**, Rao P, **Drenser KA**, **Trese MT** and Capone A (2019). "Surgical management of suprachoroidal hemorrhage in younger patients." Ophthalmic Surgery Lasers & Imaging Retina 50(7): 454-458.

[Request Form](#)

OUIWB Medical Student Author

Department of Ophthalmology

Suprachoroidal hemorrhage (SCH) is a rare but serious complication that may accompany nearly any ocular surgery. In contrast to SCH in adults, the incidence and management of SCH in the pediatric population is poorly defined. Herein, the authors describe their experience managing SCH in patients of a younger age

group. characterize this rare complication using multimodal imaging, and review the current literature on the subject. In this retrospective case series, two patients developed intraoperative SCH during cataract extraction once rendered aphakic.

Wright JO, Ho A, Kalma J, Koueiter D, Esterle J, **Marcantonio D, Wiater JM** and **Wiater B** (2019). "Uncemented reverse total shoulder arthroplasty as initial treatment for comminuted proximal humerus fractures." Journal of Orthopaedic Trauma 33(7): E263-E269.

[Full Text](#)

Department of Diagnostic Radiology and Molecular Imaging

Department of Orthopaedic Surgery

Objectives: To determine whether uncemented implants would provide similar outcomes while avoiding the complications associated with cement in the treatment of elderly patients with proximal humerus fractures (PHFs) with primary reverse total shoulder arthroplasty (RTSA). Design: Case series. Setting: A single Level I trauma center. Patients/Participants: A prospectively obtained cohort of 30 patients who underwent uncemented RTSA as initial treatment for a comminuted PHF: 4 male, 26 female; average age 71 +/- 11 years. Intervention: Uncemented RTSA. Main Outcome Measures: (1) Radiographic analysis, (2) postoperative clinical range of motion, and (3) functional outcome scores: the American Shoulder and Elbow Surgeons Shoulder score and the Simple Shoulder Test score. Results: Radiographic analysis showed 97% achieved stable humeral stem fixation and 70% had healing of the tuberosities in anatomical position. Average range of motion was 130 +/- 31 degrees of forward flexion, 32 +/- 18 degrees of external rotation, and internal rotation to the midlumbar spine. Average American Shoulder and Elbow Surgeons Shoulder score was 82.0 +/- 13.5 (with an average pain rating of 0.8 +/- 1.3), and average Simple Shoulder Test score was 69.4% +/- 19.1%. Conclusions: Our data show that treatment of comminuted PHFs in elderly patients with uncemented RTSA can consistently produce good clinical outcomes with a low rate of complications and suggest that cement may not be necessary for RTSA in the trauma setting.

Wu JC, Daley E, Koueiter DM, Lilly R, Vara AD and **Settecce JJ** (2019). "Operating room intervention rates after orthopaedic resident-reduced pediatric both-bone forearm fractures relative to the academic calendar." Journal of Pediatric Orthopaedics. ePub Ahead of Print.

[Full Text](#)

Department of Orthopaedic Surgery

Background: The purpose of this study was to evaluate the operating room (OR) intervention rates and quality of fracture reductions for pediatric diaphyseal both-bone forearm fractures performed by orthopaedic residents relative to the academic year. OR intervention was defined as any procedure performed in the OR, including closed reduction and casting, and was used to identify fractures that required secondary intervention after initial closed reduction performed by an orthopaedic resident in the emergency department. Methods: A retrospective analysis identified pediatric patients presenting at our institution with both-bone forearm fractures from July 2010 to June 2016. Emergency-room sedation time, highest experience of orthopaedic resident documented to be present at the time of sedation (in postgraduate months), and frequencies of OR intervention were obtained by chart review. Fracture characteristics were determined by radiographic review. Immediate postreduction radiographs were used to measure cast indices, and adequacy of reduction was determined by postreduction angulation and translation. Results: During the time period studied, 470 both-bone forearm reductions under sedation were performed by an orthopaedic resident at our institution. Of these, 41 fractures (41 patients) required 42 OR interventions (40 involved surgical fixation and 2 were repeat closed reductions). The academic year was divided into quartiles. The April to June quartile had the highest overall percentage of OR intervention (10.6%), followed by July to September (8.6%); however, there was no significant difference between quartiles in the percentages of reductions that needed OR intervention (P=0.553). There was also no correlation between the experience level of the resident performing the reduction (based on postgraduate months) and the frequency of OR intervention (P=0.244). The anteroposterior (AP) and lateral reduction grades did not vary based on quarters (P=0.584; 0.353). The ability to obtain adequate reduction and the rate of unacceptable cast index were also not significantly different between quarters (P=0.347 and 0.465). Conclusions: We found no significant difference in rates of OR intervention or the quality of reduction for pediatric both-bone diaphyseal forearm fractures treated by orthopaedic residents relative to the academic year. LEVEL OF EVIDENCE: Level III-

comparative cohort study.

Wu JC, Lilly R, Vara AD and **Sobol G** (2019). "Posttraumatic bifid ulna in a pediatric Galeazzi-equivalent forearm fracture." Journal of Hand Surgery 44(9): 802.e801-802.e808.

[Full Text](#)

Department of Orthopaedic Surgery

We report an unusual clinical presentation and surgical treatment of a Galeazzi-equivalent fracture in which initial closed treatment failed. This case was unique and challenging secondary to the formation of a neoulna volar to an unreduced periosteal sleeve injury, resulting in a bifid radiographic appearance.

Wu JC, Mills A, **Grant KD** and **Wiater PJ** (2019). "Fracture fixation using shape-memory (Nitinol) staples." Orthopedic Clinics of North America 50(3): 367-374.

[Full Text](#)

Department of Orthopaedic Surgery

Shape-memory alloy (SMA) staples are a recent innovation in fracture fixation. These staples have inherent compressive properties that create a stable fracture environment that promotes primary bone healing. They have been used successfully for osteotomies, arthrodesis, and fracture fixation. Understanding where SMA staple compression can be optimized and using proper indications are important for obtaining consistent success and minimizing failures. SMA staples are not a substitute for lag screw fixation or traditional plate and screw constructs.

Wu RC, Prebay ZJ, Patel P, Kim T, Qi J, Telang J, Linsell S, Kleer E, Miller DC, Peabody JO, Ghani KR and **Johnston WK, 3rd** (2019). "Using video review to understand the technical variation of robot-assisted radical prostatectomy in a statewide surgical collaborative." World Journal of Urology. ePub Ahead of Print.

[Full Text](#)

Department of Urology

Purpose: Video assessment is an emerging tool for understanding surgical technique. Patient outcomes after robot-assisted radical prostatectomy (RARP) may be linked to technical aspects of the procedure. In an effort to refine surgical approaches and improve outcomes, we sought to understand technical variation for the key steps of RARP in a surgical collaborative. Methods: The Michigan Urological Surgery Improvement Collaborative (MUSIC) is a statewide quality improvement collaborative with the aim of improving prostate cancer care. MUSIC surgeons were invited to submit representative complete videos of nerve-sparing RARP for blinded analysis. We also analyzed peri-operative outcomes from these surgeons in the registry. Results: Surgical video data from 20 unique surgeons identified many variations in technique and time to complete different steps. Common to all surgeons was a transperitoneal approach and a running urethrovesical anastomosis. Prior to anastomosis, 25% surgeons undertook a posterior reconstruction and 30% employed urethral suspension. 65% surgeons approached the seminal vesicle anteriorly. For control of the dorsal vein complex, suture ligation was used in 60%, and vascular stapler was 15%. The majority (80%) of surgeons employed clips for managing pedicles. In examining patient outcomes for surgeons, peri-operative outcomes were not correlated with surgeon's operative time; however, surgeons with an EBL > 400 ml had significant difference among the five different techniques employed. Conclusions: Despite the worldwide popularity of RARP, the operation is still far from standardized. Correlating variation in technique with clinical outcomes may help provide objective data to support best practices with the goal to improve patient outcomes.

Ysunza PA, Rontal M and **Micale M** (2019). "Occult subtotal cleft of the secondary palate with VPI associated to 8q22.2 deletion." International Journal of Pediatric Otorhinolaryngology 124: 54-58.

[Full Text](#)

Department of Physical Medicine & Rehabilitation

Department of Pathology

Department of Surgery

Background: Submucous cleft palate is a cleft of the secondary palate with low phenotypic gene expression. It can occur as an isolated malformation or associated with a syndrome that includes certain facial features and other vocal tract malformations. Velopharyngeal insufficiency (VPI) is rare in cases of non - syndromic

occult clefts of the secondary palate (OSCSP). In contrast, syndromic OCSP has a high prevalence of VPI. VPI requires surgical treatment in the vast majority of cases. Objective: To present a case of OSCSP with VPI after partial tonsillectomy and adenoidectomy (T & A) associated with facial features and other vocal tract malformations. A chromosomal abnormality (8q22.2 deletion) was demonstrated by cytogenetic testing. Case presentation: Eight year old female with VPI following partial T & A. OSCSP was diagnosed. Complete T & A was performed in preparation for a pharyngeal flap. Pharyngeal flap surgery was customized according to findings of videonasopharyngoscopy (VNP) and multiplanar videofluoroscopy (MPVF). VPI was corrected without intraoperative or postoperative complications. Conclusion: The presence of multiple vocal tract malformations should be a red flag for suspecting a syndromic OSCSP. Surgical treatment of VPI in cases of OSCSP should be performed after complete T & A, Imaging procedures for assessing neck blood vessels and it should be customized according to imaging (VNP and MPVF) findings.

Zakaria HM, **Lipphardt M**, Bazydlo M, Xiao S, Schultz L, Chedid M, Abdulhak M, Schwalb JM, Nerenz D, **Easton R** and Chang V (2019). "The preoperative risks and 2-year sequelae of postoperative urinary retention: Analysis of the Michigan Spine Surgery Improvement Collaborative (MSSIC)." *World Neurosurgery*. ePub Ahead of Print.

[Full Text](#)

OUWB Medical Student Author

Department of Orthopaedic Surgery

Objective: While postoperative urinary retention (POUR) is common after spine surgery, the association of this adverse event with other morbidities and patient-reported outcomes is not fully understood. We sought to examine the sequelae of POUR after lumbar spine surgery. Methods: The Michigan Spine Surgery Improvement Collaborative (MSSIC) is a large, prospective, multicenter registry. MSSIC was queried with multivariate analysis for factors that are associated with POUR, the association of POUR with 90-day adverse events, and the effect of POUR on 2-year patient-reported outcomes and satisfaction. Results: Multivariate analysis identified hardware revision (OR0.61), one operative level (OR0.74), and ambulation on postoperative day zero (OR0.65) to be protective for POUR. Factors associated with POUR included age (OR1.19), male gender (OR1.58), body mass index <25 (OR1.22), diabetes (OR1.28), coronary artery disease (OR1.20), fusion surgery, (OR1.27) and longer surgery (OR1.11). Patients who had POUR were more likely to be readmitted, develop a urinary tract infection, and develop an infection (P<0.001). POUR was associated with decreased likelihood of achieving Oswestry Disability Index minimal clinically important difference (MCID) at 90d (P<0.001), but not at 1 year after surgery. POUR was associated with dissatisfaction with surgery at 90d (P<0.001), 1-year (P=0.004), and 2-years post-surgery (P=0.011). Conclusions: POUR is common after lumbar spine surgery, and the demographic, diagnostic, and surgical factors that are associated with POUR are identified. POUR is associated with several adverse events, and patients who have POUR were less likely to be satisfied with surgery up to 2 years post surgery.