

OAKLAND UNIVERSITY WILLIAM BEAUMONT SCHOOL OF MEDICINE
PUBLICATION LIST
October - December 2022

We compiled this bibliography to recognize the school's scholarly activity and to provide ease of access to the journal articles, published meeting abstracts, book chapters, books, and other works written by OUWB faculty, students and staff. We created the list by searching the institutional affiliation fields in PubMed, Scopus, Web of Science, EMBase, CINAHL, MedEdPORTAL, Google Scholar, and Google Books. Because of search limitations, it does not represent an exhaustive collection of all published works by OUWB authors. If we inadvertently missed your publication, please email the citation to the Medical Library at medref@oakland.edu, and we will add it to the next quarter's list. Click the "Full-Text" link to download the articles available through the OUWB Medical Library. If the full-text is not available, you may request a copy by clicking the "Request Form" link or calling us at 248-370-3772. If you have any questions or comments, please contact David Stewart at davidstewart@oakland.edu.

Abushukur Y, Ibrahim Y, Cascardo C, Keeley J and Knackstedt T (2022). "Basal cell carcinoma with perineural invasion: A systematic review and pooled survival analysis." *Dermatologic Surgery* 48(11): 1159-1165.

[Full Text](#)

OUWB Medical Student Author

Background: Perineural invasion (PNI) is considered a high-risk histopathologic feature in many skin cancers. Perineural invasion is a well-known poor prognostic factor of squamous cell carcinoma, but is poorly understood in the context of basal cell carcinoma (BCC). Objective: To analyze available demographic, clinical, and treatment data for BCC with PNI and the effect of these variables on recurrence patterns, disease progression, and cancer-specific mortality (CSM). Methods: A systematic review and pooled-survival analysis was performed using case reports and series of patients with perineural BCC. Results: This review included 159 patients from 49 publications. Of these cases, 57 patients reported at least one recurrence. Where reported, median follow-up time was 31 months for patients without recurrence (n = 79) and 21 months for patients with recurrence (n = 32). The cumulative incidence of CSM at 5 years was 8.5% (95% confidence interval [CI] 0.028-0.186) and the overall five-year survival was 90.9% (95% CI 0.796-0.961). Conclusion: Male gender, multifocal nerve involvement, presence of clinical symptoms, and PNI detected on imaging are associated with poor prognosis of BCC with PNI. The high rate of disease recurrence and suboptimal cumulative incidence of CSM highlights the importance of early clinical detection, before the onset of symptomatic PNI and multifocal nerve involvement.

Abushukur Y, Mansour M, Rehman R, Rida A and Daveluy S (2022). "A systematic review of hair loss as a consequence of COVID-19 infection." *International Journal of Dermatology*. ePub Ahead of Print.

[Full Text](#)

OUWB Medical Student Author

Abushukur Y, Oska S, Nartker N, Fahs F and Potts G (2022). "Women representation in dermatology residency program leadership: A cross-sectional study." *International Journal of Women's Dermatology* 8(3): e045.

[Full Text](#)

OUWB Medical Student Author
Department of Internal Medicine/Dermatology

Alhousseini A, Turkoglu O, Sajja S, Wharton K, Idler J and Bahado-Singh R (2022). "Does maternal SARS-CoV-2 infection or SARS-CoV-2 vaccination trigger an inflammatory response in the fetus? A prospective cohort study." *Gynecologic and Obstetric Investigation* 87(3-4): 219-225.

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Department of Obstetrics & Gynecology

Objectives: SARS-CoV-2 infection triggers a significant maternal inflammatory response. There is a dearth of information regarding whether maternal SARS-CoV-2 infection at admission for delivery or SARS-CoV-2 vaccination triggers an inflammatory response in the fetus. This study aims at evaluating fetal inflammatory response to maternal SARS-CoV-2 infection or SARS-CoV-2 vaccination compared to control group. Design, Participants, Setting, and Methods: A prospective cohort study was performed with a total of 61 pregnant women who presented for delivery at a single medical center (William Beaumont Hospital, Royal Oak, MI). All mothers were tested for SARS-CoV-2 infection using polymerase chain reaction (PCR) on admission to labor and delivery unit. Three groups were evaluated: 22 pregnant with a positive SARS-CoV-2 test (case group), 23 pregnant women with a negative SARS-CoV-2 test (control group), and 16 pregnant women who had recent SAR-CoV-2 vaccination and a negative SARS-CoV-2 test (vaccine group). At delivery, cord blood was collected to determine the levels of IL-6, C-reactive protein (CRP), and SARS-CoV-2 nucleocapsid IgG and IgM antibodies. In all cases, the newborn had a negative PCR test or showed no clinical findings consistent with SARS-CoV-2 infection. Results: Mean (SD) IL-6 level was not significantly different for the three groups: case group 9.00 ± 3.340 pg/mL, control group 5.19 ± 0.759 pg/mL, and vaccine group 7.11 ± 2.468 pg/mL (p value 0.855). Pairwise comparison also revealed no statistical difference for IL-6 concentrations with p values for case versus control, case versus vaccine, and control versus vaccine = 0.57, 0.91, and 0.74, respectively. Similarly, there was no statistically significant difference in the frequency of elevated IL-6 (>11 pg/mL) between groups (p value 0.89). CRP levels across the three groups were not statistically significant different (p value 0.634). Pairwise comparison of CRP levels among the different groups was also not statistically different. SARS-CoV-2 nucleocapsid IgG was positive in 12 out of 22 cord blood samples in the case group, 2 out of 23 of the control group (indicating old resolved maternal infection), and 0 out of 16 of the vaccine group. SARS-CoV-2 nucleocapsid IgM was negative in all cord blood samples of the case group, control group, and vaccine group. Limitations: A total number of 61 mothers enrolled in the study which represents a relatively small number of patients. Most patients with positive SARS-CoV-2 PCR were mainly asymptomatic. In addition, our vaccine group received the mRNA-based vaccines (mRNA1273 and BNT162b2). We did not study fetal response to other SARS-CoV-2 vaccines. Conclusion: In our prospective cohort, neither IL-6 nor CRP indicated increased inflammation in the cord blood of newborns of SARS-CoV-2-infected or vaccinated mothers.

Anderson BP, **Shifman HP**, Hauptert MS and **Thottam PJ** (2022). "Utilization of intranasal ipratropium bromide in the prevention of recurrent croup events: Is it effective?" *International Journal of Pediatric Otorhinolaryngology*. ePub Ahead of Print.

[Full Text](#)

OUWB Medical Student Author
Department of Surgery

Objective: Recurrent croup (RC) is a common problem in the pediatric population. We theorize that reduced rhinorrhea and post-nasal drip as well as suppressed cough receptor activity by the anticholinergic, intranasal ipratropium bromide (IB), may lead to reduced inflammation and edema of the subglottis, decreasing RC symptoms. The aim of this study is to determine the effectiveness of IB in

improving symptoms of RC and in reducing the need for alternative forms of management. Method: A retrospective chart review combined with survey data of patients with RC was conducted to assess demographic data, comorbidities, and treatment outcomes. Pediatric patients less than 10 years of age diagnosed with RC through the department of pediatric otolaryngology between 2018 and 2020 were included. Results were compared between one group treated with IB for RC and a second group treated with medications other than IB. Results: Among the 67 patients treated for RC, 34 completed survey data and were included in the study. Overall, patients who were treated with IB for RC had 1.83 less croup episodes per year ($p = 0.046$), a 0.5-point improvement in child symptoms ($p = 0.017$) and 1.3 fewer doses of steroids per year than the patients not treated with IB ($p = 0.018$). Patients treated with IB were significantly more likely to answer "yes," that the use of medication helped improve symptoms ($p < 0.01$). Conclusion: Intranasal IB is a novel therapeutic option that may reduce RC events, improve patient symptoms and reduce steroid use. Further prospective studies are needed to definitively characterize the benefits of IB in the treatment of RC.

Angus AA, Howard KK, **Jawanda H**, Callahan R, **Ziegler KM** and Roach VA (2022). "The effect of an attending versus neutral observer on peg transfer and intracorporeal knot-tying laparoscopic tasks." *Surgery* 172(5): 1352-1357.

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OUWB Medical Student Author

Department of Surgery

Background: Surgery is an outcome-based specialty where maintaining peak performance is crucial to patient care. There are a variety of identified surgeon stressors that can have an impact on performance, but one factor unique to surgical residents is the observation by an attending surgeon. This study explored how the perceived authority of the observer had an impact on the participants' physiologic markers of stress and task completion times. Methods: Eighteen general surgery residents performed the Fundamentals of Laparoscopic Surgery skills intracorporeal knot-tying and peg transfer tasks in a crossover study design while under the observation of an attending and a neutral observer. Heart rate variability, mean R-R interval, the time between R spikes on an EKG, minimum heart rate, maximum heart rate, average heart rate, and time to task completion were recorded. Analyses were completed via 2×2 analysis of variance with repeated measures. Results: When observed by an attending, participants demonstrated higher minimum, average, and maximum heart rates ($P = .046$, $= .007$, and $< .001$, respectively) than when observed by a neutral observer. Attending observation also significantly shortened time to task completion, relative to neutral observation ($P = .022$). Conclusion: Attending observation is linked to increased objective measures of stress at the time of performance with decreased task completion times. Educational efforts to optimize the response to stress during learning may lead to better outcomes.

Araya-Ramírez F, Moncada-Jiménez J, Grandjean PW and **Franklin BA** (2022). "Improved walk test performance and blood pressure responses in men and women completing cardiac rehabilitation: Implications regarding exercise trainability." *American Journal of Lifestyle Medicine* 16(6): 772-778.

[Full Text](#)

Department of Internal Medicine/Cardiovascular Disease

Purpose: To evaluate changes in walk test performance and blood pressure (BP) responses following a 12-week exercise-based outpatient cardiac rehabilitation (CR) program. Methods: Six-Minute Walk Test (6MWT) and resting systolic BP (SBP), diastolic BP (DBP), post-6MWT heart rate (HR), and post-6MWT BPs were measured before and after CR in 311 (237 men, 74 women) patients. Using age as a covariate, 2 by 2 (Gender \times Measurement) ANCOVAs were used to determine differences in 6MWT performance and hemodynamic variables. Results: After adjusting for age, men covered a greater 6MWT distance

than women; pre-CR versus post-CR program values are as follows: men, 429.3 ± 94.6 versus 557.6 ± 90.7 m, $P \leq .001$; women, 374.9 ± 100.7 versus 483.2 ± 82.9 m, $P \leq .001$. Both genders reduced resting DBP following the CR program (men: 67.2 ± 9.8 vs 65.6 ± 8.5 mm Hg, $P = .034$; women: 69.2 ± 10.7 vs 65.0 ± 8.0 mm Hg, $P = .001$) and increased HR following the 6MWT after the CR program (men: 97.7 ± 16.8 vs 112.7 ± 21.3 bpm, $P \leq .001$; women: 100.7 ± 20.8 vs 110.2 ± 22.0 bpm, $P \leq .001$). Similarly, SBP increased immediately following the 6MWT (122.8 ± 18.5 vs 133.6 ± 20.7 mm Hg; $P \leq .001$) in men but not in women. Conclusion: The present findings indicate similar relative improvements in 6MWT performance and BP responses in adherent men and women following an exercise-based CR program. © 2021 The Author(s).

Bahado-Singh RO, Ibrahim A, Al-Wahab Z, Aydas B, Radhakrishna U, Yilmaz A and Vishweswaraiah S (2022). "Precision gynecologic oncology: Circulating cell free DNA epigenomic analysis, artificial intelligence and the accurate detection of ovarian cancer." *Scientific Reports* 12(1): 18725.

[Full Text](#)

Department of Obstetrics & Gynecology

Ovarian cancer (OC) is the most lethal gynecologic cancer due primarily to its asymptomatic nature and late stage at diagnosis. The development of non-invasive markers is an urgent priority. We report the accurate detection of epithelial OC using Artificial Intelligence (AI) and genome-wide epigenetic analysis of circulating cell free tumor DNA (cfTDNA). In a prospective study, we performed genome-wide DNA methylation profiling of cytosine (CpG) markers. Both conventional logistic regression and six AI platforms were used for OC detection. Further, we performed Gene Set Enrichment Analysis (GSEA) analysis to elucidate the molecular pathogenesis of OC. A total of 179,238 CpGs were significantly differentially methylated (FDR p-value < 0.05) genome-wide in OC. High OC diagnostic accuracies were achieved. Conventional logistic regression achieved an area under the ROC curve (AUC) [95% CI] 0.99 [+/- 0.1] with 95% sensitivity and 100% specificity. Multiple AI platforms each achieved high diagnostic accuracies (AUC = 0.99-1.00). For example, for Deep Learning (DL)/AI AUC = 1.00, sensitivity = 100% and 88% specificity. In terms of OC pathogenesis: GSEA analysis identified 'Adipogenesis' and 'retinoblastoma gene in cancer' as the top perturbed molecular pathway in OC. This finding of epigenomic dysregulation of molecular pathways that have been previously linked to cancer adds biological plausibility to our results.

Bahl A, Johnson S, Mielke N and Chen NW (2022). "Risk factors for midline catheter failure: A secondary analysis of an existing trial." *Therapeutics and Clinical Risk Management* 18: 999-1007.

[Full Text](#)

Department of Emergency Medicine

OUWB Medical Student Author

Objective: While midline catheters (MCs) are considered to be a reliable form of vascular access, up to 25% of the placements culminate in failure. We aimed to explore risk factors for MC failure. Methods: We performed an analysis of existing randomized controlled trial data involving a comparison of two midline catheters. The study aimed to assess risk factors related to MC failure, including patient, procedure, catheter, and vein characteristics. Cox regression was used for univariable and multivariable analyses to evaluate the association between characteristics and MC failure. Results: Among 191 patients that were included in this secondary analysis, more patients were female (114/191 [59.7%]) and average age was 60.2 (SD = 16.7) years. Clinical indications for MC placement included antibiotics (60.7%), difficult venous access (32.5%), or both (6.8%). In a univariable Cox regression analysis, the increase in pulse rate (HR 1.02; 95% CI, 1.00–1.04; $P=0.02$), temperature $\geq 38^\circ\text{C}$ (HR 5.59; 95% CI, 1.96–15.94; $P=0.001$), oxygen saturation <93% (HR 2.91; 95% CI, 1.03–8.24; $P=0.04$), norepinephrine in dextrose infusion (HR 2.41; 95% CI, 1.17–4.97; $P=0.02$) and cephalic vein insertion (HR, 2.47; 95% CI,

1.09–5.57; P=0.03) were all associated with higher risk of MC failure. In a multivariable Cox model, difficult venous access (aHR 2.05; 95% CI, 1.04–4.05; P=0.04) and norepinephrine in dextrose (aHR 2.29; 95% CI, 1.09–4.82; P=0.03) was associated with catheter failure. Conclusion: Elevated pulse rate, decreased oxygen saturation level, temperature $\geq 38^{\circ}\text{C}$, and norepinephrine use were each associated with an increased risk of MC failure. These factors should be considered when selecting the most appropriate vascular access device for individual patients. Additionally, the cephalic vein insertion has the highest risk for MC failure and other access points could be preferentially considered.

Bahl A, Mielke N, Johnson S, Desai A and Qu L (2022). "Severe COVID-19 outcomes in pediatrics: An observational cohort analysis comparing Alpha, Delta, and Omicron variants." Lancet Regional Health Americas. ePub Ahead of Print.

[Full Text](#)

Department of Emergency Medicine

OUWB Medical Student Author

Department of Foundational Medical Studies (BH)

Objective: COVID-19 can rarely lead to severe illness in pediatric patients. The aim of this study was to determine if severe outcomes in pediatric COVID-19 have changed over the course of the pandemic. **Methods:** This was a multicenter, observational cohort analysis from a large regional healthcare system in metro Detroit using electronic health record data to evaluate emergency visits, hospitalization, and severe COVID-19 disease in pediatric patients. Consecutive pediatric patients presenting to the emergency department with a primary diagnosis of COVID-19 were included. Outcomes data was gathered from three distinct time intervals that coincided with Alpha, Delta, and Omicron variant predominance (Time interval 1 (T1) 1/1/2021-6/30/2021: Alpha, T2 7/1/2021-12/31/2021: Delta, T3 1/1/2022-6/16/2022): Omicron. The primary outcome was severe disease inclusive of composite intensive care unit admission, mechanical ventilation, multisystem inflammatory syndrome in children (MIS-C), myocarditis, or death. Secondary outcomes included severe outcomes considering viral coinfection and vaccination status. **Results:** Between 1/1/2021 and 6/16/2022, there were 4517 emergency COVID-19 visits, of which 12.5% (566) of children were hospitalized. 24.4% (138), 31.6% (179), and 44.0% (249) of admissions occurred during T1, T2 and T3 respectively. Most patients were male (55.1%) and 59.9% identified as Caucasian. The median age was 5.0 (interquartile range 1.0, 13.0) with infants comprising 22.8% (129), toddlers 25.1% (142), children 23.0% (130), and teenagers 29.2% (165). Over the course of the pandemic, the proportion of infants in hospitalization increased from 16.7% in T1 to 19.6% in T2 to 28.5% in T3 ($p < 0.01$) while the proportion of teenagers in hospitalization decreased from 39.1% in T1 to 31.3% in T2 to 22.1% in T3 ($p < 0.001$). Oxygen therapy was required in a minority (29.9%) of cases with supplemental oxygen utilized the least in T3 (16.5%) and most in T2 (30.2%). Composite severe disease decreased throughout the pandemic occurring in 36.2% in T1, 27.4% in T2, and 18.9% in T3. A multivariable logistic regression analysis revealed the odds of composite severe disease was significantly lower in T3 compared to T1 (adjusted odds ratio [aOR] 0.35, 95% Confidence Interval 0.21-0.60, $p < 0.001$). Fully vaccinated or fully vaccinated and boosted admission rates remained low throughout all periods with 4.4% in T1, 4.5% in T2 and 8.4% in T3. Viral coinfection was most common during T2 (16.8%) followed by T3 (12.5%) and least common in T1 (5.1%) ($p = 0.006$). Coinfection occurred more commonly in younger children with a median age of 1.2 (0.0, 4.5) compared to those with mono-infection with a median age of 6 (1.0, 14.0) ($p < 0.001$). Severe outcomes occurred in 45.6% of coinfection cases compared to 22.1% without coinfection ($p < 0.001$). **Conclusions:** While Omicron cases had the highest admission frequency, severe illness was lower than Delta and Alpha variants. Coinfection with respiratory viruses increased the risk of severe outcomes and impacted infants more than older children.

Bajpai D, Willows JK, **Topf JM** and Hiremath S (2022). "User-generated social media content in knowledge dissemination." *Kidney International* 102(6): 1428-1429.

[Full Text](#)

Department of Internal Medicine/Nephrology

Bastani A, Homayouni R, Heinrich K and Nair GB (2022). "Not so mild: Emergency department utilization after index COVID infection stratified by disease severity." *Internal and Emergency Medicine*. ePub Ahead of Print.

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Department of Emergency Medicine

Department of Foundational Medical Studies (OU)

Department of Internal Medicine/Pulmonary & Critical Care Medicine

Basu-Ray I, Metri K, Khanra D, Revankar R, **Chinnaiyan KM**, Raghuram N, Mishra MC, Patwardhan B, Sharma M, Basavaraddi IV, Anand A, Reddy S, Deepak KK, Levy M, Theus S, Levine GN, Cramer H, Fricchione GL and Hongasandra NR (2022). "A narrative review on yoga: A potential intervention for augmenting immunomodulation and mental health in COVID-19." *BMC Complementary Medicine and Therapies* 22(191): 191.

[Full Text](#)

Department of Internal Medicine/Cardiovascular Disease

Background: The ongoing novel coronavirus disease 2019 (COVID-19) pandemic has a significant mortality rate of 3–5%. The principal causes of multiorgan failure and death are cytokine release syndrome and immune dysfunction. Stress, anxiety, and depression has been aggravated by the pandemic and its resultant restrictions in day-to-day life which may contribute to immune dysregulation. Thus, immunity strengthening and the prevention of cytokine release syndrome are important for preventing and minimizing mortality in COVID-19 patients. However, despite a few specific remedies that now exist for the SARS-CoV-2 virus, the principal modes of prevention include vaccination, masking, and holistic healing methods, such as yoga. Currently, extensive research is being conducted to better understand the neuroendocrinoimmunological mechanisms by which yoga alleviates stress and inflammation. This review article explores the anti-inflammatory and immune-modulating potentials of yoga, along with its role in reducing risk for immune dysfunction and impaired mental health. Methods: We conducted this narrative review from published literature in MEDLINE, EMBASE, COCHRANE databases. Screening was performed for titles and abstracts by two independent review authors; potentially eligible citations were retrieved for full-text review. References of included articles and articles of major non-indexed peer reviewed journals were searched for relevance by two independent review authors. A third review author checked the excluded records. All disagreements were resolved through discussion amongst review authors or through adjudication by a fourth review author. Abstracts, editorials, conference proceedings and clinical trial registrations were excluded. Observations: Yoga is a nonpharmacological, cost-effective, and safe intervention associated with several health benefits. Originating in ancient India, this vast discipline consists of postures (asanas), breathing techniques (pranayama), meditation (dhyana/dharana), and relaxation. Studies have demonstrated yoga's ability to bolster innate immunity and to inhibit cytokine release syndrome. As an intervention, yoga has been shown to improve mental health, as it alleviates anxiety, depression, and stress and enhances mindfulness, self-control, and self-regulation. Yoga has been correlated with numerous cardioprotective effects, which also may play a role in COVID-19 by preventing lung and cardiac injury. Conclusion and Relevance: This review paves the path for further research on yoga as a potential intervention for enhancing innate immunity and mental health and thus its role in prevention and adjunctive treatment in COVID-19.

Bax AM, Lin FY, van Rosendael AR, Ma X, Lu Y, van den Hoogen IJ, Gianni U, Tantawy SW, Andreini D, Budoff MJ, Cademartiri F, **Chinnaiyan K**, Choi JH, Conte E, de Araújo Gonçalves P, Gottlieb I, Hadamitzky M, Leipsic JA, Maffei E, Pontone G, Stone G, Shin S, Kim YJ, Lee BK, Chun EJ, Sung JM, Lee SE, Berman DS, Narula J, Chang HJ and Shaw LJ (2022). "Marked variation in atherosclerotic plaque progression between the major epicardial coronary arteries." European Heart Journal of Cardiovascular Imaging 23(11): 1482-1491.

[Full Text](#)

Department of Internal Medicine/Cardiovascular Disease

Aims: Atherosclerosis develops progressively and worsens over time, yet event risk patterns vary in the left circumflex (LCx), right coronary artery (RCA) and left anterior descending (LAD). The aim of this analysis was to examine varying progressive disease alterations between the three major coronary arteries. Methods and Results: Patients were included from a prospective, international registry of consecutive patients who underwent serial CCTA at a median interval of 3.3 years. Annual progression of quantitative total and compositional plaque volume were compared between the three coronary arteries (LCx, LAD, and RCA). Other analyses compared stenosis $\geq 50\%$ and new high-risk plaque (HRP; ≥ 2 of the following: spotty calcification, positive remodelling, napkin-ring sign, and low-attenuation plaque) on follow-up. Generalized estimating equations and marginal Cox regression models were used to compare progression, with covariate adjustment by the baseline atherosclerotic cardiovascular disease risk score, statin use, and plaque burden. Quantitative plaque measurements were calculated in 1344 patients (age 60 ± 9 years, 57% men). Plaque progression occurred less often in the LCx (41.0%) as compared to the RCA (52.7%) and LAD (77.4%, $P < 0.001$). Odds for annual plaque burden increase \geq population mean were 1.98- and 1.43-fold as high in the LAD ($P < 0.001$) and RCA ($P < 0.001$) as compared to the LCx. Similarly, the LAD was associated with a 2.45 higher risk of progression to obstructive CAD ($P < 0.001$), as compared to the LCx; with no differences between the RCA and LCx ($P = 0.13$). New HRP lesions formed least often in the LCx (3.4%), followed by the RCA (8.1%) and most often in the LAD (10.1%; $P < 0.001$). Conclusions: Our findings reveal novel insights into varied patterns of atherosclerotic plaque progression within the LCx as compared to the other epicardial coronary arteries. These varied patterns reflect differing stages in the disease process or differing pathogenic milieu across the coronary arteries.

Boothby-Shoemaker W, **Rehman R**, Hamzavi I, Huggins RH and Mohammad TF (2022). "Recommendations to optimize patient care in hidradenitis suppurativa clinics: Our experience." Dermatology 238(6): 1104-1107.

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OUWB Medical Student Author

Borrelli M, Nasrollahi T, **Raskin J**, Khan S and Alexander RE (2022). "Laryngotracheal recurrent papillomatosis: A case study and survey of surgical and systemic management." Ear, Nose and Throat Journal 101(10_suppl): 47S-51S.

[Full Text](#)

OUWB Medical Student Author

This case report presents a 72-year-old man with longstanding recurrent respiratory papillomatosis (RRP). He has undergone multiple procedures for the condition, including an apparent urgent surgical airway followed by tracheoplasty repair. Modern management of complicated RRP should include both local debulking and systemic approaches. Systemic bevacizumab (Avastin) has shown some initial success as an effective treatment option, in addition to other medications such as pembrolizumab. Other future care strategies may include an HPV vaccination and other adjuvants; vaccination has been reported to have the possibility of drastically reducing the incidence of RRP.

Borrelli M, Nasrollahi T, **Raskin J**, Khan S and Mehdizadeh OB (2022). "Severe airway edema following calcium hydroxylapatite (CaHA) injection augmentation." Ear, Nose and Throat Journal 101(10_suppl): 52S-55S.

[Full Text](#)

OUWB Medical Student Author

This case study presents an abnormal complication after routine injection augmentation using calcium hydroxylapatite (CaHA) vocal fold filler in-office on a 73-year-old female. The patient presented initially with severe dysphonia, hypophonia, and a past surgical history of total thyroidectomy, bilateral neck dissection, and a right lateral neck dissection for history of metastatic papillary thyroid carcinoma. She also had a past medical history of hypothyroidism. Post-injection of CaHA, the patient developed severe laryngeal edema, limited vocal cord mobility, obliteration of the pyriform, and a significantly reduced airway aperture requiring intensive care monitoring. Although uncommon, injectable fillers can result in complications which can be severe. Careful technique, the volume of injectate, and hypersensitivity should be considered in reducing complications following injection augmentation. There are multiple injection techniques to consider. The most direct approach is with direct laryngoscopy to allow for visualization of glottic incompetence. A smaller slotted laryngoscope can be considered for vocal fold injection as an alternative and without endotracheal intubation. Although these techniques allow for injection, real-time assessment of vocal fold closure is done in an awake patient. Therefore, laryngeal injection can be considered via percutaneous, per-oral, and trans-nasal approaches.

Borrelli M, Nasrollahi T, Ulloa R, **Raskin J**, Ference E and Tang DM (2022). "Invasive fungal sinusitis during active COVID-19 infection." Ear, Nose & Throat Journal 101: 12S-14S.

[Full Text](#)

OUWB Medical Student Author

This case study demonstrates a 58-year-old female who contracted COVID-19 post-vaccination presenting with severe left-sided facial pain, headaches, and dyspnea. A computed tomography was ordered and showed acute sinusitis, and upon bedside endoscopy, the patient was shown to have necrosis of the left-sided middle turbinate with no discoloration, palate necrosis, or facial changes. All samples of the necrotic tissue were reported to be invasive fungal sinusitis. The entire turbinate was resected in the operating room and ethmoid, frontal, and maxillary sinuses were healthy. Chest x-rays post-operatively showed pulmonary effusions and edema although the patient was not stable enough for a lung examination to rule out a pulmonary fungal infection. A bedside endoscopy showed no further necrosis post-operatively although a repeat endoscopy showed dusky at the lateral attachment of the basal lamella right at the most posterior resection of the middle turbinate. The patient was placed on multiple antifungal agents. The patient remained in hypoxemic respiratory failure and septic shock while on pressors and 2 weeks following this, expired. Post-COVID-19 patients have been shown in the literature to have an increased risk of developing invasive fungal sinusitis (IFS) and all IFS cases during active COVID-19 infection have had a 100% mortality rate.

Brummett A and Friedrich AB (2022). "Fostering medical staff reflection on the technological alienation of parents in the NICU." Clinical Ethics 17(4): 449-451.

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Department of Foundational Medical Studies (OU)

We describe a case of parents refusing a tracheostomy for an otherwise healthy newborn. The refusal was not honored because permitting the refusal would have violated state law, which required a child to have a qualifying condition (e.g. a terminal diagnosis, permanent unconsciousness, incurable condition with severe suffering) to remove or withhold life-sustaining treatment. However, this case strained the relationship between the parents and medical staff, who worried about sending the newborn home with a tracheostomy where she was not wanted. While many ethical issues arise in treatment refusal cases

like this, we focus on the opportunity for ethicists to help the medical staff reflect on the technological alienation of the parents, which may help foster empathy, reduce moral distress, and strengthen the quality of the doctor-parent-patient triad.

Brummett AL (2022). "Philosophical failure and the reasonability view of conscientious objection: Can reason adjudicate metaphysical or religious claims?" Journal of Medical Philosophy 17(4): 449-451.

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Department of Foundational Medical Studies (OU)

Robert Card has proposed a reasonability view of conscientious objection that asks providers to state the reasons for their objection for evaluation and approval by a review board. Jason Marsh has challenged Card to provide explicit criteria for what makes a conscientious objection reasonable, which he claims will be too difficult a task given that such objections often involve contentious metaphysical or religious claims. Card has responded by outlining standards by which a conscientious objection could be judged reasonable. In this paper, I extend Marsh's critique to key concepts in the standards outlined by Card such as abortifacient, harm, emergency, and discrimination, showing they can be given radically different interpretations given different metaphysical or religious presumptions. To resolve these conflicting interpretations, a reasonability view of conscientious objection will need more than the criteria outlined by Card, it will need the resources to evaluate the reasonability of metaphysical or religious claims.

Cascardo CA, Hollis AN, Ansah-Addo S, Smith EH and Mervak JE (2022). "Cutaneous mycobacterium marinum infection secondary to well water exposure masquerading as cutaneous Crohn's disease." JAAD Case Reports 30: 131-133.

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OUWB Medical Student Author

Chancellor MB, **Lamb LE**, Ward EP, Bartolone SN, Carabulea A, **Sharma P**, Janicki J, Smith C, Laudano M, Abraham N and **Zwaans BMM** (2022). "Comparing concentration of urinary inflammatory cytokines in interstitial cystitis, overactive bladder, urinary tract infection, and bladder cancer." Urological Science 33(4): 199-204.

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Department of Urology

OUWB Medical Student Author

Purpose: We sought to determine if urinary cytokine concentration profiles were different between various bladder conditions. Materials and Methods: Participants at three clinical sites completed a demographics survey and provided a urine sample in a collection cup containing a room-temperature urine preservative. Participants were divided into the following categories based on physician-documented diagnosis: asymptomatic control, nonulcerative interstitial cystitis (IC), overactive bladder with incontinence (OAB wet), urinary tract infection (UTI), and bladder cancer. Urinary cytokines were measured through Luminex multiplex assay. Results: Two hundred and seventy-seven urine samples were collected from three clinical sites. Urinary pro-inflammatory cytokines had an increasing trend in bladder disease versus control, with a significant increase for chemokine (C-X-C) ligand 1 growth-regulated protein alpha CXCL1 (GRO). Further analyses demonstrated that patients with UTI had significantly higher levels of GRO and interleukin-8 (IL-8) in comparison to control, nonulcerative IC, OAB wet, and bladder cancer. Both are chemokines that stimulate chemotaxis resulting in the rapid accumulation of immune cells such as neutrophils. IL-6 levels overall were at the lower limit of assay range but were significantly increased in urine of UTI patients versus IC patients. MCP-1 (CCL2) had the least separation among the control group and the various bladder diseases. Conclusion: Urinary concentrations of GRO were higher in disease state compared to control. Specifically, levels of GRO and

IL-8 were higher in urine samples from patients with UTI compared to controls and other bladder conditions. Comparing and contrasting urinary cytokines may help improve our understanding of these important bladder diseases with great unmet needs.

Chang S, Liu G, Zhao L, Zheng W, **Yan D, Chen P**, Li X, **Deraniyagala R, Stevens C, Grills I, Chinnaiyan P, Li X and Ding X** (2022). "Introduce a rotational robust optimization framework for spot-scanning proton arc (SPArc) therapy." *Physics in Medicine & Biology* 68(1): 01NT02.

[Full Text](#)

Department of Radiation Oncology

Objective: Proton dosimetric uncertainties resulting from the patient's daily setup errors in rotational directions exist even with advanced image-guided radiotherapy techniques. Thus, we developed a new rotational robust optimization SPArc algorithm (SPArc(rot)) to mitigate the dosimetric impact of the rotational setup error in Raystation ver. 6.02 (RaySearch Laboratory AB, Stockholm, Sweden). Approach: The initial planning CT was rotated $\pm 5^\circ$ simulating the worst-case setup error in the roll direction. The SPArc(rot) uses a multi-CT robust optimization framework by taking into account of such rotational setup errors. Five cases representing different disease sites were evaluated. Both SPArc(original) and SPArc(rot) plans were generated using the same translational robust optimized parameters. To quantitatively investigate the mitigation effect from the rotational setup errors, all plans were recalculated using a series of pseudo-CT with rotational setup error ($\pm 1^\circ/\pm 2^\circ/\pm 3^\circ/\pm 5^\circ$). Dosimetric metrics such as D98% of CTV, and 3D gamma analysis were used to assess the dose distribution changes in the target and OARs. Main Results: The magnitudes of dosimetric changes in the targets due to rotational setup error were significantly reduced by the SPArc(rot) compared to SPArc in all cases. The uncertainties of the max dose to the OARs, such as brainstem, spinal cord and esophagus were significantly reduced using SPArc(rot). The uncertainties of the mean dose to the OARs such as liver and oral cavity, parotid were comparable between the two planning techniques. The gamma passing rate (3%/3 mm) was significantly improved for CTV of all tumor sites through SPArc(rot). Significance: Rotational setup error is one of the major issues which could lead to significant dose perturbations. SPArc(rot) planning approach can consider such rotational error from patient setup or gantry rotation error by effectively mitigating the dose uncertainties to the target and in the adjunct series OARs.

Chen S, Peng Y, **Qin A**, Liu Y, Zhao C, Deng X, **Deraniyagala R, Stevens C and Ding X** (2022). "MR-based synthetic CT image for intensity-modulated proton treatment planning of nasopharyngeal carcinoma patients." *Acta Oncology* 61(11): 1417-1424.

[Request Form](#)

Department of Radiation Oncology

Purpose: To develop an advanced deep convolutional neural network (DCNN) architecture to generate synthetic CT (SCT) images from MR images for intensity-modulated proton therapy (IMPT) treatment planning of nasopharyngeal cancer (NPC) patients. Methods: T1-weighted MR images and paired CT (PCT) images were obtained from 206 NPC patients. For each patient, deformable image registration was performed between MR and PCT images to create an MR-CT image pair. Thirty pairs were randomly chosen as the independent test set and the remaining 176 pairs (14 for validation and 162 for training) were used to build two conditional generative adversarial networks (GANs): 1) GAN(3D): using a 3D U-net enhanced with residual connections and attentional mechanism as the generator and 2) GAN(2D): using a 2D U-net as the generator. For each test patient, SCT images were generated using the generators with the MR images as input and were compared with respect to the corresponding PCT image. A clinical IMPT plan was created and optimized on the PCT image. The dose was recalculated on the SCT images and compared with the one calculated on the PCT image. Results: The mean absolute errors (MAEs) between the PCT and SCT, within the body, were (64.89 ± 5.31) HU and (64.31 ± 4.61) HU

for the GAN(2D) and GAN(3D). Within the high-density bone ($HU > 600$), the GAN(3D) achieved a smaller MAE compared with the GAN(2D) ($p < 0.001$). Within the body, the absolute point dose deviation was reduced from (0.58 ± 1.61) Gy for the GAN(2D) to (0.47 ± 0.94) Gy for the GAN(3D). The (3 mm/3%) gamma passing rates were above 97.32% for all SCT images. Conclusions: The SCT images generated using GANs achieved clinical acceptable dosimetric accuracy for IMPT of NPC patients. Using advanced DCNN architecture design, such as residual connections and attention mechanism, SCT image quality was further improved and resulted in a small dosimetric improvement.

Cimino PJ, Ketchum C, Turakulov R, Singh O, Abdullaev Z, Giannini C, Pytel P, Lopez GY, Colman H, Nasrallah MP, Santi M, Fernandes IL, Nirschl J, Dahiya S, Neill S, Solomon D, Perez E, Capper D, Mani H, Caccamo D, Ball M, Badruddoja M, Chkheidze R, Camelo-Piragua S, **Fullmer J**, Alexandrescu S, Yeane G, Eberhart C, Martinez-Lage M, Chen J, Zach L, Kleinschmidt-DeMasters BK, Hefti M, Lopes MB, Nuechterlein N, Horbinski C, Rodriguez FJ, Quezado M, Pratt D and Aldape K (2022). "Expanded analysis of high-grade astrocytoma with piloid features identifies an epigenetically and clinically distinct subtype associated with neurofibromatosis type 1." *Acta Neuropathology*. ePub Ahead of Print.

[Full Text](#)

Department of Pathology

High-grade astrocytoma with piloid features (HGAP) is a recently recognized glioma type whose classification is dependent on its global epigenetic signature. HGAP is characterized by alterations in the mitogen-activated protein kinase (MAPK) pathway, often co-occurring with CDKN2A/B homozygous deletion and/or ATRX mutation. Experience with HGAP is limited and to better understand this tumor type, we evaluated an expanded cohort of patients ($n = 144$) with these tumors, as defined by DNA methylation array testing, with a subset additionally evaluated by next-generation sequencing (NGS). Among evaluable cases, we confirmed the high prevalence CDKN2A/B homozygous deletion, and/or ATRX mutations/loss in this tumor type, along with a subset showing NF1 alterations. Five of 93 (5.4%) cases sequenced harbored TP53 mutations and RNA fusion analysis identified a single tumor containing an NTRK2 gene fusion, neither of which have been previously reported in HGAP. Clustering analysis revealed the presence of three distinct HGAP subtypes (or groups = g) based on whole-genome DNA methylation patterns, which we provisionally designated as gNF1 ($n = 18$), g1 ($n = 72$), and g2 ($n = 54$) (median ages 43.5 years, 47 years, and 32 years, respectively). Subtype gNF1 is notable for enrichment with patients with Neurofibromatosis Type 1 (33.3%, $p = 0.0008$), confinement to the posterior fossa, hypermethylation in the NF1 enhancer region, a trend towards decreased progression-free survival ($p = 0.0579$), RNA processing pathway dysregulation, and elevated non-neoplastic glia and neuron cell content ($p < 0.0001$ and $p < 0.0001$, respectively). Overall, our expanded cohort broadens the genetic, epigenetic, and clinical phenotype of HGAP and provides evidence for distinct epigenetic subtypes in this tumor type.

Cohen SH, Louie TJ, **Sims M**, Wang EEL, Memisoglu A, McGovern BH and Von Moltke L (2022). "Extended follow-up of microbiome therapeutic SER-109 through 24 weeks for recurrent clostridioides difficile infection in a randomized clinical trial." *JAMA* 328(20): 2062-2064.

[Full Text](#)

Department of Internal Medicine/Infectious Diseases

Cooper E and **Franklin BA** (2022). "Heart rate variability: Prognostic significance and impactful interventions." *ACSM's Health & Fitness Journal* 29(6): 25-30.

[Full Text](#)

Department of Internal Medicine/Cardiovascular Disease

Apply It!: This article will help readers to: • understand the physiology behind heart rate variability (HRV) • learn more about the favorable effect that regular exercise and resonance breathing have on HRV • improve performance • reduce stress and anxiety

Cury RC, Leipsic J, Abbara S, Achenbach S, Berman D, Bittencourt M, Budoff M, **Chinnaiyan K**, Choi AD, Ghoshhajra B, Jacobs J, Koweek L, Lesser J, Maroules C, Rubin GD, Rybicki FJ, Shaw LJ, Williams MC, Williamson E, White CS, Villines TC and Blankstein R (2022). "CAD-rRADS™ 2.0 - 2022 coronary artery disease-reporting and data system: An expert consensus document of the Society of Cardiovascular Computed Tomography (SCCT), the American College of Cardiology (ACC), the American College of Radiology (ACR), and the North America Society of Cardiovascular Imaging (NASCI)." *Journal of Cardiovascular Computed Tomography* 16(6): 536-557.

[Full Text](#)

Department of Internal Medicine/Cardiovascular Disease

Coronary Artery Disease Reporting and Data System (CAD-RADS) was created to standardize reporting system for patients undergoing coronary CT angiography (CCTA) and to guide possible next steps in patient management. The goal of this updated 2022 CAD-RADS 2.0 is to improve the initial reporting system for CCTA by considering new technical developments in Cardiac CT, including data from recent clinical trials and new clinical guidelines. The updated CAD-RADS classification will follow an established framework of stenosis, plaque burden, and modifiers, which will include assessment of lesion-specific ischemia using CT fractional-flow-reserve (CT-FFR) or myocardial CT perfusion (CTP), when performed. Similar to the method used in the original CAD-RADS version, the determinant for stenosis severity classification will be the most severe coronary artery luminal stenosis on a per-patient basis, ranging from CAD-RADS 0 (zero) for absence of any plaque or stenosis to CAD-RADS 5 indicating the presence of at least one totally occluded coronary artery. Given the increasing data supporting the prognostic relevance of coronary plaque burden, this document will provide various methods to estimate and report total plaque burden. The addition of P1 to P4 descriptors are used to denote increasing categories of plaque burden. The main goal of CAD-RADS, which should always be interpreted together with the impression found in the report, remains to facilitate communication of test results with referring physicians along with suggestions for subsequent patient management. In addition, CAD-RADS will continue to provide a framework of standardization that may benefit education, research, peer-review, artificial intelligence development, clinical trial design, population health and quality assurance with the ultimate goal of improving patient care.

Cuviello A, **Ang N**, Morgan K, Baker JN and Anghelescu DL (2022). "Palliative sedation therapy practice comparison: A survey of pediatric palliative care and pain management specialists." *American Journal of Hospice and Palliative Care*. ePub Ahead of Print.

[Full Text](#)

OUWB Medical Student Author

Context: Palliative sedation therapy (PST) can relieve suffering at end-of-life (EOL) in children with intolerable and refractory symptoms. However, updated and consistent guidance on PST practices are imperative. Objectives: We investigate current variations in clinical practice and PST implementation among pediatric palliative care (PPC) and pain management (PM) specialists. Methods: We distributed an IRB-exempt electronic anonymous survey via email through the Society of Pediatric Pain Medicine, and the American Academy of Hospice and Palliative Medicine. Survey responses were collated and descriptively reported. Results: Of 83 survey responses, the majority (75%) represented large academic children's hospitals. The distribution between PPC and pediatric pain management specialists' responses was 60% and 40%, respectively. Most respondents reported having designated pain management and/or palliative care teams (70% and 90%, respectively). Approximately half (48%) reported following an institutional PST protocol, most not requiring formal ethics consult (69%). Only 54% of respondents

noted that the Do Not Resuscitate (DNR) order was required prior to PST initiation. PST was primarily utilized for children with oncologic diagnoses (76%). The primary and secondary medications of choice for PST implementation were reported to be opioids (39%) and benzodiazepines (36%) by pain management specialists, and benzodiazepines (52%) and barbiturates (28%) by palliative care specialists. Conclusions: Our study highlights the variability in the practice and implementation of PST. Further educational efforts are key for establishing PST practices and efficient protocol development.

DeCarlo C, Woo K, van Petersen AS, Geelkerken RH, Chen AJ, Yeh SL, Kim GY, Henke PK, Tracci MC, Schneck MB, Grotemeyer D, Meyer B, DeMartino RR, Wilkins PB, Iranmanesh S, Rastogi V, Aulivola B, Korepta LM, Shutze WP, Jett KG, Sorber R, Abularrage CJ, **Long GW, Bove PG**, Davies MG, Miserlis D, Shih M, Yi J, Gupta R, Loa J, Robinson DA, Gombert A, Doukas P, de Caridi G, Benedetto F, Wittgen CM, Smeds MR, Sumpio BE, Harris S, Szeberin Z, Pomozi E, Stilo F, Montelione N, Mouawad NJ, Lawrence P and Dua A (2022). "Factors associated with successful median arcuate ligament release in an international, multi-institutional cohort." Journal of Vascular Surgery. ePub Ahead of Print.

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Department of Surgery

Objective: Prior research on median arcuate ligament syndrome has been limited to institutional case series, making the optimal approach to median arcuate ligament release (MALR) and resulting outcomes unclear. In the present study, we compared the outcomes of different approaches to MALR and determined the predictors of long-term treatment failure. Methods: The Vascular Low Frequency Disease Consortium is an international, multi-institutional research consortium. Data on open, laparoscopic, and robotic MALR performed from 2000 to 2020 were gathered. The primary outcome was treatment failure, defined as no improvement in median arcuate ligament syndrome symptoms after MALR or symptom recurrence between MALR and the last clinical follow-up. Results: For 516 patients treated at 24 institutions, open, laparoscopic, and robotic MALR had been performed in 227 (44.0%), 235 (45.5%), and 54 (10.5%) patients, respectively. Perioperative complications (ileus, cardiac, and wound complications; readmissions; unplanned procedures) occurred in 19.2% (open, 30.0%; laparoscopic, 8.9%; robotic, 18.5%; $P < .001$). The median follow-up was 1.59 years (interquartile range, 0.38-4.35 years). For the 488 patients with follow-up data available, 287 (58.8%) had had full relief, 119 (24.4%) had had partial relief, and 82 (16.8%) had derived no benefit from MALR. The 1- and 3-year freedom from treatment failure for the overall cohort was 63.8% (95% confidence interval [CI], 59.0%-68.3%) and 51.9% (95% CI, 46.1%-57.3%), respectively. The factors associated with an increased hazard of treatment failure on multivariable analysis included robotic MALR (hazard ratio [HR], 1.73; 95% CI, 1.16-2.59; $P = .007$), a history of gastroparesis (HR, 1.83; 95% CI, 1.09-3.09; $P = .023$), abdominal cancer (HR, 10.3; 95% CI, 3.06-34.6; $P < .001$), dysphagia and/or odynophagia (HR, 2.44; 95% CI, 1.27-4.69; $P = .008$), no relief from a celiac plexus block (HR, 2.18; 95% CI, 1.00-4.72; $P = .049$), and an increasing number of preoperative pain locations (HR, 1.12 per location; 95% CI, 1.00-1.25; $P = .042$). The factors associated with a lower hazard included increasing age (HR, 0.99 per increasing year; 95% CI, 0.98-1.0; $P = .012$) and an increasing number of preoperative diagnostic gastrointestinal studies (HR, 0.84 per study; 95% CI, 0.74-0.96; $P = .012$). Open and laparoscopic MALR resulted in similar long-term freedom from treatment failure. No radiographic parameters were associated with differences in treatment failure. Conclusions: No difference was found in long-term failure after open vs laparoscopic MALR; however, open release was associated with higher perioperative morbidity. These results support the use of a preoperative celiac plexus block to aid in patient selection. Operative candidates for MALR should be counseled regarding the factors associated with treatment failure and the relatively high overall rate of treatment failure.

du Fay de Lavallaz J, Zimmermann T, Badertscher P, Lopez-Ayala P, Nestelberger T, Miró Ò, Salgado E, Zaytseva X, Gafner MS, Christ M, Cullen L, Than M, Martin-Sanchez FJ, Di Somma S, Peacock WF, Keller DI, Costabel JP, Sigal A, Puelacher C, Wussler D, Koechlin L, Strebel I, Schuler S, Manka R, Bilici M, Lohrmann J, Kühne M, Breidhardt T, **Clark CL**, Probst M, Gibson TA, Weiss RE, Sun BC and Mueller C (2022). "Performance of the American Heart Association/American College of Cardiology/Heart Rhythm Society versus European Society of Cardiology guideline criteria for hospital admission of patients with syncope." *Heart Rhythm* 19(10): 1712-1722.

[Full Text](#)

Department of Emergency Medicine

Background: Current American College of Cardiology/American Heart Association/Heart Rhythm Society (ACC/AHA/HRS) and European Society of Cardiology (ESC) guidelines recommend different strategies to avoid low-yield admissions in patients with syncope. Objective: The purpose of this study was to directly compare the safety and efficacy of applying admission criteria of both guidelines to patients presenting with syncope to the emergency department in 2 multicenter studies. Methods: The international BASEL IX (Basel Syncope Evaluation) study (median age 71 years) and the U.S. SRS (Improving Syncope Risk Stratification in Older Adults) study (median age 72 years) were investigated. Primary endpoints were sensitivity/specificity for the adjudicated diagnosis of cardiac syncope (BASEL IX only) and 30-day major adverse cardiovascular events (30d-MACE). Results: Among 2560 patients in the BASEL IX and 2085 in SRS studies, ACC/AHA/HRS and ESC criteria recommended admission for a comparable number of patients in BASEL IX (27% vs 28%), but ACC/AHA/HRS criteria less often in SRS (19% vs 32%; $P < .01$). Recommendations were discordant in ~25% of patients. In BASEL IX, sensitivity for cardiac syncope and 30d-MACE among patients without admission criteria was comparable for ACC/AHA/HRS and ESC criteria (64% vs 65%, $P = .86$; and 67% vs 71%, $P = .15$, respectively). In SRS, sensitivity for 30d-MACE was lower with ACC/AHA/HRS (54%) vs ESC criteria (88%; $P < .001$). Similarly, specificity for cardiac syncope and 30d-MACE in BASEL IX was comparable for both guidelines, but in SRS the ACC/AHA/HRS guidelines showed a higher specificity for 30d-MACE than the ESC guidelines. Conclusion: ACC/AHA/HRS and ESC guidelines showed disagreement regarding admission for 1 in 4 patients and had only modest sensitivity, all indicating possible opportunities for improvements.

Elmasry K, Moustafa M and **Al-Shabrawey M** (2022). "Retinal explant of the adult mouse retina as an ex vivo model for studying retinal neurovascular diseases." *Journal of Visualized Experiments* 2022(190).

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Department of Foundational Medical Studies (OU)

One of the challenges in retina research is studying the cross-talk between different retinal cells such as retinal neurons, glial cells, and vascular cells. Isolating, culturing, and sustaining retinal neurons in vitro have technical and biological limitations. Culturing retinal explants may overcome these limitations and offer a unique ex vivo model to study the cross-talk between various retinal cells with well-controlled biochemical parameters and independent of the vascular system. Moreover, retinal explants are an effective screening tool for studying novel pharmacological interventions in various retinal vascular and neurodegenerative diseases such as diabetic retinopathy. Here, we describe a detailed protocol for retinal explants' isolation and culture for an extended period. The manuscript also presents some of the technical problems during this procedure that may affect the desired outcomes and reproducibility of the retinal explant culture. The immunostaining of the retinal vessels, glial cells, and neurons demonstrated intact retinal capillaries and neuroglial cells after 2 weeks from the beginning of the retinal explant culture. This establishes retinal explants as a reliable tool for studying changes in the retinal vasculature and neuroglial cells under conditions that mimic retinal diseases such as diabetic retinopathy.

Eng MH and **Abbas AE** (2022). "Transcatheter mitral valve replacement in failed bioprosthetic surgical valves and surgical annuloplasty rings." Current Cardiology Reports 24(10): 1417-1424.

[Full Text](#)

Department of Internal Medicine/Cardiovascular Disease

Purpose of Review: Repeat surgery for failed mitral valve prostheses and repairs are fraught with high rates of morbidity and mortality. Therefore, clinicians have evolved transcatheter technology as an alternative therapy. This review serves as an update as the field has moved out of the early learning curve of treating postsurgical mitral valve failures. Recent Findings: Mitral valve-in-valve procedures have higher rates of technical success and better in-hospital and 1-year mortality rates than mitral valve-in-ring cases. The higher rates of complications, including left ventricular outflow tract obstruction, paravalvular leak, valve embolization, and need for a 2nd valve, may explain these outcomes. Mitral valve-in-ring procedures have attenuated outcomes as compared to valve-in-valve. Clinicians should be cognizant of the nuanced complexities and the potential for suboptimal outcomes in using balloon-expandable valves for mitral valve-in-ring procedures.

Esguerra J, Sherman A and **Bukovec F** (2022). "Hemiplegic migraine with concurrent SARS-CoV-2 infection leads to motor vehicle collision: A case report." SN Comprehensive Clinical Medicine. ePub Ahead of Print.

[Full Text](#)

OUWB Medical Student Author

Department of Internal Medicine/Hospitalist Medicine

Hemiplegic migraine (HM) is a rare, heterogenous form of migraine characterized by unilateral weakness. This motor aura can present with reversible visual, sensory, and language deficits. HM can be difficult to diagnose due to overlapping presentation with other complex conditions such as multiple sclerosis, seizure disorders, and transient ischemic attack (TIA). We describe a case of a 40-year-old female with asymptomatic COVID-19 infection who presented after a motor vehicle collision caused by HM consistent with left-sided weakness and loss of consciousness. To date, this is the first description of a patient with known complex migraines to have a motor vehicle collision as a result of HM. The risk of HM-associated neurologic symptoms while driving poses a significant public safety concern. We suggest driving restrictions be considered in patients with HM when migraine aura is present. This case presents support to examine active infection with SARS-CoV-2 as a trigger for HM.

Evans LL, Chen CS, Muensterer OJ, Sahlabadi M, Lovvorn HN, **Novotny NM**, Upperman JS, Martinez JA, Bruzoni M, Dunn JCY, Harrison MR, Fuchs JR and Zamora IJ (2022). "The novel application of an emerging device for salvage of primary repair in high-risk complex esophageal atresia." Journal of Pediatric Surgery 57(12): 810-818.

[Request Form](#)

Department of Surgery

Introduction: Preservation of native esophagus is a tenet of esophageal atresia (EA) repair. However, techniques for delayed primary anastomosis are severely limited for surgically and medically complex patients at high-risk for operative repair. We report our initial experience with the novel application of the Connect-EA, an esophageal magnetic compression anastomosis device, for salvage of primary repair in 2 high-risk complex EA patients. Compassionate use was approved by the FDA and treating institutions. Operative Technique: Two approaches using the Connect-EA are described - a totally endoscopic approach and a novel hybrid operative approach. To our knowledge, this is the first successful use of a hybrid operative approach with an esophageal magnetic compression device. Outcomes: Salvage of delayed primary anastomosis was successful in both patients. The totally endoscopic approach significantly reduced operative time and avoided repeat high-risk operation. The hybrid operative approach salvaged delayed primary anastomosis and avoided cervical esophagostomy. Conclusion: The Connect-EA is a novel intervention to achieve delayed primary esophageal repair in

complex EA patients with high-risk tissue characteristics and multi-system comorbidities that limit operative repair. We propose a clinical algorithm for use of the totally endoscopic approach and hybrid operative approach for use of the Connect-EA in high-risk complex EA patients.

Ezeokoli EU, John J, Gupta R, Jawad A and Cavinatto L (2022). "Index surgery and ninety day re-operation cost comparison of robotic-assisted versus manual total knee arthroplasty." International Orthopaedics 47(2): 359-364.

[Full Text](#)

OUIWB Medical Student Author

Department of Orthopaedic Surgery

Introduction: This study looks to compare early costs of index surgery and re-operations of robotic-assisted total knee arthroplasties (rTKA) and manual total knee arthroplasty (mTKA) re-operations within 90 days. **Material and Methods:** The Michigan Arthroplasty Registry Collaborative Quality Initiative (MARCQI) database was queried for patients undergoing rTKA and mTKA at our institution from January 1st, 2018, to March 31st, 2021. Primary outcomes were the day of surgery and overall encounter variable direct costs (VDC). Secondary outcomes included 90-day re-operations and costs. **Results:** One thousand two hundred seventy-six (21.2%) patients were in the rTKA cohort, while 4740 (78.8%) were in the mTKA cohort. When comparing rTKA to mTKA, rTKA had higher median total encounter costs ($p < 0.001$) and higher encounter VDC costs ($p < 0.001$). TKA had higher day of surgery total VDC ($p < 0.001$), VDC supplies ($p < 0.001$), and VDC of post-op recovery ($p < 0.001$). Multivariate linear regression showed no relationship with age, BMI, OR time, or LOS with cost for rTKA or mTKA. **Conclusion:** Results from our study show that rTKA is associated with a higher index surgery costs, and no difference in 90-day re-operation costs. The main factor driving increased cost is supply cost, with other variables between too small in difference to make a significant financial impact. Future studies should focus on post-operative costs including readmission and episode of care costs and should consider cost to the payor as opposed to VDC. rTKA will become more common, and other institutions may need to take a closer financial look at this more novel instrumentation before adoption.

Faghy M, Arena R, Hills AP, Yates J, Vermeesch AL, **Franklin BA**, Popovic D, Strieter L, Lavie CJ and Smith A (2022). "The response to the COVID-19 pandemic: With hindsight what lessons can we learn?" Progress in Cardiovascular Disease. ePub Ahead of Print.

[Full Text](#)

Department of Internal Medicine/Cardiovascular Disease

The purpose of this paper is to put forward some evidence-based lessons that can be learned from how to respond to a Pandemic that relate to healthy living behaviours (HLB). A 4-step methodology was followed to conduct a narrative review of the literature and to present a professional practice vignette. The narrative review identified 8 lessons: 1) peer review; 2) historical perspectives; 3) investing in resilience and protection; 4) unintended consequences; 5) protecting physical activity; 6) school closures; 7) mental health; and 8) obesity. As in all probability there will be another Pandemic, it is important that the lessons learned over the last three years in relation to HLB are acted upon. Whilst there will not always be a consensus on what to emphasise, it is important that many evidence-based positions are presented. The authors of this paper recognise that this work is a starting point and that the lessons presented here will need to be revisited as new evidence becomes available.

Fickenworth L, Veerappan M, Porcaro S, Smith D and Haworth J (2022). "Scoping review of the patient-centered literature regarding hip osteoarthritis." Archives of Physical Medicine and Rehabilitation 103(12): e206.

[Full Text](#)

OUIWB Medical Student Author

Objective(s): The objective of this review is to characterize the literature regarding the illness experience of patients with hip osteoarthritis. Data Sources: Two electronic databases (PUBMED and PsychInfo) were searched for English-language journal articles up until May 2022. The indexing terms for both searches were as follows: ("Osteoarthritis, Hip" AND ("pain" OR "Range of Motion, Articular" OR "Mobility Limitation" OR "Activities of Daily Living" OR "Quality of Life")) NOT (Arthroplasty OR Aquatic OR Rehabilitation OR Intervention OR Treatment)). Study Selection: Four reviewers independently selected articles using previously determined exclusion and inclusion criteria; of 155 references, 89 full texts were assessed for eligibility. Data Extraction: Reported study characteristics, independently extracted by four reviewers (with duplication of each study), included whether or not the study evaluated pain, mobility, quality of life and range of motion, as well as the measures used to evaluate those parameters. Data Synthesis: Of the 89 studies screened via full-text review, 25 were included. The number of publications rose sharply the last two decades, almost doubling in the two prior ten-year periods, and a greater than sevenfold increase since 1999. Among the 25 studies; 96% reported pain, 60% reported QoL, 60% reported mobility, 20% reported range of motion, and 0% of studies reported history of exertion. There was a wide variety of measures used, but the WOMAC was used most often for pain and quality of life. Conclusions: Considering over 9500 studies were found by searching "hip osteoarthritis" on the two electronic databases, the literature shows growing, but markedly little research into the lived experience of the disease. The wide variety of measures used to evaluate pain, mobility, RoM, QoL and HoE is concerning and it calls for a move to fewer, established methods. Future studies should be conducted to better understand the intersection of pain and mobility as they relate to activities of daily living for those with hip osteoarthritis. Author(s) Disclosures: N/A

Figacz A, Brazier A, Brazier J, **Jamil LH, Nandalur K and Al-Katib S** (2022). "Acalculous variant of Mirizzi Syndrome: Imaging and clinical characteristics." Clinical Imaging. ePub Ahead of Print.

[Full Text](#)

Department of Internal Medicine/Gastroenterology

Department of Diagnostic Radiology and Molecular Imaging

Purpose: Mirizzi Syndrome is a rare disease that causes biliary obstruction in the setting of an impacted stone in the gallbladder neck or Hartmann's Pouch which exerts mass effect on the common duct; however, we have noticed inflammatory biliary narrowing in the absence of an offending gallstone in the setting of acute cholecystitis. The purpose of this study is to report the clinical and MRCP findings in a series of 10 patients with this variant of Mirizzi Syndrome. Materials and Methods: A search of our institution's PACS and electronic medical record identified 10 patients with a diagnosis of acute cholecystitis and narrowing of the common duct on imaging in the absence of an impacted gallstone. Imaging and clinical findings were confirmed by two board-certified abdominal radiologists. Results: All patients presented with abdominal pain and an average elevated total bilirubin of 3.0 mg/dL. Seven patients had MRCP findings of complete narrowing of the CBD. Nine patients had intrahepatic biliary ductal dilation. All nine patients with gadolinium-enhanced MRCP displayed biliary wall thickening with enhancement adjacent to the gallbladder. Nine patients underwent cholecystectomy, one patient underwent percutaneous cholecystostomy. Average bilirubin upon discharge was within normal limits at 0.9 mg/dL after intervention. Two patients had follow-up MRCP showing resolution of biliary narrowing. Conclusion: A variant of Mirizzi Syndrome occurs in the absence of an offending gallstone in the gallbladder neck or cystic duct to explain the biliary narrowing. We postulate that acute cholecystitis can cause a local inflammatory narrowing resulting in biliary obstruction.

Fliegner M, Yaser JM, Stewart J, Nathan H, Likosky DS, Theurer PF, Clark MJ, Prager RL and Thompson MP (2022). "Area deprivation and Medicare spending for coronary artery bypass grafting: Insights from Michigan." Annals of Thoracic Surgery 114(4): 1291-1297.

[Full Text](#)

OUWB Medical Student Author

Background: Prior work has established that high socioeconomic deprivation is associated with worse short-and long-term outcomes for patients undergoing coronary artery bypass grafting (CABG). The relationship between socio-economic status and 90-day episode spending is poorly understood. In this observational cohort analysis, we evaluated whether socioeconomically disadvantaged patients were associated with higher expenditures during 90-day episodes of care after isolated CABG. Methods: We linked clinical registry data from 8728 isolated CABG procedures from January 1, 2012, to December 31, 2018, to Medicare fee-for-service claims data. Our primary exposure variable was patients in the top decile of the Area Deprivation Index. Linear regression was used to compare risk-adjusted, price-standardized 90-day episode spending for deprived against nondeprived patients as well as component spending categories: index hospitalization, professional services, post acute care, and readmissions. Results: A total of 872 patients were categorized as being in the top decile. Mean 90-day episode spending for the 8728 patients in the sample was \$55258 (SD, \$26252). Socioeconomically deprived patients had higher overall 90-day spending compared with nondeprived patients (\$61 579 vs \$54 557; difference, \$3003; P = .001). Spending was higher in socioeconomically deprived patients for index hospitalizations (difference, \$1284; P = .005), professional services (difference, \$379; P = .002), and readmissions (difference, \$1188; P = .008). Inpatient rehabilitation was the only significant difference in post-acute care spending (difference, \$469; P = .011). Conclusions: Medicare spending was higher for socioeconomically deprived CABG in Michigan, indicating systemic disparities over and above patient demographic factors.(Ann Thorac Surg 2022;114:1291-8)(c) 2022 by The Society of Thoracic Surgeons

Franklin BA, Eijsvogels TMH, Pandey A, Quindry J and Toth PP (2022). "Physical activity, cardiorespiratory fitness, and cardiovascular health: A clinical practice statement of the ASPC part I: Bioenergetics, contemporary physical activity recommendations, benefits, risks, extreme exercise regimens, potential maladaptations." American Journal of Preventative Cardiology 12: 100424.

[Full Text](#)

Department of Internal Medicine/Cardiovascular Disease

Regular moderate-to-vigorous physical activity (PA) and increased levels of cardiorespiratory fitness (CRF) or aerobic capacity are widely promoted as cardioprotective measures in the primary and secondary prevention of atherosclerotic cardiovascular (CV) disease (CVD). Nevertheless, physical inactivity and sedentary behaviors remain a worldwide concern. The continuing coronavirus (COVID-19) pandemic has been especially devastating to patients with known or occult CVD since sitting time and recreational PA have been reported to increase and decrease by 28% and 33%, respectively. Herein, in this first of a 2-part series, we discuss foundational factors in exercise programming, with specific reference to energy metabolism, contemporary PA recommendations, the dose-response relationship of exercise as medicine, the benefits of regular exercise training, including the exercise preconditioning cardioprotective phenotype, as well as the CV risks of PA. Finally, we discuss the 'extreme exercise hypothesis,' specifically the potential maladaptations resulting from high-volume, high-intensity training programs, including accelerated coronary artery calcification and incident atrial fibrillation. The latter is commonly depicted by a reverse J-shaped or U-shaped curve. On the other hand, longevity data argue against this relationship, as elite endurance athletes live 3-6 years longer than the general population.

Freij BJ, Aldrich AM, Ogrin SL and Olivero RM (2022). "Long-acting antiretroviral drug therapy in adolescents: Current status and future prospects." Journal of the Pediatric Infectious Diseases Society. ePub Ahead of Print.

[Full Text](#)

Department of Pediatrics

Approximately 50% of HIV-infected adolescents fail to achieve complete viral suppression, largely due to nonadherence to their antiretroviral drug regimens. Numerous personal, financial, and societal barriers contribute to nonadherence, which may lead to the development of HIV drug resistance. Long-acting antiretroviral drugs hold the promise of improved adherence because they remove the need for swallowing one or more pills daily. Cabotegravir (an integrase strand transfer inhibitor) and rilpivirine (a non-nucleoside reverse transcriptase inhibitor) can now be intramuscularly co-administered to HIV-infected adolescents every 4-8 weeks if they are virologically suppressed and without resistance mutations to cabotegravir or rilpivirine. Adverse effects are few and non-severe. Widespread use of this complete antiretroviral therapy may be limited by drug costs, need for sites and skilled personnel who can administer the injections, and ethical challenges. Other long-acting medications and new antiretroviral therapy delivery systems are under active investigation and show great promise.

Friedman P, Yilmaz A, Ugur Z, Jafar F, Whitten A, Ustun I, Turkoglu O, Graham S and Bahado Singh R (2022). "Urine metabolomic biomarkers for prediction of isolated fetal congenital heart defect." Journal of Maternal Fetal Neonatal Medicine 35(25): 6380-6387.

[Request Form](#)

Department of Obstetrics & Gynecology

Objective: To identify maternal second and third trimester urine metabolomic biomarkers for the detection of fetal congenital heart defects (CHDs). Study Design: This was a prospective study. Metabolomic analysis of randomly collected maternal urine was performed, comparing pregnancies with isolated, non-syndromic CHDs versus unaffected controls. Mass spectrometry (liquid chromatography and direct injection and tandem mass spectrometry, LC-MS-MS) as well as nuclear magnetic resonance spectrometry, (1)H NMR, were used to perform the analyses between 14 0/7 and 37 0/7 weeks gestation. A total of 36 CHD cases and 41 controls were compared. Predictive algorithms using urine markers alone or combined with, clinical and ultrasound (US) (four-chamber view) predictors were developed and compared. Results: A total of 222 metabolites were identified, of which 16 were overlapping between the two platforms. Twenty-three metabolite concentrations were found in significantly altered in CHD gestations on univariate analysis. The concentration of methionine was most significantly altered. A predictive algorithm combining metabolites (histamine, choline, glucose, formate, methionine, and carnitine) plus US four-chamber view achieved an AUC = 0.894; 95% CI, 0.814-0.973 with a sensitivity of 83.8% and specificity of 87.8%. Enrichment pathway analysis identified several lipid related pathways that are dysregulated in CHD, including phospholipid biosynthesis, phosphatidylcholine biosynthesis, phosphatidylethanolamine biosynthesis, and fatty acid metabolism. This could be consistent with the increased risk of CHD in diabetic pregnancies. Conclusions: We report a novel, noninvasive approach, based on the analysis of maternal urine for isolated CHD detection. Further, the dysregulation of lipid- and folate metabolism appears to support prior data on the mechanism of CHD.

Ghimire B, Pokharel A, Karki U, Thapa S and **Chisti MM** (2022). "Anaplastic lymphoma kinase (ALK) positive neuroendocrine tumor of lung with favorable response to alectinib (ALK inhibitor)." Clinical Lung Cancer. ePub Ahead of Print.

[Full Text](#)

Department of Internal Medicine/Hematology-Oncology

Glazier JJ (2022). "Pathophysiology, diagnosis, and management of hypertension in the elderly." International Journal of Angiology 31(4): 222-228.

[Request Form](#)

Department of Internal Medicine/Cardiovascular Disease

There is a high prevalence of systemic arterial hypertension in the elderly; 70% of adults >65 years have this disease. A key mechanism in the development of hypertension in the elderly is increased arterial stiffness. This accounts for the increase in systolic blood pressure and pulse pressure and fall in diastolic blood pressure (isolated systolic hypertension) that are commonly seen in the elderly, compared with younger persons. The diagnosis of hypertension is made on the basis of in-office blood pressure measurements together with ambulatory and home blood pressure recordings. Lifestyle changes are the cornerstone of management of hypertension. Comprehensive guidelines regarding blood pressure threshold at which to start pharmacotherapy as well as target blood pressure levels have been issued by both European and American professional bodies. In recent years, there has been considerable interest in intensive lowering of blood pressure in older patients with hypertension. Several large, randomized controlled trials have suggested that a strategy of aiming for a target systolic blood pressure of <120 mm Hg (intensive treatment) rather than a target of <140 mm Hg (standard treatment) results in significant reduction in the incidence of adverse cardiovascular events and total mortality. A systolic blood pressure treatment of <130 mm Hg should be considered favorably in non-institutionalized, ambulatory, free living older patients. In contrast, in the older patient with a high burden of comorbidities and limited life expectancy, an individualized team-based approach, based on clinical judgment and patient preference should be adopted. An increasing body of evidence for older adults with hypertension suggests that intensive blood pressure lowering may prevent or at least partially prevent cognitive decline.

Govindaraju VK, **Chao JT**, Duvall ER, **Baker NS**, **Fahey KM**, Lee R, **Williams GA** and **Stec LA** (2022). "Incidence of endogenous fungal endophthalmitis in screening dilated exams in patients with elevated beta-D-glucan levels versus positive fungal blood cultures." Clinical Ophthalmology 16: 2743-2750.

[Full Text](#)

OUWB Medical Student Author

Department of Ophthalmology

Purpose: Endogenous endophthalmitis is a severe intraocular infectious condition requiring rapid diagnosis and treatment. This study examines the incidence of fungal endophthalmitis in patients with elevated beta-D-glucan (BG) levels and those with positive blood culture and the utility of ophthalmology consultation in these patients. Methods: Single center retrospective consecutive cohort study was conducted on patients at Beaumont Health from 2016–2021 who either had positive fungal blood cultures or an elevated BG level. Results: A total of 147 patients were examined by the ophthalmology department where 30 patients had an elevated BG level and 100 patients had a positive fungal blood culture. Incidence of fungal endophthalmitis was 0% in the elevated BG group and 1.5% in the positive fungal culture group, corresponding to a relative risk ratio of 0.0 ($p = 0.31$). Conclusion: BG testing may be useful in diagnosing isolated cases outside the standard screening paradigm, however the data within this study support the conclusion that there is no compelling evidence at this time to add or use BG as a surrogate for endophthalmitis screening. Further studies are required to further elucidate the role of BG in the care of critically ill patients.

Grzywacz li VP, Ko R, Ye H, **Chen PY**, **Seymour ZA**, Lee KC and **Grills IS** (2022). "Fractionated radiosurgery associated with high rates of local control for large volume intact brain metastases." International Journal of Radiation Oncology, Biology, Physics 114(3): e52-e52.

[Full Text](#)

Department of Radiation Oncology

Gupta M, **Gupta R** and Jhorar P (2022). "Atypical presentation of a late-onset blue nevus." JAAD Case Reports 30: 102-104.

[Full Text](#)

OUWB Medical Student Author

Gupta R, Gupta S, Antonios B, Ghimire B, Jindal V, Deol J, **Gaikazian S, Huben M, Anderson J, Stender M** and **Jaiyesimi I** (2022). "Therapeutic landscape of advanced HER2-positive breast cancer in 2022." Medical Oncology 39(12): 258.

[Full Text](#)

Department of Internal Medicine/Hematology-Oncology

HER2-positive breast cancer is an aggressive subtype of breast cancer with five-year survival rates of 30% for the advanced stage. The development of anti-HER2 treatments has led to a paradigm shift in the management and clinical outcomes of advanced HER2-positive breast cancer patients. The standard first-line treatment consists of taxane-based chemotherapy plus dual anti-HER2 therapies with trastuzumab and pertuzumab. The antibody-drug conjugate (ADC) ado-trastuzumab emtansine (T-DM1) has been a second-line therapeutic standard, but the second-line treatment approach is rapidly evolving. Given a substantial advantage of another ADC, Fam-trastuzumab deruxtecan (T-DXd), compared to T-DM1 in a recent randomized trial in the second-line setting, T-DXd is currently the preferred second-line option. Optimal third-line treatment strategies are still not established, and multiple approaches have been used including combinations based on capecitabine, trastuzumab, or both with oral anti-HER2 tyrosine kinase inhibitors. Tucatinib plus capecitabine and trastuzumab, lapatinib plus trastuzumab, neratinib or lapatinib plus capecitabine are some of the FDA approved combinations. Another newer agent approved for third- or later-line therapy in the metastatic setting is margetuximab, an Fc-engineered anti-HER2 monoclonal antibody, in combination with chemotherapy. Other novel agents currently under clinical trials are the drugs that indirectly target HER2, including immune cell cycle inhibitors, PI3K/mTOR inhibitors, and immunotherapy agents.

Gupta R, Pfennig M, Gannon J, Young D, Gupta M, Chaiyasate S, Stieg G, Kissel BG, Kissel EC, **Fortin P** and **Chaiyasate K** (2022). "Utilization of the pedicled and free fibula flap for ankle arthrodesis." Plastic and Reconstructive Surgery - Global Open 10(11): e4670.

[Full Text](#)

OUWB Medical Student Author

Department of Surgery

Department of Orthopaedic Surgery

Background: Ankle arthrodesis has become a common surgical procedure for individuals with end-stage ankle arthritis, chronic infection, and bony misalignment. Although arthrodesis is typically managed with arthrodesis in situ or realignment, reconstruction may be utilized for patients with more complicated cases that involve metatarsal defects. Our institution utilizes both the pedicled and free fibula flaps for surgical management pertaining to ankle arthrodesis. Our study looks to evaluate the work of a single plastic surgeon and identify patient postoperative outcomes. Methods: A retrospective chart review was conducted at Beaumont Health System, Royal Oak, for patients who underwent ankle arthrodesis with a pedicled fibula flap for nonunion or avascular necrosis of the talus between the years 2014 and 2022. Demographic data, operative details, complications, medical comorbidities, and patient outcomes were retrospectively gathered and analyzed. Results: A total of six patients were isolated, with three patients undergoing a free fibula approach and three patients undergoing the pedicled fibula approach. All patients were found to have tolerated the procedure well and had no intraoperative complications. In addition, all patients had clinically viable flaps and were satisfied with their surgical result. Conclusions: Both free and pedicled free fibula flaps may be used effectively in the management of ankle arthrodesis in patients who have failed prior therapy. In our study, free fibula flaps were utilized in a medial approach, while the pedicled fibula flap was utilized in a lateral approach. With the right expertise and

patient population, the free and pedicled fibula flaps can be highly successful in the repair of ankle defects.

Gupta R, Pfennig M, Gannon J, Young D, Gupta R, Hart J, Kissel BG, Kissel EC, Fortin P and Chaiyasate K (2022). "Utilization of the free fibular flap for first metatarsal reconstruction." Plastic Reconstructive Surgery Global Open 10(12): e4706.

[Full Text](#)

OUWB Medical Student Author

Department of Surgery

Department of Orthopaedic Surgery

Beyond being aesthetically unpleasing, metatarsal defects have been known to lead to several patient concerns such as intermetatarsal malpositioning and metatarsalgia. There are several reconstructive techniques that have been utilized for reconstruction of bony defects in the foot, including the free dorsal toe flap and dorsal metatarsal perforator flap. Our institution has utilized the free fibular flap for surgical management pertaining to tarsal reconstruction. Our study looks to evaluate the work of a single plastic surgeon and identify patient postoperative outcomes. A retrospective chart review was conducted at Beaumont Health System, Royal Oak for patients who underwent first metatarsal reconstruction with a free fibular flap between the years 2015 and 2022. Demographic data, operative details, complications, medical comorbidities, and patient outcomes were retrospectively gathered and analyzed. A total of two patients were isolated after chart review. Both patients were found to have tolerated the procedure well and had no intraoperative complications. In addition, all patients had clinically viable flaps and were satisfied with their surgical results. The free fibular flap may be used effectively in the management of metatarsal defects that have failed prior therapy. In our study, both patients who underwent surgical management with a free fibular flap were noted to have successful long-term results. With the right expertise and patient population, a free fibular flap can be highly successful in the repair of metatarsal defects.

Hakim S, Gjeorgjievski M, Khan Z, Cannon ME, Yu K, Patil P, DaVee RT, Guha S, Badillo R, Jamil L, Thosani N and Ramireddy S (2022). "Is antibiotic prophylaxis necessary after endoscopic ultrasound-guided fine-needle aspiration of pancreatic cysts?" Clinical Endoscopy 55(6): 801-809.

[Full Text](#)

Department of Internal Medicine/Gastroenterology

Background/Aims: Current society guidelines recommend antibiotic prophylaxis for 3 to 5 days after endoscopic ultrasound-guided fine-needle aspiration (EUS-FNA) of pancreatic cystic lesions (PCLs). The overall quality of the evidence supporting this recommendation is low. In this study, we aimed to assess cyst infection and adverse event rates after EUS-FNA of PCLs among patients treated with or without postprocedural prophylactic antibiotics. **Methods:** We retrospectively reviewed all patients who underwent EUS-FNA of PCLs between 2015 and 2019 at two large-volume academic medical centers with different practice patterns of postprocedural antibiotic prophylaxis. Data on patient demographics, cyst characteristics, fine-needle aspiration technique, periprocedural and postprocedural antibiotic prophylaxis, and adverse events were retrospectively extracted. **Results:** A total of 470 EUS-FNA procedures were performed by experienced endosonographers for the evaluation of PCLs in 448 patients, 58.7% of whom were women. The mean age was 66.3±12.8 years. The mean cyst size was 25.7±16.9 mm. Postprocedural antibiotics were administered in 274 cases (POSTAB+ group, 58.3%) but not in 196 cases (POSTAB- group, 41.7%). None of the patients in either group developed systemic or localized infection within the 30-day follow-up period. Procedure-related adverse events included mild abdominal pain (8 patients), intra-abdominal hematoma (1 patient), mild pancreatitis (1 patient), and perforation (1 patient). One additional case of pancreatitis was recorded; however, the patient also

underwent endoscopic retrograde cholangiopancreatography. Conclusion: The incidence of infection after EUS-FNA of PCLs is negligible. Routine use of postprocedural antibiotics does not add a significant benefit.

Hammer P, Tari AR, **Franklin BA**, Wen CP, Wisløff U and Nauman J (2022). "Personal activity intelligence and ischemic heart disease in a healthy population: China Kadoorie Biobank study." Journal of Clinical Medicine 11(21).

[Full Text](#)

Department of Internal Medicine/Cardiovascular Disease

Background: Personal Activity Intelligence (PAI) is a physical activity metric that translates heart rate during physical activity into a simple score, where a weekly score of 100 or greater is associated with a lower risk of cardiovascular disease and mortality. Here, we prospectively investigated the association between PAI and ischemic heart disease (IHD) mortality in a large healthy population from China. Methods: Using data from the China Kadoorie Biobank, we studied 443,792 healthy adults (60% women). The weekly PAI score of each participant was estimated based on the questionnaire data and divided into four groups (PAI scores of 0, ≤ 50 , 51–99, or ≥ 100). Adjusted hazard ratios (aHRs) and 95% confidence intervals (CIs) for fatal IHD and nonfatal myocardial infarction (MI) related to PAI were estimated using Cox proportional hazard regression analyses. Results: There were 3050 IHD deaths and 1808 MI events during a median follow-up of 8.2 years (interquartile range, 7.3–9.1; 3.6 million person-years). After adjustments for multiple confounders, a weekly PAI score ≥ 100 was associated with a lower risk of IHD (aHR: 0.91 (95% CI: 0.83–1.00)), compared with the inactive group (0 PAI). The corresponding aHR for MI was 0.94 (95% CI: 0.83–1.05). In participants aged 60 years or older at baseline, the aHR associated with a weekly PAI score ≥ 100 was 0.84 (95% CI, 0.75–0.93) for IHD and 0.84 (95% CI, 0.73–0.98) for MI. Conclusion: Among healthy Chinese adults, a weekly PAI score of 100 or greater was associated with a lower risk of IHD mortality across all age groups; moreover, a high PAI score significantly lowered the risk of MI but only in those 60 years and older at baseline. The present findings extend the scientific evidence that PAI may have prognostic significance in diverse settings for IHD outcomes and suggest that the PAI metric may be useful in delineating the magnitude of weekly physical activity needed to reduce the risk of IHD mortality.

Haque MZ, Virk U, **Suhrawardy A**, Roberts KC and Magrey MN (2022). "Guide to optimizing care for Muslim patients with knee osteoarthritis." Arthritis & Rheumatology. ePub Ahead of Print.

[Full Text](#)

OUWB Medical Student Author

Harnett NG, Finegold KE, Lebois LAM, van Rooij SJH, Ely TD, Murty VP, Jovanovic T, Bruce SE, House SL, Beaudoin FL, An X, Zeng D, Neylan TC, Clifford GD, Linnstaedt SD, Germine LT, Bollen KA, Rauch SL, Haran JP, Storrow AB, Lewandowski C, Musey PI, Hendry PL, Sheikh S, Jones CW, Panches BE, Kurz MC, **Swor RA**, Hudak LA, Pascual JL, Seamon MJ, Harris E, Chang AM, Pearson C, Peak DA, Domeier RM, Rathlev NK, O'Neil BJ, Sergot P, Sanchez LD, Miller MW, Pietrzak RH, Joormann J, Barch DM, Pizzagalli DA, Sheridan JF, Harte SE, Elliott JM, Kessler RC, Koenen KC, McLean SA, Nickerson LD, Ressler KJ and Stevens JS (2022). "Structural covariance of the ventral visual stream predicts posttraumatic intrusion and nightmare symptoms: A multivariate data fusion analysis." Translational Psychiatry 12(1): 321.

[Full Text](#)

Department of Emergency Medicine

Visual components of trauma memories are often vividly re-experienced by survivors with deleterious consequences for normal function. Neuroimaging research on trauma has primarily focused on threat-processing circuitry as core to trauma-related dysfunction. Conversely, limited attention has been given

to visual circuitry which may be particularly relevant to posttraumatic stress disorder (PTSD). Prior work suggests that the ventral visual stream is directly related to the cognitive and affective disturbances observed in PTSD and may be predictive of later symptom expression. The present study used multimodal magnetic resonance imaging data (n = 278) collected two weeks after trauma exposure from the AURORA study, a longitudinal, multisite investigation of adverse posttraumatic neuropsychiatric sequelae. Indices of gray and white matter were combined using data fusion to identify a structural covariance network (SCN) of the ventral visual stream 2 weeks after trauma. Participant's loadings on the SCN were positively associated with both intrusion symptoms and intensity of nightmares. Further, SCN loadings moderated connectivity between a previously observed amygdala-hippocampal functional covariance network and the inferior temporal gyrus. Follow-up MRI data at 6 months showed an inverse relationship between SCN loadings and negative alterations in cognition in mood. Further, individuals who showed decreased strength of the SCN between 2 weeks and 6 months had generally higher PTSD symptom severity over time. The present findings highlight a role for structural integrity of the ventral visual stream in the development of PTSD. The ventral visual stream may be particularly important for the consolidation or retrieval of trauma memories and may contribute to efficient reactivation of visual components of the trauma memory, thereby exacerbating PTSD symptoms. Potentially chronic engagement of the network may lead to reduced structural integrity which becomes a risk factor for lasting PTSD symptoms.

Hartman-Munick SM, Lin JA, Milliren CE, Braverman PK, Brigham KS, Fisher MM, Golden NH, Jary JM, Lemly DC, Matthews A, Ornstein RM, Roche A, Rome ES, Rosen EL, Sharma Y, Shook JK, **Taylor JL**, Thew M, Vo M, Voss M, Woods ER, Forman SF and Richmond TK (2022). "Association of the COVID-19 pandemic with adolescent and young adult eating disorder care volume." *JAMA Pediatrics* 176(12): 1225-1232.

[Full Text](#)

OUWB Medical Student Author

Importance: The COVID-19 pandemic has affected youth mental health. Increases in site-specific eating disorder (ED) care have been documented; however, multisite studies demonstrating national trends are lacking. **Objective:** To compare the number of adolescent/young adult patients seeking inpatient and outpatient ED care before and after onset of the COVID-19 pandemic. **Design, Setting, and Participants:** Using an observational case series design, changes in volume in inpatient and outpatient ED-related care across 15 member sites (14 geographically diverse hospital-based adolescent medicine programs and 1 nonhospital-based ED program) of the US National Eating Disorder Quality Improvement Collaborative was examined. Sites reported monthly volumes of patients seeking inpatient and outpatient ED care between January 2018 and December 2021. Patient volumes pre- and postpandemic onset were compared separately for inpatient and outpatient settings. Demographic data such as race and ethnicity were not collected because this study used monthly summary data. **Exposures:** Onset of the COVID-19 pandemic. **Main Outcomes and Measures:** Monthly number of patients seeking inpatient/outpatient ED-related care. **Results:** Aggregate total inpatient ED admissions were 81 in January 2018 and 109 in February 2020. Aggregate total new outpatient assessments were 195 in January 2018 and 254 in February 2020. Before the COVID-19 pandemic, the relative number of pooled inpatient ED admissions were increasing over time by 0.7% per month (95% CI, 0.2%-1.3%). After onset of the pandemic, there was a significant increase in admissions over time of 7.2% per month (95% CI, 4.8%-9.7%) through April 2021, then a decrease of 3.6% per month (95% CI, -6.0% to -1.1%) through December 2021. Prepandemic, pooled data showed relative outpatient ED assessment volume was stable over time, with an immediate 39.7% decline (95% CI, -50.4% to -26.7%) in April 2020. Subsequently, new assessments increased by 8.1% (95% CI, 5.3%-11.1%) per month through April 2021, then decreased by 1.5% per month (95% CI, -3.6% to 0.7%) through December 2021. The nonhospital-based ED program did not demonstrate a significant increase in the absolute number of admissions after onset of the pandemic

but did see a significant increase of 8.2 (95% CI, 6.2-10.2) additional inquiries for care per month in the first year after onset of the pandemic. Conclusions and Relevance: In this study, there was a significant COVID-19 pandemic-related increase in both inpatient and outpatient volume of patients with EDs across sites, particularly in the first year of the pandemic. Given inadequate ED care availability prior to the pandemic, the increased postpandemic demand will likely outstrip available resources. Results highlight the need to address ED workforce and program capacity issues as well as improve ED prevention strategies.

Haudek SB, Bahner I, Belovich AN, Bonaminio G, Brennehan A, Brooks WS, Chinn C, El-Sawi N, Habal S, Haight M, Ikonne U, **McAuley RJ**, McKell D, Rowe R, Taylor TAH and Thesen T (2022). "To infinity and beyond: Expanding the scope of basic sciences in meeting accreditation standards." Medical Science Educator 32(5): 1239-1245.

[Full Text](#)

Department of Foundational Medical Studies (OU)

Interprofessional training, social sciences curricula, service-learning, pre-clerkship integration, and self-directed learning are all cornerstones of medical education and closely align with accreditation elements for most accreditation bodies within health professions education. As a sequel to the Winter 2022 series, the Spring 2022 Webcast Audio Seminar (WAS) of the International Association of Medical Science Educators (IAMSE) continued to examine the evolving roles of basic science educators. From March 3 to March 31, 2022, the five-part webinar series was broadcast live to audiences at academic institutions worldwide; recordings are available on the IAMSE website. This series built a framework through which basic scientists can leverage their content to meet various accreditation standards. © 2022, The Author(s) under exclusive licence to International Association of Medical Science Educators.

Haykal MA and **Menkes DL** (2022). "The clinical neurophysiology of COVID-19-direct infection, long-term sequelae and para-immunization responses: A literature review." Clinical Neurophysiology Practice. ePub Ahead of Print.

[Full Text](#)

Department of Neurology

The COVID-19 pandemic resulting from the SARS-CoV-2 virus is in its third year. There is continuously evolving information regarding its pathophysiology and its effects on the nervous system. Clinical neurophysiology techniques are commonly employed to assess for neuroanatomical localization and/or defining the spectrum of neurological illness. There is an evolving body of literature delineating the effects of the SARS-CoV-2 virus on the nervous system as well as para-immunization responses to vaccination against this virus. This review focuses on the use of neurophysiological diagnostic modalities in the evaluation of potential acute and long-term neurological complications in patients that experience direct infection with SARS-CoV-2 and analyzes those reports of para-immunization responses to vaccination against the SARS-CoV-2 virus. The neurophysiological modalities to be discussed include electroencephalography (EEG), evoked potentials (EPs), nerve conduction studies and electromyography (EMG/NCV), autonomic function tests, transcranial magnetic stimulation (TMS) and Transcranial Doppler ultrasound (TCD).

Hazy AJ, **Levitin R**, **Salib J**, **Jawad MS**, **Chen PY**, **Gustafson GS** and **Dilworth JT** (2022). "Hypofractionated regional nodal irradiation in breast cancer: Initial results of a prospective clinical trial." International Journal of Radiation Oncology, Biology, Physics 114(3): e9-e10.

[Full Text](#)

Department of Radiation Oncology

OUWB Medical Student Author

Hickman ZL, Spielman LA, Barthélemy EJ, Choudhri TF, Engelman B, Giwa AO, Greisman JD, Margetis K, **Race M**, Rahman J, Todor DR, Tsetsou S, Ullman JS, Unadkat P and Dams-O'Connor K (2022). "International survey of antiseizure medication use in patients with complicated mild traumatic brain injury: A New York neurotrauma consortium study." World Neurosurgery 168: e286-e296.

[Full Text](#)

OUWB Medical Student Author

Background: Seizures and epilepsy after traumatic brain injury (TBI) negatively affect quality of life and longevity. Antiseizure medication (ASM) prophylaxis after severe TBI is associated with improved outcomes; these medications are rarely used in mild TBI. However, a paucity of research is available to inform ASM use in complicated mild TBI (cmTBI) and no empirically based clinical care guidelines for ASM use in cmTBI exist. We aim to identify seizure prevention and management strategies used by clinicians experienced in treating patients with cmTBI to characterize standard care and inform a systematic approach to clinical decision making regarding ASM prophylaxis. Methods: We recruited a multidisciplinary international cohort through professional organizational listservs and social media platforms. Our questionnaire assessed factors influencing ASM prophylaxis after cmTBI at the individual, institutional, and health system-wide levels. Results: Ninety-two providers with experience managing cmTBI completed the survey. We found a striking diversity of ASM use in cmTBI, with 30% of respondents reporting no/infrequent use and 42% reporting frequent use; these tendencies did not differ by provider or institutional characteristics. Certain conditions universally increased or decreased the likelihood of ASM use and represent consensus. Based on survey results, ASMs are commonly used in patients with cmTBI who experience acute secondary seizure or select positive neuroimaging findings; we advise caution in elderly patients and those with concomitant neuropsychiatric illness. Conclusions: This study is the first to characterize factors influencing clinical decision making in ASM prophylaxis after cmTBI based on multidisciplinary multicenter provider practices. Prospective controlled studies are necessary to inform standardized guideline development.

Hoang Roberts L, **Zwaans BMM**, **Peters KM**, **Chancellor M** and **Padmanabhan P** (2022). "Incidence of new or worsening overactive bladder among patients with a prior SARS-CoV-2 infection: A cohort study." European Urology Open Science 46: 68-74.

[Full Text](#)

Department of Urology

Background: Literature is sparse on COVID-19-associated cystitis (CAC), a novel condition comprising frequency, urgency, and nocturia after COVID-19 infection. Objective: To determine the incidence of CAC and correlation with SARS-CoV-2 antibody levels. Design, Setting, and Participants: This was a retrospective study in which urinary symptoms were scored using the International Consultation on Incontinence Questionnaire-overactive bladder (ICIQ-OAB) at three time points: before the pandemic (January 2020), 2 mo after COVID-19 infection (if applicable), and at the time of the study (May 2021). The setting was a regional health care system. The 18 785 healthcare employees who took part in the BLAST COVID study group were invited to participate, of whom 1895 responded. Outcome Measurements and Statistical Analysis: The outcome measured was the percentage of COVID-positive patients with a significant change on ICIQ-OAB over time. Pearson's χ^2 test was used for comparison of categorical data, and one-way analysis of variance for continuous data and multivariate analysis. A sample size of 618 was calculated for power of 80% and $\alpha = 0.05$. Results and Limitations: Of the 1895 participants, 31.9% (n = 605) were positive for COVID-19 according to positive serology or a polymerase chain reaction (PCR) test. Of these, 492 were PCR-positive and had 2-mo postinfection data, with 36.4% (179/492) reporting an increase of ≥ 1 point on the ICIQ-OAB compared to baseline (before the pandemic), with de novo OAB in 22% of these cases (40/179). Comparison of symptoms between

baseline and the study time revealed that 27.4% (31/113) of those with positive serology only (asymptomatic COVID) and 37.8% (186/492) of those with PCR positivity (symptomatic COVID) had an increase of ≥ 1 point on the ICIQ-OAB, compared to 15.8% (n = 204) of uninfected patients, with odds ratios of 2.013 (95% confidence interval [CI] 1.294–3.138; p = 0.0015) and 3.236 (95% CI 2.548–4.080; p < 0.0001), respectively. The retrospective nature of the study and the volunteer sample are limitations. Conclusions: COVID-19 infection increases the risk of developing new or worsening OAB symptoms. Patient summary: We compared overactive bladder symptoms in a large group of participants between individuals with and without a previous COVID-19 infection. We found that symptomatic infection was associated with a three times greater risk of developing new or worsening overactive bladder symptoms among COVID-19 patients.

Huang SL, Fennell T, **Chen X** and **Huang JZ** (2022). "The patterns and diagnostic significance of the lack of surface immunoglobulin light chain on mature b cells in clinical samples for lymphoma workup." Cytometry Part B- Clinical Cytometry. ePub Ahead of Print.

[Full Text](#)

Department of Pathology

Background: Surface immunoglobulin (slg) light chains are not always detected on mature B cells. This may present as a challenge for clonality determination in clinical flow cytometry. Methods: To explore the mechanism and diagnostic significance of slg negative mature B cells, we retrospectively studied 14 cases of slg negative reactive B-cell lymphocytosis and 89 cases of slg negative mature B-cell lymphomas. The expression patterns of slg and cytoplasmic immunoglobulin (clg) light chains were studied by flow cytometry using both monoclonal and polyclonal antibodies. Results: These 14 cases of slg negative reactive B-cell lymphocytosis were proven to be polytypic based on cytoplasmic light chain studies. In 89 cases of slg negative mature B-cell lymphomas, we described four distinct patterns of abnormal light chain expression including partial or complete loss of slg or clg, suggesting different underlying mechanisms. Conclusions: This study represents the first reported series of body or cystic fluids where reactive B cells do not have detectable slg, arguing strongly against making a diagnosis of B-cell lymphoma based on lack of slg in mature B cells. Since the lack of slg does not always predict clonal/neoplastic mature B-cell proliferation, further clg evaluation should be performed when slg expression is not detected in mature B cells. The lack of both slg and clg in mature B cells may serve as a reliable surrogate clonality/neoplastic marker.

Hum S, **Khatter N**, Mark J, Forlenza G and Triolo T (2022). "Retrospective analysis of the outcomes of total pancreatectomy with islet auto transplantation in pediatric patients with chronic pancreatitis." Journal of Pediatric Gastroenterology and Nutrition 75: S145-S147.

[Full Text](#)

OUWB Medical Student Author

Background: Patients with chronic pancreatitis (CP) have significantly impaired quality of life due to frequent, painful episodes of pancreatitis. Total pancreatectomy with islet auto transplantation (TPIAT) is a potentially curative treatment for patients with CP refractory to medical and endoscopic therapies. Outcomes of pediatric patients who have undergone TPIAT are mostly limited to single center follow-up. Objective: To describe the characteristics and outcomes of pediatric patients with CP who underwent TPIAT and were subsequently followed at the Children's Hospital Colorado. Methods: We performed a retrospective analysis of all 10 pediatric patients with CP who underwent TPIAT from 2007-2020. We extracted demographic characteristics as well as baseline and follow-up clinical outcomes data until August 31, 2021. The clinical outcomes were nausea, anxiety/depression, school/work absences, narcotic dependence, pancreas-related hospitalizations, body mass index, total daily dose of insulin, hemoglobin A1c, and mixed meal tolerance test fasting and peak C-peptide levels. Results: The average

age at diagnosis of CP was 6.5 years old, ranging from 6 months to 13 years old. Follow-up time for these patients ranged from 1-13 years. Sixty percent of the patients were female. All patients except for one were found to have a genetic cause of CP: 8/10 in PRSS1 and 1/9 in CFTR. One patient with a mutation in CFTR also had an anatomic variation (pancreas divisum) that could predispose to CP. Patients on average had 4 endoscopic retrograde cholangiopancreatographies prior to TPIAT and underwent TPIAT an average of 4 years after diagnosis. The mean islet mass transplanted during TPIAT was 4771 IEQ/kg. Overall, there was a significant improvement in clinical outcomes one year after TPIAT and at the end of follow-up respectively: nausea (p-value=0.03; 0.001), school/work absences (p-value<0.001; <0.001), narcotic dependence (p-value=0.001; <0.001), and pancreas-related hospital admissions (p-value=0.03; 0.003) (Table 1). However, improvement in anxiety/depression and body mass index was not consistent amongst patients. Insulin usage was common immediately following TPIAT, but the mean total daily dose of insulin remained minimal at all follow-up time points ranging from 0.28-0.56 Units/kg/day. At the end of the follow-up period, 5/10 patients were insulin independent with a normal hemoglobin A1c (<6.5%) (Figure 1). All patients who underwent follow-up mixed meal tolerance testing had detectable fasting C-peptide levels with a robust peak C-peptide response averaging from 2.4-5.14 ng/mL at all follow-up time points. Conclusions: After undergoing TPIAT, all patients had significant improvements in clinical outcomes including nausea, school/work absences, narcotic dependence, and pancreas-related hospital admissions. Although many patients had to start insulin after TPIAT, the total daily dose of insulin remained minimal and half of the patients were insulin independent by the end of follow up. Glycemic control was also excellent for patients who required insulin. Overall, in this cohort, TPIAT significantly improved clinical outcomes for pediatric patients with CP refractory to medical and endoscopic therapies.

Jaiyesimi IA, Temin S and Singh N (2022). "Therapy for stage IV non-small-cell lung cancer with and without driver alterations: ASCO living guidelines Q and A." *JCO Oncology Practice* 18(10): 699-702.

[Full Text](#)

Department of Internal Medicine/Hematology-Oncology

Jones CW, An X, Ji Y, Liu M, Zeng D, House SL, Beaudoin FL, Stevens JS, Neylan TC, Clifford GD, Jovanovic T, Linnstaedt SD, Germine LT, Bollen KA, Rauch SL, Haran JP, Storrow AB, Lewandowski C, Musey PI, Hendry PL, Sheikh S, Panches BE, Lyons MS, Kurz MC, **Swor RA**, McGrath ME, Hudak LA, Pascual JL, Seamon MJ, Datner EM, Harris E, Chang AM, Pearson C, Peak DA, Merchant RC, Domeier RM, Rathlev NK, O'Neil BJ, Sergot P, Sanchez LD, Bruce SE, Miller MW, Pietrzak RH, Joormann J, Barch DM, Pizzagalli DA, Sheridan JF, Smoller JW, Harte SE, Elliott JM, Koenen KC, Ressler KJ, Kessler RC and McLean SA (2022). "Derivation and validation of a brief emergency department-based prediction tool for posttraumatic stress after motor vehicle collision." *Annals of Emergency Medicine*. ePub Ahead of Print.

[Full Text](#)

Department of Emergency Medicine

Study Objective: To derive and initially validate a brief bedside clinical decision support tool that identifies emergency department patients at high risk of substantial, persistent posttraumatic stress symptoms after a motor vehicle collision. Methods: Derivation (n=1,282, 19 ED sites) and validation (n=282, 11 separate ED sites) data were obtained from adults prospectively enrolled in the Advancing Understanding of Recovery after Trauma study who were discharged from the ED after motor vehicle collision-related trauma. The primary outcome was substantial posttraumatic stress symptoms at 3 months (Posttraumatic Stress Disorder Checklist for Diagnostic and Statistical Manual of Mental Disorders-5 ≥ 38). Logistic regression derivation models were evaluated for discriminative ability using the area under the curve and the accuracy of predicted risk probabilities (Brier score). Candidate posttraumatic stress predictors assessed in these models (n=265) spanned a range of sociodemographic,

baseline health, peritraumatic, and mechanistic domains. The final model selection was based on performance and ease of administration. Results: Significant 3-month posttraumatic stress symptoms were common in the derivation (27%) and validation (26%) cohort. The area under the curve and Brier score of the final 8-question tool were 0.82 and 0.14 in the derivation cohort and 0.76 and 0.17 in the validation cohort. Conclusion: This simple 8-question tool demonstrates promise to risk-stratify individuals with substantial posttraumatic stress symptoms who are discharged to home after a motor vehicle collision. Both external validation of this instrument, and work to further develop more accurate tools, are needed. Such tools might benefit public health by enabling the conduct of preventive intervention trials and assisting the growing number of EDs that provide services to trauma survivors aimed at promoting psychological recovery.

Kalra A, **Chinnaiyan KM** and Lala A (2022). "Bhagavad Gita, dichotomy of control and metric medicine: The conflict of burnout." European Heart Journal 43(46): 4769-4771.

[Full Text](#)

Department of Internal Medicine/Cardiovascular Disease

Kassamali B, **Kus KJB**, Mazori DR, Maher J, Lopez CG, Kassamali AA, Vleugels RA and LaChance AH (2022). "Race and gender differences in systemic sclerosis: A retrospective multicenter cohort." International Journal of Dermatology 61(11): e437-e438.

[Full Text](#)

OUWB Medical Student Author

Kesarwani P, Kant S, Zhao Y, Miller CR and Chinnaiyan P (2022). "The influence of the ketogenic diet on the immune tolerant microenvironment in glioblastoma." Cancers 14(22): 5550.

[Full Text](#)

Department of Radiation Oncology

Glioblastoma (GBM) represents an aggressive and immune-resistant cancer. Preclinical investigations have identified anti-tumor activity of a ketogenic diet (KD) potentially being used to target GBM's glycolytic phenotype. Since immune cells in the microenvironment have a similar reliance upon nutrients to perform their individual functions, we sought to determine if KD influenced the immune landscape of GBM. Consistent with previous publications, KD improved survival in GBM in an immune-competent murine model. Immunophenotyping of tumors identified KD-influenced macrophage polarization, with a paradoxical 50% increase in immune-suppressive M2-like-macrophages and a decrease in pro-inflammatory M1-like-macrophages. We recapitulated KD in vitro using a modified cell culture based on metabolomic profiling of serum in KD-fed mice, mechanistically linking the observed changes in macrophage polarization to PPAR γ -activation. We hypothesized that parallel increases in M2-macrophage polarization tempered the therapeutic benefit of KD in GBM. To test this, we performed investigations combining KD with the CSF-1R inhibitor (BLZ945), which influences macrophage polarization. The combination demonstrated a striking improvement in survival and correlative studies confirmed BLZ945 normalized KD-induced changes in macrophage polarization. Overall, KD demonstrates antitumor activity in GBM; however, its efficacy is attenuated by promoting an immunosuppressive phenotype in macrophages. Combinatorial strategies designed to modulate macrophage polarization represent a rational approach to improve the anti-tumor activity of KD in GBM.

Kim SK, Vishweswaraiah S, **Macknis J**, **Yilmaz A**, Lalwani A, Mishra NK, Guda C, Ogunyemi D, Radhakrishna U and **Bahado-Singh RO** (2022). "New-onset postpartum preeclampsia: Epigenetic mechanism and prediction." Journal of Maternal and Fetal Neonatal Medicine 35(25): 7179-7187.

[Request Form](#)

Department of Obstetrics & Gynecology
Department of Pathology

Objective: Placental cytosine (CpG) methylation was measured to predict new-onset postpartum preeclampsia (NOPP) and interrogate its molecular pathogenesis. Methods: NOPP was defined as patients with a new diagnosis of postpartum preeclampsia developing ≥ 48 h to ≤ 6 weeks after delivery with no prior hypertensive disorders. Placental tissue was obtained from 12 NOPP cases and 12 normotensive controls. Genome-wide individual cytosine (CpG) methylation level was measured with the Infinium MethylationEPIC BeadChip array. Significant differential methylation (NOPP vs. controls) for individual CpG loci was defined as false discovery rate (FDR) p value $< .05$. Gene functional enrichment using Qiagen's ingenuity pathway analysis (IPA) was performed to help elucidate the molecular pathogenesis of NOPP. A logistic regression model for NOPP prediction based on the methylation level in a combination of CpG loci was generated. The area under the receiver operating characteristic curves (AUC [95% CI]) sensitivity, and specificity for NOPP prediction based on the CpG methylation level was calculated for each locus. Results: There were 537 (in 540 separate genes) significantly (FDR $p < .05$ with a ≥ 2.0 -fold methylation difference) differentially methylated CpG loci between the groups. A total of 143 individual CpG markers had excellent individual predictive accuracy for NOPP prediction (AUC ≥ 0.80), of which 14 markers had outstanding accuracy (AUC ≥ 0.90). A logistic regression model based on five CpG markers yielded an AUC (95% CI)=0.99 (0.95-0.99) with sensitivity 95% and specificity 93% for NOPP prediction. IPA revealed dysregulation of critical pathways (e.g., angiogenesis, chronic inflammation, and epithelial-mesenchymal transition) known to be linked to classic preeclampsia, in addition to other previously undescribed genes/pathways. Conclusions: There was significant placental epigenetic dysregulation in NOPP. NOPP shared both common and unique molecular pathways with classic preeclampsia. Finally, we have identified novel potential biomarkers for the early post-partum prediction of NOPP.

Kingrey JF, Zhou CY, **Dalal B** and Elwing JM (2022). "Expert provider survey of longitudinal assessment in patients with pulmonary arterial hypertension." *Heart & Lung* 58: 34-38.

[Full Text](#)

Department of Internal Medicine/Pulmonary & Critical Care Medicine

Background: Patients suffering from pulmonary arterial hypertension (PAH) demand frequent assessment to keep pace with a dynamic and sometimes rapidly progressive disease course. To improve our understanding of patient monitoring, we conducted a survey of pulmonary hypertension (PH) providers to establish real-world practice patterns. Objective: To evaluate the type and frequency of patient assessment methods employed by expert PH providers following PAH diagnosis Methods: A descriptive cross-sectional survey of PH providers across the United States was utilized to assess provider practices. Between September 14, 2017 to October 17, 2017, a survey was distributed electronically to PH experts assessing follow-up frequency and testing evaluation of patients with PAH. Results: 40 (11.4%) providers completed the survey, representing cardiologists, pulmonologists, and advanced practice providers at centers who cared for an average of 95 patients per year with PAH. Follow-up testing and clinic evaluation was influenced by severity of patient illness. Frequency of re-assessment of clinic follow-up, six-minute walk test, echocardiogram, brain natriuretic peptide, and right heart catheterization in various clinical scenarios all reflected disparate practice. Conclusions: Current clinical practice patterns in the monitoring of patients with PAH are variable and do not necessarily reflect guideline-based practices, suggesting the need for further research and improved guidelines on the frequency of follow up and repeat testing.

Lee J, Shaikh K, Nakanishi R, Gransar H, Achenbach S, Al-Mallah MH, Andreini D, Bax JJ, Berman DS, 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, de Araújo Gonçalves P, Pontone G, Rubinshtein R, Villines TC, Lu Y, Peña JM, Lin FY, Min JK, Shaw LJ and Budoff MJ (2022). "Prognostic significance of nonobstructive left main coronary artery disease in patients with and without diabetes: Long-term outcomes from the confirm registry." Heart, Lung, and Circulation. ePub Ahead of Print.

[Full Text](#)

Department of Internal Medicine/Cardiovascular Disease

Background: Prognostic significance of non-obstructive left main (LM) disease was recently reported. However, the influence of diabetes mellitus (DM) on event rates in patients with and without non-obstructive LM disease is not well-known. Methods: We evaluated 27,252 patients undergoing coronary computed tomographic angiography from the COroNary CT Angiography Evaluation For Clinical Outcomes: An International Multicenter (CONFIRM) Registry. Cumulative long-term incidence of all-cause mortality (ACM) was assessed between DM and non-DM patients by normal or non-obstructive LM disease (1-49% stenosis). Results: The mean age of the study population was 57.6 ± 12.6 years. Of the 27,252 patients, 4,434 (16%) patients had DM. A total of 899 (3%) deaths occurred during the follow-up of 3.6 ± 1.9 years. Compared to patients with normal LM, those with non-obstructive LM had more pronounced overall coronary atherosclerosis and more cardiovascular risk factors. After clinical risk factors, segment involvement score, and stenosis severity adjustment, compared to patients without DM and normal LM, patients with DM were associated with increased ACM regardless of normal (HR 1.48, 95% CI 1.22-1.78, $p < 0.001$) or non-obstructive LM (HR 1.46, 95% CI 1.04-2.04, $p = 0.029$), while nonobstructive LM disease was not associated with increased ACM in patients without DM (HR 0.85, 95% CI 0.67-1.07, $p = 0.165$) and there was no significant interaction between DM and LM status (HR 1.03, 95% CI 0.69-1.54, $p = 0.879$). Conclusion: From the CONFIRM registry, we demonstrated that DM was associated with increased ACM. However, the presence of non-obstructive LM was not an independent risk marker of ACM, and there was no significant interaction between DM and non-obstructive LM disease for ACM.

Lewis BE, Campbell CJ, Rodrigues A, Thompson L, Pandey AK, Gallagher SN, Pain D, Dancis A and Stemmler TL (2022). "Characteristics of the Isu1 C-terminus in relation to [2Fe-2S] cluster assembly and ISCU Myopathy." Journal of Biological Inorganic Chemistry 27(8): 759-773.

[Full Text](#)

Department of Foundational Medical Studies (OU)

Mitochondrial [2Fe-2S] cluster biosynthesis is driven by the coordinated activities of the Iron-Sulfur Cluster (ISC) pathway protein machinery. Within the ISC machinery, the protein that provides a structural scaffold on which [2Fe-2S] clusters are assembled is the ISCU protein in humans; this protein is referred to as the "Scaffold" protein. Truncation of the C-terminal portion of ISCU causes the fatal disease "ISCU Myopathy", which exhibits phenotypes of reduced Fe-S cluster assembly in cells. In this report, the yeast ISCU ortholog "Isu1" has been characterized to gain a better understanding of the role of the scaffold protein in relation to [2Fe-2S] assembly and ISCU Myopathy. Here we explored the biophysical characteristics of the C-terminal region of Isu1, the segment of the protein that is truncated on the human ortholog during the disease ISCU Myopathy. We characterized the role of this region in relation to iron binding, protein stability, assembly of the ISC multiprotein complex required to accomplish Fe-S cluster assembly, and finally on overall cell viability. We determined the Isu1 C-terminus is essential for the completion of the Fe-S cluster assembly but serves a function independent of protein iron binding.

Liu D, Jang S, Suh JD, Borrelli M, Nasrollahi T, Raskin J and Ference EH (2022). "Retained dental implant in the maxillary sinus." Ear, Nose and Throat Journal 101(10_suppl): 6S-11S.

[Full Text](#)

OUWB Medical Student Author

Implant dentistry has become a popularized means of replacing damaged or missing teeth. Although it has become common practice, there are accounts of implants displacing into surrounding structures, commonly the maxillary sinus. We present the case of a 54-year-old man who presented with chronic left sided pain and pressure found to be secondary to a displaced implant obstructing the left maxillary outflow sinus tract. A systematic review was conducted to assess the current management and treatment options for dental implants displaced into the maxillary sinus. Functional endoscopic sinus surgery (FESS) and the lateral window approach were both found to be safe techniques with minimal postoperative complications. © The Author(s) 2022.

Lopatin T, **Ko M**, Brown E, Goble D and Haworth J (2022). "Balance testing for patients with type 2 diabetes." Journal of Diabetes Science and Technology 16(6): 1582-1583.

[Full Text](#)

OUWB Medical Student Author

Loving B, **Ramanathan S**, Ye H, Marvin K, **Fontanesi J**, **Grills IS**, **Chinnaiyan P**, **Michael D** and **Chen PY** (2022). "A non-invasive stereotactic radiosurgery instrument stereotactic radiosurgery retreatment of trigeminal neuralgia: Prognostic factors and clinical outcomes." International Journal of Radiation Oncology, Biology, Physics 114(3): e421-e421.

[Full Text](#)

OUWB Medical Student Author

Department of Neurosurgery

Department of Radiation Oncology

Lynch A, Kozak AT and **Zalesin KC** (2022). ""The stomach I have now has a brain connection:" Changes in experiences of hunger and fullness following bariatric surgery." Appetite 179: 106271.

[Full Text](#)

Department of Internal Medicine/Nutrition & Preventative Medicine

The rate of obesity in the U.S. is at an all-time high of 42.4%, with 9.2% of cases falling in the severe obesity category. Bariatric surgery results in significant weight loss through two of the most popular options, sleeve gastrectomy and Roux-en-Y gastric bypass. One of the mechanisms through which these surgeries work is via the alteration of neural and hormonal appetite signaling, which leads to decreases in hunger and increases in fullness. The available measures for assessing hunger and fullness were not developed for use in bariatric surgery patients and do not capture physical hunger feelings or normal fullness. A longitudinal mixed-method study of 30 bariatric surgery patients (20% male, 20% African American) was designed to explore the physical and psychological feelings associated with hunger and fullness. Participants were recruited from an accredited bariatric surgery center and interviewed prior to surgery and 6 and 12-months after surgery. Transcripts were coded using a constant comparative method. Themes were created using a grounded theory approach. Different pathways were discovered such that participants' experiences of hunger and fullness varied compared to each other, as well as over time. Hunger had physical and psychological qualities, whereas fullness was generally only described as being physical. These results suggest that pre-surgery and post-surgery counseling should be customized in regard to appetite. Measures should be developed to better capture the true experiences of hunger and fullness among bariatric surgery patients.

Maldonado TS, Dexter DJ, **Kado H**, Schor J, Annambhotla S, Mojibian H and Beasley RE (2022). "Outcomes from the ClotTrier outcomes registry show symptom duration may underestimate deep vein thrombus chronicity." Journal of Vascular Surgery: Venous and Lymphatic Disorders 10(6): 1251-1259.

[Full Text](#)

Department of Internal Medicine/Cardiovascular Disease

Objective: The all-comer ClotTriever Outcomes registry assessed indicators of thrombus chronicity in patients with acute, subacute, and chronic lower extremity deep vein thrombosis (DVT). The effectiveness of the ClotTriever System (Inari Medical, Irvine, CA) by chronicity subgroup was also assessed and reported here in this subanalysis. Methods: All-comer patients with lower extremity DVT were enrolled, with no limitation based on the patients' symptom duration. Chronicity was assessed three times and compared: before the procedure based on symptom duration, during the procedure based on available pre-thrombectomy imaging, and visual inspection of the extracted thrombus morphology after thrombectomy. Patients were grouped into acute, subacute, and chronic subgroups according to their post-thrombectomy thrombus chronicity based on thrombus morphology. Analyses on baseline and procedural characteristics along with thrombus removal were performed across subgroups. The effectiveness of thrombus removal was determined by Marder scores adjudicated by an independent core laboratory, with a prespecified primary effectiveness end point of complete or near-complete ($\geq 75\%$) thrombus removal. Results: Of the 260 treated limbs from 250 patients, using symptom duration alone, 70.7% were considered acute, 20.9% subacute, and 8.4% chronic. Upon visual inspection, the extracted thrombus chronicity was approximately one-third in each subgroup: 32.7% had acute thrombus, 35.4% subacute thrombus, and 31.9% chronic thrombus. Chronicity assessed using symptom duration alone mismatched the post-thrombectomy chronicity in 55.1% of limbs ($P < .0001$) with 49.0% being more chronic than suggested by the patients' duration of symptoms. Chronicity assessed using pre-thrombectomy imaging mismatched the post-thrombectomy chronicity in 17.5% of limbs ($P < .0001$). No patients received thrombolytics and 99.6% were treated in a single session. Complete or near-complete thrombus removal was achieved in a high percentage of limbs regardless of thrombus chronicity: 90.8%, 81.9%, and 83.8% in limbs with acute, subacute, and chronic thrombus, respectively. Conclusions: This subanalysis from the all-comer ClotTriever Outcomes registry demonstrates that extracted thrombus in DVT may be more chronic than suggested by the patients' duration of symptoms. The addition of imaging is helpful to determine the ability of thrombus to respond to therapy. Irrespective of thrombus chronicity, the ClotTriever system can be effective at removing acute, subacute, and chronic thrombus in a single-session procedure without the need for thrombolytics.

Malik K, Alam F, **Santamaria J**, Krishnamurthy M and Malik G (2022). "Toward grading subarachnoid hemorrhage risk prediction: A machine learning-based aneurysm rupture score." World Neurosurgery. ePub Ahead of Print.

[Full Text](#)

OUWB Medical Student Author

Background: Existing approaches neither provide an accurate prediction of subarachnoid hemorrhage (SAH) nor offer a quantitative comparison among a group of its risk factors. Objective: To evaluate the PHASES and UIATS scores and develop an Artificial Intelligence-based 5-year and lifetime aneurysmal rupture criticality prediction (ARCP) score for a set of risk factors. Methods: We design various location-specific and ensemble learning models to develop lifetime rupture risk, employ the longitudinal data to develop a linear regression-based model to predict an aneurysm's growth score, and use the Apriori algorithm to identify risk factors strongly associated with SAH. We develop ARCP by integrating output of Apriori algorithm and ML models and compare with PHASES and UIATS scores along with the scores of a multidisciplinary team of neurosurgeons. Results: The PHASES and UIATS scores show sensitivities of 22%, and 35%, and specificities of 76% and 79%, respectively. Location-specific models show precision and recall of 93% and 90% for the Middle Cerebral Artery, 83% and 80% for the Anterior Communicating Artery, and 80% and 80% for the Supraclinoid Internal Carotid Artery. The ensemble method shows both precision and recall of 80%. The validation of the models shows that ARCP performs better than our

control group of neurosurgeons. Data-driven knowledge produces comparisons among 61 risk factor combinations, 11 ranked minor, 8 moderate, 41 severe, and one of which is a critical factor. Conclusion: The PHASES and UIATS are weak predictors, and the ARCP score can identify, and grade, risk factors associated with SAH.

Mansour MR, Abushukur Y, Rehman RA, Shah C and Mehregan D (2022). "Radiotherapy-induced vitiligo: A systematic review of patient demographics and clinical characteristics of vitiligo following radiation therapy." Journal of the American Academy of Dermatology 87(6): 1445-1448.

[Full Text](#)

OUWB Medical Student Author

Martinez-Cano JP, Gobbi RG, Giglio PN, Arendt E, Costa GB and **Hinckel BB (2022).** "Magnetic resonance imaging overestimates patellar height compared with radiographs." Knee Surgery, Sports Traumatology, Arthroscopy 30(10): 3461-3469.

[Full Text](#)

Department of Orthopaedic Surgery

Purpose: To evaluate the inter-observer and inter-method reliability for patellar height measurements between conventional radiographs (CR) and magnetic resonance imaging (MRI) using one or two slices. Methods: This was a reliability study, with 60 patients divided in two groups: 30 patients with patellar instability (patella group) and 30 patients with anterior cruciate ligament or meniscus injury (control group). CR and MRI were evaluated by two independent observers. Insall-Salvati index (IS) and Caton-Deschamps index (CD) were measured using three different methods: CR, one-slice MRI or two-slice MRI. Intra-class correlation coefficients (ICC) were calculated for inter-observer reliability and inter-method reliability. Bland-Altman agreement was also calculated. Results: The inter-observer reliability was very good for the IS with ICCs of 0.93, 0.84 and 0.82, for the CR, one-slice MRI and two-slice MRI, respectively. Similarly, for the CD the ICCs were good, 0.76, 0.80 and 0.75 for the CR, one-slice MRI and two-slice MRI, respectively. No differences were found between the patella and the control group. The inter-method analysis results were: ICCs for IS (0.83, 0.86, 0.93) and CD (0.72, 0.82, 0.83), for the comparisons of CR/one-slice MR, CR/two-slice MRI and one-slice MRI/two-slice MRI, respectively. The Bland-Altman mean differences showed an 8% and a 7% increase on IS values with one-slice MRI and two-slice MRI compared to CR results, while the increase was of 9% and 1% in CD for the respective comparisons with CR. Conclusion: MRI can overestimate patellar height compared to CR, as much as an 8% increase in Insall-Salvati values when using one- or two-slice MRI measurements, and up to a 9% increase in Caton-Deschamps value when using the one-slice MRI method. It is recommended to use the CR as the preferred method when measuring patellar height. LEVEL OF EVIDENCE: III.

Mehta NK, Allam S, Mazimba S and Karim S (2022). "Racial, ethnic, and socioeconomic disparities in out-of-hospital cardiac arrest within the United States: Now is the time for change." Heart Rhythm O2 3(6): 857-863.

[Full Text](#)

Department of Internal Medicine/Cardiovascular Disease

This review highlights the current evidence on racial, ethnic, and socioeconomic disparities in cardiac arrest outcomes within the United States. Several studies demonstrate that patients from Black, Hispanic, or lower socioeconomic status backgrounds suffer the most from disparities at multiple levels of the resuscitation pathway, including in the provision of bystander cardiopulmonary resuscitation, defibrillator usage, and postresuscitation therapies. These gaps in care may altogether lead to lower survival rates and worse neurological outcomes for these patients. A multisystem, culturally sensitive approach to improving cardiac arrest outcomes is suggested in this article. © 2022 Heart Rhythm Society

Meier KM, Zheng AN, **Rollins ZH**, **Asantey KA**, Shah MD, **Banooni AB** and **Liss ZJ** (2022). "Elimination of postoperative narcotics in infant robotic pyeloplasty using caudal anesthesia and a non-narcotic pain pathway." *Journal of Endourology* 36(11): 1431-1435.

[Request Form](#)

OUWB Medical Student Author

Department of Anesthesiology

Department of Urology

Introduction: Research suggests that narcotic pain medications are dramatically overprescribed. We hypothesize that narcotics are unnecessary for postoperative pain control in most infants undergoing robotic pyeloplasty. In this series, we report our experience combining caudal blocks with a non-narcotic postoperative pathway as a means of eliminating postoperative narcotics after infant robotic pyeloplasty. Methods: We reviewed 24 consecutive patients who underwent robotic pyeloplasty by a single surgeon treated with an end-procedure caudal block followed by a non-narcotic postoperative pain pathway treated between May 2017 and May 2021. The standardized postoperative pathway consisted of an end-procedure caudal block followed by alternating intravenous acetaminophen and ketorolac. We reviewed demographics, outcomes, and unscheduled health care encounters within 30 postoperative days. Results: Sixty-three percent (15/24) of patients were male and average age was 12.1 months (range 4-34 months). Fifty-eight percent (9/15) underwent surgery on the left, and 16.7% (4/24) of patients received a single postoperative dose of narcotics in the postanesthesia care unit. No patient required narcotic prescriptions at discharge or anytime thereafter. The average length of stay was 1.13 days. There was no pain-related unscheduled visits or phone calls after discharge. Conclusions: This series shows that a non-narcotic standardized pain management strategy is a viable option for infants undergoing robotic pyeloplasty. Postprocedure caudal block is a good addition to a non-narcotic pathway. In the future, we intend to expand these findings to other pediatric urologic procedures in the hope of eliminating unnecessary narcotic use.

Middelberg LK, Leonard JC, Shi J, Aranda A, Brown JC, Cochran CL, Eastep K, Haasz M, Hoffmann JA, Koral A, Lamoshi A, Levitte S, Lo YHJ, Montminy T, Myer S, **Novotny NM**, Parrado RH, Ruan W, Stewart AM, Talathi S, Tavaréz MM, Townsend P, Zaytsev J and Rudolph B (2022). "Warning labels and high-powered magnet exposures." *Pediatrics* 150(5): e2022056325.

[Full Text](#)

Department of Surgery

Background and Objectives: High-powered magnets are among the most dangerous childhood foreign bodies. Consumer advocates and physicians have called for these products to be effectively banned, but manufacturers assert warning labels would sufficiently mitigate risk. Methods: Subjects from Injuries, Morbidity, and Parental Attitudes Concerning Tiny High-powered Magnets (IMPACT of Magnets), a retrospective, multicenter study of children with high-powered magnet exposures (ie, ingestion or bodily insertion), were contacted. Consenting participants responded to a standardized questionnaire regarding the presence and utility of warning labels, magnet product manufacturer, and attitudes around risk. Results: Of 596 patients in the IMPACT study, 173 parents and 1 adult patient were reached and consented to participate. The median age was 7.5 years. Subjects reported not knowing if a warning label was present in 60 (53.6%) cases, whereas 25 (22.3%) stated warnings were absent. Warnings were present in 28 (24.1%) cases but only 13 (46.4%) reported reading them. A manufacturer was identified by families in 28 (16.1%) exposures; 25 of these were domestic and 27 had warnings. Subjects reported knowing magnets were dangerous in 58% of the cases, although 44.3% believed they were children's toys and only 6.9% knew high-powered magnets were previously removed from the United States market. Conclusions: Over 90% of subjects from the IMPACT study didn't know if warning labels were present or failed to read them if they were, whereas almost half believed high-powered magnets were

children's toys. Warning labels on high-powered magnet products are, therefore, unlikely to prevent injuries in children.

Miller JE, McCormick JP, **Raskin J**, Borrelli M, Nasrollahi T and Suh JD (2022). "Endoscopic management of a post-traumatic internal maxillary artery pseudoaneurysm: Case report and review of the literature." Ear, Nose & Throat Journal 101: 40S-43S.

[Full Text](#)

OUWB Medical Student Author

Internal maxillary artery (IMA) pseudoaneurysms are rare, and typically occur following trauma or orthognathic surgery. Pseudoaneurysms are life-threatening conditions, and expeditious workup and treatment is critical. Endoscopic treatment of an IMA pseudoaneurysm is a feasible option and should be considered when IR embolization is not available. The objective of this study is to review the literature on IMA pseudoaneurysms and present the first reported case of an IMA pseudoaneurysm successfully treated endoscopically.

Moussa MT, Scoles D, Branham K, Fahim AT and **Capone A** (2022). "Clinical and imaging findings of Choroideremia in a pediatric patient due to a novel frameshift mutation." American Journal of Ophthalmology Case Reports 28.

[Full Text](#)

OUWB Medical Student Author

Department of Ophthalmology

Purpose: To describe the clinical characteristics, imaging findings and genetic testing results of a young simplex male with choroideremia. Observations: A 6-year-old Hispanic-Chinese male was referred to the retina clinic for peripheral retinal pigmentary changes observed in both eyes on routine exam. The patient has an unremarkable family history and developmental history. Best corrected visual acuity was 20/25 in both eyes. Optical coherence tomography demonstrated attenuation of the ellipsoid and interdigitation zones. Widefield fundus autofluorescence demonstrated nummular hypo-autofluorescence peripherally in both eyes. Genetic testing revealed a variant originally described as a variant of uncertain significance (VUS) a c. 1775_1814del (p.Glu592Valfs*44) identified in the CHM gene, which was reclassified as pathogenic following segregation analysis. The patient was diagnosed with choroideremia due to a CHM pathogenic variant. Conclusions: The multimodal imaging findings demonstrated here illustrate important clues to the diagnosis of Choroideremia in a simplex male.

Nandalur KR, Walker D, Ye H, Al-Katib S, Seifman B, Gangwish D, Dhaliwal A, Connor E, Dobies K, Sesoko C, Dejoie W, **Zwaans B, Nandalur S, Nguyen J** and **Hafron J** (2022). "Impact of the bladder detrusor muscular ring on lower urinary tract symptoms due to benign prostatic hyperplasia: A quantitative MRI analysis." Prostate. ePub Ahead of Print.

[Full Text](#)

Department of Radiation Oncology

OUWB Medical Student Author

Department of Diagnostic Radiology and Molecular Imaging

Department of Urology

Background: The etiology of lower urinary tract symptoms secondary to benign prostatic hyperplasia (LUTS/BPH) remains uncertain. Objective: The purpose of our study was to quantitatively analyze anatomic characteristics on magnetic resonance imaging (MRI) to assess novel independent factors for symptoms. Methods: This retrospective single-institution study evaluated treatment-naive men who underwent prostate MRI within 3 months of international prostate symptom score (IPSS) scoring from June 2021 to February 2022. Factors measured on MRI included: size of the detrusor muscular ring

(DMR) surrounding the bladder outlet, central gland (CG) mean apparent diffusion coefficient (ADC), levator hiatus (LH) volume, intrapelvic volume, intravesicular prostate protrusion (IPP) volume, CG volume, peripheral zone (PZ) volume, prostate urethra angle (PUA), and PZ background ordinal score. Multivariable logistic regression and receiver operating characteristic analysis were used to analyze factors for moderate/severe (IPSS ≥ 8) and severe LUTS/BPH (IPSS ≥ 20). Results: A total of 303 men (mean age: 66.1 [SD: 8.1]) were included: 154 demonstrated moderate or severe symptoms with 28 severe and 149 with asymptomatic/mild symptoms. Increasing age [$p = 0.02$; odds ratio (OR): 1.05 (1.01-1.08)], PUA [$p = 0.02$; OR: 1.05 (1.01-1.09)], LH volume [$p = 0.04$; OR: 1.02 (1.00-1.05)], and DMR size measured as diameter [$p < 0.001$; OR: 5.0 (3.01-8.38)] or area [$p < 0.001$; OR: 1.92 (1.47-2.49)] were significantly independently associated with moderate/severe symptoms, with BMI [$p = 0.02$; OR: 0.93 (0.88-0.99)] inversely related. For every one cm increase in DMR diameter, patients had approximately five times the odds for moderate/severe symptoms. Increasing DMR size [diameter $p < 0.001$; OR: 2.74 (1.76-4.27) or area $p < 0.001$; OR: 1.37 (1.18-1.58)] was independently associated with severe symptoms. Optimal criterion cutoff of DMR diameter for moderate/severe symptoms was 1.2 cm [sensitivity: 77.3; specificity: 71.8; AUC: 0.80 (0.75-0.84)]. Inter-reader reliability was excellent for DMR diameter [ICC = 0.92 (0.90-0.94)]. Conclusion: Expansion of the DMR surrounding the bladder outlet is a novel anatomic factor independently associated with moderate and severe LUTS/BPH, taking into account prostate volumes, including quantified IPP volume, which were unrelated. Detrusor ring diameter, easily and reliably measured on routine prostate MRI, may relate to detrusor dysfunction from chronic stretching of this histologically distinct smooth muscle around the bladder neck.

Navin MC, **Brummett AL** and **Wasserman JA** (2022). "Three kinds of decision-making capacity for refusing medical interventions." American Journal of Bioethics 22(11): 73-83.

[Full Text](#)

Department of Foundational Medical Studies (OU)

According to a standard account of patient decision-making capacity (DMC), patients can provide ethically valid consent or refusal only if they are able to understand and appreciate their medical condition and can comparatively evaluate all offered treatment options. We argue instead that some patient refusals can be capacitated, and therefore ethically authoritative, without meeting the strict criteria of this standard account—what we call comparative DMC. We describe how patients may possess burdens-based DMC for refusal if they have an overriding objection to at least one burden associated with each treatment option or goals-based DMC for refusal if they have an overriding goal that is inconsistent with treatment. The overridingness of a patient's objections to burdens, or of their commitment to a goal, can justify the moral authority of their refusal, even when a patient lacks some of the cognitive capacities that standard accounts of DMC involve.

Ngo HG, Dandu C, **Gibney BL** and **Kuang SY** (2022). "Six logical steps that connect the introduction of the Nernst equation to its clinical application." Advances in Physiology Education 46(4): 540-543.

[Full Text](#)

OUWB Medical Student Author

Department of Foundational Medical Studies (OU)

The Nernst equation is key to understanding the electrophysiology of the cell membrane and the pathophysiology of K⁺ imbalances (i.e., hyperkalemia and hypokalemia). However, in our experience teaching medical students over the years, many students struggle to make connections between a brief introduction of the Nernst equation and its clinical application to K⁺ imbalances. This article aims to connect the introduction of the equation to its clinical application to understand K⁺ imbalances using six logical steps with detailed visual illustrations that make the connection explicit and cohesive. In addition, we highlight a few common areas related to the six steps that are often overlooked by both teachers

and students. Students who are able to thoroughly demonstrate an understanding of all the six steps highlighted in this article will achieve mastery of this topic. **NEW & NOTEWORTHY** This article fills the gaps in teaching about the Nernst equation, which is important in medical physiology. Six logical steps are presented that connect the introduction of the equation to its clinical applications to hyperkalemia and hypokalemia, two conditions that can be life-threatening if left untreated. Only when students know how to apply the equation will their learning transition from surface to mastery. © 2022 the American Physiological Society.

Novotny NM, Hamouri S, Kayal D, Abukhalaf S, Aqra H, Amro W and Shaltaf A (2022). "Global health challenges: Why the four S's are not enough." *Children* 9(12): 1867.

[Full Text](#)

Department of Surgery

OUWB Medical Student Author

A well-known tenant of global health is the need for the four-S's to be successful in providing care in any context; Staff, Stuff, Space and Systems. Advanced thoracoscopy is slow to gain traction in low- and middle-income countries (LMICs). To our knowledge, no pediatric advanced thoracoscopy had been attempted previously in either LMIC. Therefore, we report the challenges associated with the adoption of the first advanced thoracoscopic procedures in two LMIC hospitals by a visiting surgeon. To further identify aspects of care in promoting the introduction of advanced thoracoscopy, we added a fifth S as an additional category—Socialization. A key to accomplishing goals for the patients as a visiting surgeon, particularly when introducing an advanced procedure, is acceptance into the culture of a hospital. Despite facing significant obstacles in caring for complex thoracic pathology with heavy reliance on disposable and reusable instrumentation provided through donation and limitations in staff such as access to neonatologists and pediatric surgeons, many obstacles have been overcome. In this perspective article, we show that a "fifth S" is also integral—having local surgeons and anesthesiologists eager to learn with acceptance of the visiting surgeon's expertise opens a path towards attempting advanced procedures in limited-resource settings.

Oberleitner LMS, Lucia VC, Navin MC, Ozdych M, N MA, Kennedy RH, Keil H, Wu L and Mathew TA (2022). "COVID-19 vaccination concerns and reasons for acceptance among us health care personnel." *Public Health Reports* 137(6): 1227-1234.

[Full Text](#)

Department of Foundational Medical Studies (BH)

Department of Foundational Medical Studies (OU)

Department of Internal Medicine/Infectious Disease

Objectives: Because health care personnel (HCP) are potentially at increased risk of contracting COVID-19, high vaccination rates in this population are essential. The objective of this study was to assess vaccination status, barriers to vaccination, reasons for vaccine acceptance, and concerns about COVID-19 vaccination among HCP. **Methods:** We conducted an anonymous online survey at a large US health care system from April 9 through May 4, 2021, to assess COVID-19 vaccination status and endorsement of reasons for acceptance and concerns related to vaccination (based on selections from a provided list). **Results:** A total of 4603 HCP (12.2% response rate) completed the survey, 3947 (85.7%) had received at least 1 dose of a COVID-19 vaccine at the time of the survey, and 550 (11.9%) reported no plans to receive the vaccine. Unvaccinated HCP were 30 times more likely than vaccinated HCP to endorse religious or personal beliefs as a vaccine concern (odds ratio = 30.95; 95% CI, 21.06-45.48) and 15 times more likely to believe that personal vaccination is not needed if enough others are vaccinated (odds ratio = 14.99; 95% CI, 10.84-20.72). The more reasons endorsed for vaccination ($\beta = 0.60$; $P < .001$), the higher the likelihood of having received the vaccine. However, the number of concerns about COVID-19

vaccine was not related to vaccination status ($\beta = 1.01$; $P = .64$). Conclusions: Our findings suggest that reasons for vaccination acceptance and concerns about vaccination need to be considered to better understand behavioral choices related to COVID-19 vaccination among HCP, because these beliefs may affect vaccination advocacy, responses to vaccine mandates, and promotion of COVID-19 vaccine boosters.

Oliveira S, Andrade R, Silva FS, Espregueira-Mendes J, **Hinckel BB**, Leal A and Carvalho Ó (2022). "Effects and mechanotransduction pathways of therapeutic ultrasound on healthy and osteoarthritic chondrocytes: A systematic review of in vitro studies." [Osteoarthritis Cartilage](#). ePub Ahead of Print.

[Full Text](#)

Department of Orthopaedic Surgery

Objective: To investigate the effects and mechanotransduction pathways of therapeutic ultrasound on chondrocytes. Method: PubMed, EMBASE and Web of Science databases were searched up to 19(th) September 2021 to identify in vitro studies exploring ultrasound to stimulate chondrocytes for osteoarthritis (OA) treatment. Study characteristics, ultrasound parameters, in vitro setup, and mechanotransduction pathways were collected. Risk of bias was judged using the Risk of Bias Assessment for Non-randomized Studies (RoBANS) tool. Results: Thirty-one studies were included comprising healthy and OA chondrocytes and explants. Most studies had high risk of performance, detection and pseudoreplication bias due to lack of temperature control, setup calibration, inadequate semi-quantitatively analyzes and independent experiments. Ultrasound was applied to the culture plate via acoustic gel, water bath or culture media. Regardless of the setup used, ultrasound stimulated the cartilage production and suppressed its degradation, although the effect size was nonsignificant. Ultrasound inhibited p38, c-Jun N-terminal kinases (JNK) and factor nuclear kappa B (NFkB) pathways in OA chondrocytes to reduce apoptosis, inflammation and matrix degradation, while triggered phosphoinositide-3-kinase/akt (PI3K/Akt), extracellular signal-regulated kinase (ERK), p38 and JNK pathways in healthy chondrocytes to promote matrix synthesis. Conclusion: The included studies suggest that ultrasound application induces therapeutic effects on chondrocytes. However, these results should be interpreted with caution because high risk of performance, detection and pseudoreplication bias were identified. Future studies should explore the application of ultrasound on human OA chondrocytes cultures to potentiate the applicability of ultrasound towards cartilage regeneration of knee with OA.

Olomu A, Tikaria R, Kelly-Blake K, Hart-Davidson W, Wang L, **Alroshood Z**, Israel A and Holmes-Rovner M (2022). "Type 2 diabetes patient activation and mHealth interventions decreased cardiovascular disease risk " [American Journal of Managed Care](#) 28(11).

[Full Text](#)

OUWB Medical Student Author

Objectives: Cardiovascular disease (CVD) deaths in patients with type 2 diabetes (T2D) are 2 to 4 times higher than among those without T2D. Our objective was to determine whether a patient activation program (Office-Guidelines Applied to Practice [Office-GAP]) plus a mobile health (mHealth) intervention compared with mHealth alone improved medication use and decreased 10-year atherosclerotic CVD (ASCVD) risk score in patients with T2D. Study Design: Quasi-experimental design; Office-GAP plus mHealth vs mHealth only. Methods: The Office-GAP intervention included (1) a patient activation group visit, (2) provider training, and (3) a decision support checklist used in real time during the encounter. The mHealth intervention included daily text messages for 15 weeks. Patients with T2D (hemoglobin A1c $\geq 8\%$) attending internal medicine residency clinics were randomly assigned to either the combined Office-GAP + mHealth group (Green) or mHealth-only group (White). After group visits, patients followed up with providers at 2 and 4 months. A generalized estimating equation regression

model was used to compare change in medication use and ASCVD risk scores between the 2 arms at 0, 2, and 4 months. Results: Fifty-one patients with diabetes (26 in Green team and 25 in White team) completed the study. The 10-year ASCVD risk score decreased in both groups (Green: -3.23; P = .06; White: -3.98; P = .01). Medication use increased from baseline to 4-month follow-up (statin: odds ratio [OR], 2.20; 95% CI, 1.32-3.67; aspirin: OR, 3.21, 95% CI, 1.44-7.17; angiotensin-converting enzyme inhibitor/angiotensin receptor blocker: OR, 2.67, 95% CI, 1.09-6.56). There was no significant difference in impact of the combined intervention (Office-GAP + mHealth) compared with mHealth alone. Conclusions: Both Office-GAP + mHealth and mHealth alone increased the use of evidence-based medications and decreased 10-year ASCVD risk scores for patients with T2D in 4 months.

Ortiz DA, Legenza LM, Olson BJ, Knapp CC, Killian SB, Meece JK, Hall MC and Fritsche TR (2022). "Surveillance for multidrug resistant escherichia coli carriage in cattle, dogs and humans reveals predominance of CMY-2, CTX-M-15 and CTX-M-9 groups of β -lactamases." Comparative Immunology, Microbiology and Infectious Diseases 89: 101880.

[Full Text](#)

Department of Pathology

Global spread of antimicrobial multidrug resistance (MDR) in human and veterinary medicine relies upon diagnostics, surveillance and stewardship to guide mitigation. Utilizing surveillance of fecal samples from our service area for detecting MDR Escherichia coli carriage in humans (2143), dogs (627), and cattle (130), we found isolates resistant to third/fourth generation cepheims present in 3.7 %, 13.1 %, and 51.5 %, respectively. CMY-2, CTX-M-15-like and CTX-M9 group genes in descending order were predominant in all hosts and accounted for 83.3 % of non-wild-type gene targets. MDR carriage mirrored cephem non-susceptibility rates as published in annual antibiograms for humans and dogs; notably, no carbapenem-resistant carriage isolates were detected. Given the scale of MDR E. coli carriage in cattle (14X) and dogs (3.5X) compared to humans, bench-marking of the resistance gene pool by host species utilizing regional One Health surveillance may aid in assessing occupational and geographic risks for acquiring resistance and for monitoring of mitigation strategies.

Osei SK, **Long GW**, **Sharrak A**, **Derias N**, Goodson R, 3rd, Callahan RE, Studzinski DM and **Brown OW** (2022). "Incidence of venous thromboembolism in patients with sickle cell disease undergoing noncardiovascular surgery." Journal of Vascular Surgery: Venous Lymphatic Disorders. ePub Ahead of Print.

[Full Text](#)

OUWB Medical Student Author

Department of Surgery

Objective: Patients with sickle cell disease (SCD) will have a baseline hypercoagulable state and an increased risk of venous thromboembolism (VTE). Few data are available regarding the efficacy of standard prophylaxis in preventing VTE after noncardiovascular surgery for patients with SCD. Our objective was to investigate the incidence of VTE in patients with SCD who had undergone noncardiovascular surgery. Methods: We performed a retrospective medical record review of 352 patients with SCD who had undergone noncardiovascular surgery from August 2009 to August 2019 at Beaumont Hospitals. An equal number of control patients without SCD were propensity matched for age, sex, race, body mass index, and specific surgery. The data collected included demographics, comorbidities, VTE prophylaxis used, occurrence of deep vein thrombosis (DVT) and pulmonary embolism (PE), hospital length of stay, and 30-day mortality. Results: We found no differences in age, race, sex, ethnicity, operative time, or hospital length of stay between the SCD and propensity-matched control patients. DVT prophylaxis was used more frequently for the SCD patients than for the controls (96.0% vs 88.6%; P < .001). Four SCD patients (1.1%) had developed DVT vs five control patients (1.4%; P > .999). One patient in each group had developed PE (0.3%; P > .999). No difference was found in 30-day

mortality between the SCD group and the control group (1 [0.3%] vs 3 [0.9%]; P = .312). Of those with a diagnosis of VTE \leq 30 days postoperatively, no differences were present in age, sex, race, BMI, or procedure type. DVT had been diagnosed significantly later in the SCD patients than in the controls (median, postoperative day 12 vs 5; P = .014). None of the five SCD patients with VTE was a smoker compared with four of the six non-SCD patients with VTE, who were current or former tobacco users (P = .061). All the patients who had developed VTE had received DVT prophylaxis at surgery. Conclusions: We found no differences in the perioperative rates of DVT, PE, or mortality between the SCD patients and matched control patients after noncardiovascular surgery. Vigilant attention to routine VTE prophylaxis seemed to effectively reduce the VTE risk for these hypercoagulable patients. SCD patients might need VTE prophylaxis for a longer period postoperatively compared with those without SCD.

Osto M, Smidi SA, Alnabolsi A, **Rehman R** and Potts G (2022). "An evidence-based approach for malignancy-associated and paraneoplastic generalized granuloma annulare." Journal of the American Academy of Dermatology 87(4): 876-878.

[Full Text](#)

OUWB Medical Student Author

Owen DH, Singh N, Ismaila N, Blanchard E, Celano P, Florez N, Jain D, Leighl NB, Mamdani H, Masters G, Moffitt PR, Naidoo J, Phillips T, Riely GJ, Robinson AG, Schenk E, Schneider BJ, Sequist L, Spigel DR and **Jaiyesimi IA** (2022). "Therapy for stage IV non-small-cell lung cancer without driver alterations: ASCO living guideline, version 2022.2." Journal of Clinical Oncology. ePub Ahead of Print.

[Full Text](#)

Department of Internal Medicine/Hematology-Oncology

Living guidelines are developed for selected topic areas with rapidly evolving evidence that drives frequent change in recommended clinical practice. Living guidelines are updated on a regular schedule by a standing expert panel that systematically reviews the health literature on a continuous basis, as described in the ASCO Guidelines Methodology Manual. ASCO Living Guidelines follow the ASCO Conflict of Interest Policy Implementation for Clinical Practice Guidelines. Living Guidelines and updates are not intended to substitute for independent professional judgment of the treating provider and do not account for individual variation among patients. See Appendix 1 (online only) for disclaimers and other important information. Updates are published regularly and can be found at <https://ascopubs.org/nscl-non-da-living-guideline>.

Padmanaban V, Yee PP, Koduri S, Zaidat B, Daou BJ, Chaudhary N, Gemmete JJ, Thompson BG, **Kazmierczak CD**, Cockroft KM, Pandey AS and Wilkinson DA (2022). "Neuroendovascular procedures in patients with Ehlers-Danlos type IV: Multicenter case series and systematic review." World Neurosurgery. ePub Ahead of Print.

[Full Text](#)

Department of Diagnostic Radiology and Molecular Imaging

Background: Ehlers-Danlos type IV or vascular Ehlers-Danlos syndrome (vEDS) is a rare inherited disorder characterized by profound vascular fragility resulting from defective production of type III procollagen. Cerebrovascular diseases including spontaneous dissections, cerebral aneurysms, and cavernous carotid fistulae are common. Endovascular therapies in this patient population are known to be higher risk, although many studies (before 2000) involved older techniques and equipment. The purpose of this study is to investigate the safety and efficacy of modern neuroendovascular techniques in the treatment of cerebrovascular diseases in patients with vEDS. Methods: We combined a multi-institutional retrospective case series at 3 quaternary-care centers with a systematic literature review of individual case reports and case series spanning 2000-2021 to evaluate the safety and efficacy of

neuroendovascular procedure in patients with vEDS with cerebrovascular diseases. Results: Fifty-nine patients who underwent 66 neuroendovascular procedures were evaluated. Most of the patients had direct cavernous carotid fistulas (DCCF). Neuroendovascular procedures had a 94% success rate, with a complication rate of 30% and a mortality of 7.5%. Conclusions: Neuroendovascular procedures can be performed with a high rate of success in the treatment of cerebrovascular diseases in patients with vEDS, although special care is required because complication rates and mortality are high. Access site and procedure-related vascular injuries remain a significant hurdle in treating vEDS with cerebrovascular diseases, even with modern techniques.

Pado K, Fraus K, **Mulhem E** and Taku K (2022). "Posttraumatic growth and second victim distress resulting from medical mishaps among physicians and nurses." Journal of Clinical Psychology in Medical Settings. ePub Ahead of Print.

[Full Text](#)

Department of Family Medicine and Community Health

Medical mishaps are well-known sources of distress. However, some mishaps may give medical professionals an opportunity to experience personal growth. We examined the associations between medical mishaps, second victim distress, and posttraumatic growth. A total of 157 physicians and 139 nurses completed a survey that included questions about mishaps, Second Victim Experience and Support Tool and the Posttraumatic Growth Inventory. Overall, 82.8% of the physicians and 48.9% of the nurses experienced at least one mishap. Lack of training, rumination, and impact of mishaps were associated with distress among nurses, whereas rumination, impact, and stressfulness were associated with distress among physicians. On the other hand, the impact of mishaps is the only factor that was associated with posttraumatic growth among nurses, whereas none with physicians. This study suggests that the posttraumatic growth from medical mishaps is not associated with the theory-driven event-related factors, and highlights the importance of further investigation.

Pandey S, Aggarwal N, Edhi A and **Jamil LH** (2022). "Dislodged lumen-apposing metal stent (LAMS) in endoscopic ultrasound guided gastrojejunostomy (EUS- GJ) salvaged by LAMS-in-LAMS technique." Gastrointestinal Endoscopy. ePub Ahead of Print.

[Full Text](#)

Department of Internal Medicine/Gastroenterology

Patel R, Woo K, Wakefield TW, Beaulieu RJ, Khashram M, De Caridi G, Benedetto F, Shalhub S, El-Ghazali A, Silpe JE, Rosca M, Cohnert TU, Siegl GK, Abularrage C, Sorber R, Wittgen CM, **Bove PG, Long GW**, Charlton-Ouw KM, Ray HM, Lawrence P and Baril D (2022). "Contemporary management and outcomes of peripheral venous aneurysms: A multi-institutional study." Journal of Vascular Surgery: Venous and Lymphatic Disorders. Vol. 10: 1352-1358.

[Full Text](#)

Department of Surgery

Objective: Extremity venous aneurysms result in the risk of pulmonary embolism (PE) and chronic venous insufficiency. At present, owing to the rarity of these aneurysms, no consensus for their treatment has been established. The purpose of the present study was to review the presentation, natural history, and contemporary management of extremity venous aneurysms. Methods: We performed a retrospective, multi-institutional review of all patients with extremity venous aneurysms treated from 2008 to 2018. A venous aneurysm was defined as saccular or fusiform with an aneurysm/vein ratio of >1.5. Results: A total of 66 extremity aneurysms from 11 institutions were analyzed, 40 of which were in a popliteal location, 14 iliofemoral, and 12 in an upper extremity or a jugular location. The median follow-up was 27 months (range, 0-120 months). Of the 40 popliteal

venous aneurysms, 8 (20%) had presented with deep vein thrombosis (DVT) or PE, 13 (33%) had presented with pain, and 19 had been discovered incidentally. The mean size of the popliteal venous aneurysms presenting with DVT or PE was larger than that of those presenting without thromboembolism (3.8 cm vs 2.5 cm; $P = .003$). Saccular aneurysm morphology in the lower extremity was associated with thromboembolism (30% vs 9%; $P = .046$) and fusiform aneurysm morphology with a thrombus burden $>25\%$ (45% vs 3%). Patients presenting with thromboembolism were more likely to have had a thrombus burden $>25\%$ in their lower extremity venous aneurysm compared with those who had presented without thromboembolism (70% vs 9%). Approximately half of all the patients underwent immediate intervention, and half were managed with observation or antithrombotic regimen. In the non-operative cohort, three patients subsequently developed a DVT. Eight patients in the medically managed cohort went on to require surgical intervention. Of the 12 upper extremity venous aneurysms, none had presented with DVT or PE, and only 2 (17%) had presented with pain. Of the 66 patients in the entire cohort, 41 underwent surgical intervention. The most common indication was the absolute aneurysm size. Nine patients had undergone surgery because of a DVT or PE, and 11 for pain or extremity swelling. The most common surgery was aneurysmorrhaphy in 21 patients (53%), followed by excision and ligation in 14 patients (35%). Five patients (12%) had undergone interposition bypass grafting. A postoperative hematoma requiring reintervention was the most common complication, occurring in three popliteal vein repairs and one iliofemoral vein repair. None of the patients, treated either surgically or medically, had reported post-thrombotic complications during the follow-up period. Conclusions: Large lower extremity venous aneurysms and saccular aneurysms with thrombus $>25\%$ of the lumen are more likely to present with thromboembolic complications. Surgical intervention for lower extremity venous aneurysms is indicated to reduce the risk of venous thromboembolism (VTE) and the need for continued anticoagulation. Popliteal aneurysms >2.5 cm and all iliofemoral aneurysms should be considered for repair. Upper extremity aneurysms do not have a significant risk of VTE and warrant treatment primarily for symptoms other than VTE.

Pollock JR, McQuivey KS, **Braithwaite CL**, Swanson J and Bingham JS (2022). "Pseudoaneurysm following two-stage hip revision with fasciotomy." *Case Reports in Orthopedics* 2022: 6254542.

[Full Text](#)

OUWB Medical Student Author

In the setting of total hip arthroplasty (THA), pseudoaneurysms are extremely rare and can be difficult to diagnose, as clinical symptoms can mimic symptoms of other more common complications, such as periprosthetic joint infection, hematoma, and nerve damage. We present a case of a 69-year-old male with a history of slipped capital femoral epiphysis 56 years prior and subsequent right THA. The right hip primary arthroplasty was subsequently complicated by multiple dislocations and recurrent prosthetic joint infections. The most recent infection was treated with debridement, antibiotics, and implant retention (DAIR) in 2017. The patient later presented in 2019 with right thigh pain. Upon further analysis, he was diagnosed with *Streptococcus bovis* positive periprosthetic joint infection. The patient underwent a two-stage revision of the hip using an antibiotic spacer. Two weeks following the second stage, he presented with a sudden onset of uncontrolled atrial fibrillation with rapid ventricular response and a low hemoglobin. The computed tomography scan revealed a large hematoma involving both the anterior and posterior thigh compartments with lab markers that were questionable for infection. An operation to remove the hematoma revealed no purulence, and a large pulsatile pseudoaneurysm on the posterolateral aspect at the mid femur was found. A sharp bone fragment was noted next to the pseudoaneurysm. The pseudoaneurysm was repaired by a vascular surgeon, and the bone fragment was removed. Following this procedure, the patient developed a subsequent periprosthetic joint infection requiring a double DAIR procedure six weeks following the pseudoaneurysm repair and is now on chronic antibiotic suppression. Orthopedic surgeons should be

aware of the potential for pseudoaneurysm in the setting of total joint arthroplasty when treating a postsurgical hematoma of sudden onset.

Ramanathan S, Rapp A, Perez-Cruet M and Fahim DK (2022). "Long-term reoperation rates after open versus minimally invasive spine surgery for degenerative lumbar disease: Five year follow-up of 2130 patients." World Neurosurgery. ePub Ahead of Print.

[Full Text](#)

OUWB Medical Student Author

Department of Neurosurgery

Background: Minimally Invasive Spine Surgery (MISS) is a growing alternative to Open Spine Surgery (OSS). The preservation of musculature and minimization of iatrogenic injury is hypothesized to decrease the need for reoperation by preserving normal anatomy. Our objective is to compare the relative long-term reoperation rates after MISS and OSS for the treatment of degenerative disease of the lumbar spine. Methods: This retrospective analysis compares the long-term reoperation rates after MISS and OSS. Eligible patients were adults with a primary lumbar intervention carried out between 5/1/2004 and 1/31/2014 to allow for at least 5 years of follow up. Patients without sufficient descriptive metrics or follow-up data were excluded. The primary outcome was the rate of lumbar spine reoperation. Results: A total of 2130 patients met the inclusion criteria-1895 underwent OSS and 235 underwent MISS. On average and across all surgery types (decompression and decompression with fusion), 28% of OSS patients required reoperation during the minimum 5-year follow up period while only 14% of MISS patients required reoperation (P = 0.001). The MISS group was statistically identical to the OSS group in all categories except that the MISS group was on average 1.8 years older (62.25 vs. 60.45, P = 0.039) and had a higher incidence of diabetes (26% vs. 17%, P = 0.000), but had a lower average body mass index than the OSS group (28.35 vs. 29.60, P = 0.002). Conclusions: In the setting of degenerative lumbar spine disease, MISS has the potential to reduce the long-term need for reoperation when compared with OSS.

Randall DJ, Peacock K, Nickel KB, Olsen MA and Kazmers NH (2022). "Moving minor hand surgeries out of the operating room and into the office-based procedure room: A population-based trend analysis." Journal of Hand Surgery 47(12): 1137-1145.

[Full Text](#)

OUWB Medical Student Author

Purpose: Our primary purpose was to quantify the proportion of minor hand surgeries performed in the procedure room (PR) setting in a population-based cohort. Given the increase in the literature that has emerged since the mid-2000s highlighting the benefits of the PR setting, we hypothesized that a trend analysis would reveal increased utilization over time. Methods: We used the 2006–2017 MarketScan Commercial Database to identify adults who underwent isolated minor hand surgeries performed in PR and operation room surgical settings in the United States. The Cochran-Armitage trends test was used to determine whether the proportion of all procedures (PR + operation room) changed over time. Results: A total of 257,581 surgeries were included in the analysis, of which 24,966 (11.5%) were performed in the PR. There was an increase in the overall number of surgeries under study as well as increased utilization of the PR setting for open carpal tunnel release, trigger digit release, DeQuervain release, hand or finger mass excision, and hand or finger cyst excision. The magnitude of the increases in PR utilization was small: between 2006 and 2017, the PR utilization increased by 1.4% for open carpal tunnel release, 5.4% for trigger digit release, 2.9% for DeQuervain release, 10.1% for hand or finger mass excision, and 6.5% for hand or finger cyst excision. Conclusions: Despite the published benefits of the PR setting, we observed that the majority of these 5 common minor hand surgeries are performed in the operation room setting. Between 2006 and 2017, the office-based PR utilization increased slightly. The

identification of barriers to PR utilization is needed to improve the value of care. Type of study/level of evidence: Therapeutic II.

Raskin J, Borrelli M, Nasrollahi T and Chen H (2022). "Rhinoplasty complication requiring multiple revisions." Ear, Nose and Throat Journal 101(10_suppl): 23S-25S.

[Full Text](#)

OUWB Medical Student Author

Cosmetic rhinoplasties are complex surgical procedures that can present with serious complications requiring revision surgeries. Septal graft difficulties are common complications in rhinoplasties, requiring surgeon awareness of the potential future need for corrective surgery. Here, we report a case of multiple revision cosmetic rhinoplasties due to recurrent complications. Additionally, a review of the literature regarding cosmetic rhinoplasty complications and risk factors was performed. © The Author(s) 2022.

Raskin J, Borrelli M, Nasrollahi T and Heaton C (2022). "Tracheal rupture after tracheostomy tube exchange in a patient with recurrent oral cavity spindle cell carcinoma." Ear, Nose and Throat Journal 101(10_suppl): 15S-18S.

[Full Text](#)

OUWB Medical Student Author

Oral Cavity Spindle Cell Carcinoma (OCSCC) is a rare variant of squamous cell carcinoma involving the nasopharynx and oral mucosa. This tumor has a high propensity to invade local structures of the head and neck region, making surgical removal challenging and potentially morbid for the patient. Here, we report a case of OCSCC and the complications that were confronted during its surgical resection. Additionally, a review of the literature regarding OCSCC complications and their treatments was performed.

Raskin J, Nasrollahi T, Borrelli M and Birkeland A (2022). "Facial paresis after mandibular reconstruction." Ear, Nose and Throat Journal 101(10_suppl): 37S-39S.

[Full Text](#)

OUWB Medical Student Author

Condylar neck fractures are common injuries that occur in the facial and mandibular regions. The proximity of this area to the vital neurovasculature creates the increased importance of proper surgical intervention to limit damage to the underlying structures. Here, we report a case of a condylar neck fracture that resulted in temporary paresis of the facial nerve. In addition, a review of the literature regarding condylar fracture treatment and its complications was conducted.

Raskin J, Nasrollahi T, Borrelli M and Nasser S (2022). "Acute variceal hemorrhage and airway obstruction in a patient with Reinke's edema." Ear, Nose and Throat Journal 101(10_suppl): 30S-32S.

[Full Text](#)

OUWB Medical Student Author

Reinke's edema and variceal hemorrhage are complex structural pathologies that affect the vocal cord mucosa. The vocal cords are highly susceptible to environmental stressors, such as smoking and vocal cord usage, thus, treatment involves their corresponding cessation.¹ Here, we report a case of a patient with severe Reinke's edema and bilateral chronic vocal cord varices. The patient had a 30-pack-year history of cigarette smoking and was obstructed with intubation due to acute variceal hemorrhage and severe swelling of Reinke's edema. Moreover, a review of the literature regarding Reinke's edema and variceal hemorrhage treatment and their complications was performed.

Raskin J, Pak K and Lee MK (2022). "Spontaneous resolution of superficial temporal artery pseudoaneurysm." BMJ Case Reports 15(11): e251746.

[Full Text](#)

OUWB Medical Student Author

Superficial temporal artery (STA) pseudoaneurysms are rare vascular lesions that typically present after traumatic head injury. Currently, surgery is the recommended treatment as spontaneous resolution has not been previously reported. Our study aims to present a review of the literature on STA pseudoaneurysms and report a case of spontaneous resolution of a traumatic STA pseudoaneurysm without the need for direct intervention.

Rastogi A, Topf JM, Schaufler T, Morin I, Menzaghi F, Wen W and McCafferty K (2022). "Impact of difelikefalin on 5d-itch domains in patients with CKD-associated pruritus." Journal of the American Society of Nephrology 33: 682-683.

[Full Text](#)

Department of Internal Medicine/Nephrology

Background: Chronic kidney disease-associated pruritus (CKD-aP) is common in hemodialysis (HD) patients, impacting quality of life (QoL). In the Phase 3 KALM studies, difelikefalin (DFK), a selective kappa opioid receptor agonist approved in the United States and Europe for the treatment of moderate-severe pruritus in adults undergoing HD, improved itch intensity and QoL. The impact of DFK treatment on the subdomains of the 5D-itch scale (a multidimensional questionnaire validated in patients with chronic pruritus) were explored. Methods: In this pooled KALM-1 and KALM-2 analysis (n=712), HD patients with moderate-severe CKD-aP were randomized 1:1 to receive intravenous DFK 0.5 µg/kg or placebo (PBO) 3 times/week (Wk) for 12 Wks (double-blind [DB], PBO-controlled phase), followed by an up to 52-Wk open-label extension ([OLE] all patients receiving DFK). The change from DB baseline (BL) in 5D-itch scale domains was assessed including duration, degree, direction, and body distribution of itch and disability (sleep and daily activities) with a 2-Wk recall period. Results: In the DB phase, patients on DFK reported greater improvements than PBO in all domains. Throughout the OLE, patients reported ongoing improvements: Duration of itch (~6 h/day at OLE Wk 52 vs ~12-18 h/day at BL); Degree ("mild-moderate" vs "moderate-severe" at BL); Direction ("a little/much better" vs "unchanged" at BL); Disability, ("rarely" affected daily activities [including sleep] vs "frequently/occasionally" affected at BL); and Distribution (3-5 body parts affected vs 6-10 at BL). Conclusions: In the 12-wk DB period patient-reported improvements in 5D-itch scale domains were greater with DFK than PBO. In the OLE, with all patients receiving DFK up to 52 wks, further improvements were observed across all domains.

Rehman R, Hasan S, Akram H and Jahnke M (2022). "TikTok as a source of dermatologic information on atopic dermatitis." Dermatitis 33(6): S133-S134.

[Request Form](#)

OUWB Medical Student Author

Rehman R, Saad M, Suhrawardy A and Kerr H (2022). "Contact dermatitis and TikTok: A cross-sectional analysis of trending content." Dermatitis 33(6): E72-E74.

[Full Text](#)

OUWB Medical Student Author

Department of Diagnostic Radiology and Molecular Imaging

Rezakahn Khajeh N, Hall TL, Ghani KR and Roberts WW (2022). "Development of an automated laser drilling algorithm to compare stone ablation patterns from different laser pulse modes." World Journal of Urology 40(11): 2701-2705.

[Full Text](#)

OUWB Medical Student Author

Purpose: To develop a novel automated three-dimensional (3D) laser drilling algorithm to further investigate laser-stone interaction with different laser pulse modes. Comparison of post-ablative lattice architecture combined with mass of stone ablated can provide a more complete understanding of differences between pulse mode. Methods: A 3D positioner (securing laser fiber) was programmed to create a 5 × 5 grid of drill holes spaced 1 mm apart on 15:5 cylindrical BegoStones. Beginning 0.5 mm above the stone surface, the laser fiber was activated and advanced 2 mm toward and into the stone for all 25 points. Four trials for each pulse mode [short pulse (SP), long pulse (LP), Moses Contact (MC), Moses Distance (MD)] were completed. Outcome measures were assessment of lattice preservation and mass of ablated stone. Results: MC exhibited the greatest lattice preservation and least stone mass ablated (50.5 ± 2.2 mg). SP (69.4 ± 4.3 mg) and MD (70.0 ± 2.6 mg) had the greatest lattice destruction and stone mass ablated. The differences in stone ablated between MC and MD (p = 0.00003), MC and SP (p = 0.0002), and LP and MD (p = 0.004) were statistically significant. Conclusions: Consistent quantitative and qualitative differences between pulse modes were observed with a novel automated 3D laser drilling algorithm applied to BegoStone. The laser drilling algorithm developed here can be used to further enhance mechanistic understanding of laser-stone interactions and facilitate selection of appropriate laser pulse modes to balance precision and efficiency across the range of laser lithotripsy techniques.

Rollins Z, Rehman R, Al-Hadidi A, Lapkus M, Novotny N, Brahmamdam P, Metz T, Akay B and Stallion A (2022). "Preoperative splenic artery embolization for massive splenomegaly in children: A single center experience." Journal of Laparoendoscopic & Advanced Surgical Techniques. Part A 32(12): 1249-1254.

[Request Form](#)

OUWB Medical Student Author

Department of Surgery

Department of Diagnostic Radiology and Molecular Imaging

Introduction: Massive splenomegaly in children can complicate minimally invasive splenectomy. Splenic artery embolization (SAE) before splenectomy has been shown to decrease splenic volume, reduce intraoperative blood loss, and decrease conversion rates in laparoscopic surgery. Our objective was to review our recent experience with immediate preoperative SAE in massive splenomegaly for pediatric patients using both laparoscopic and robotic techniques. Materials and Methods: We retrospectively reviewed preoperative SAE outcomes in pediatric patients with massive splenomegaly undergoing minimally invasive splenectomy between January 2018 and July 2021. Results: Four patients, 3 female, ages 5-18 years, had SAE immediately before minimally invasive splenectomy. Two cases were completed robotically, one laparoscopically, and one laparoscopic case required conversion to open. SAE time ranged from 69 to 92 minutes. Time between embolization and surgical start ranged from 26 to 56 minutes, with operative times from 153 to 317 minutes. Estimated blood loss ranged from <10 to 150 mL. Mean length of stay was 3.5 days (range 2-6). Postoperative complications included one patient with ileus and another with concurrent gastritis and urinary tract infection. Splenic size comparisons were difficult to perform due to morselization of the spleen; however, excised spleen weights, measurements, and surgeon's impression suggested decreased size of the spleen after SAE. There were no transfusions, postembolization complications, or deaths. Conclusion: SAE subjectively appears to decrease splenic distension, which should allow for easier manipulation and possibly better visualization of splenic hilar vessels during minimally invasive surgery. Immediate preoperative SAE is safe and feasible and should be considered in pediatric patients with massive splenomegaly.

Rykulski NS, **Berger DA**, Paxton JH, Klausner H, Smith G and **Swor RA** (2022). "The impact of missing data on the measurement of cardiac arrest outcomes according to race." Prehospital Emergency Care. ePub Ahead of Print.

[Request Form](#)

Department of Emergency Medicine

Introduction: High-quality data is important to understanding racial differences in outcome following out of hospital cardiac arrest (OHCA). Previous studies have shown differences in OHCA outcomes according to both race and socioeconomic status. EMS reporting of data on race is often incomplete. We aim to determine the impact of missing data on the determination of racial differences in outcomes for OHCA patients. Methods: We performed a secondary analysis of a data set developed by probabilistically linking the Michigan Cardiac Arrest Registry to Enhance Survival (CARES) and the Michigan Inpatient Database (MIDB). Adult OHCA patients (age >18) who survived to hospital admission between 2014-2017 were included. Both datasets recorded patient race and ethnicity with CARES using a single race/ethnicity variable. Patients were categorized as White, Black, other, or missing and only a single choice was allowed. Due to the small number of Hispanic patients and the combined race/ethnicity variable, these patients were excluded. The outcomes of interest were survival to hospital discharge and survival to discharge with Cerebral Performance Category 1 or 2 (Good Outcome). Outcomes were stratified according to EMS- or hospital-documented race. Results: We included 3,756 matched patients, after excluding 34 Hispanic patients from analysis. Documentation of patient race was missing in 892 (22.1%) of CARES and 212 (5.6%) of MIDB patients. When both datasets documented Black or White Race, agreement in race documentation was excellent ($\kappa=0.83$). White patients were more likely to have a good outcome than Black in both the CARES (27.3% vs 14.8%) and MIDB (26.9% vs 16.1%) databases (both $p < 0.001$), but were not more likely to survive (30.8% vs 27.3% $p = 0.22$; 30.3% vs 28.1%, $p = 0.07$). Moreover, we found no significant difference in outcome measures based on race documentation for White vs Black patients (Good Outcome [27.3 vs 26.9% (MIDB)] and [16.1% vs 14.8% (CARES)] respectively and Survive [30.8% vs 30.3% (MIDB)] and [27.3 vs 28.1% (CARES)] respectively). Conclusion: Despite higher rates of missing EMS documentation, we identified statistically similar rates in OHCA outcome measures between databases. Further work is needed to determine the true impact of missing documentation of race on OHCA outcome measures.

Rykulski NS, **Berger DA**, Paxton JH, Klausner H, Smith G and **Swor RA** (2022). "The effect of missing data on the measurement of cardiac arrest outcomes according to race." Prehospital Emergency Care. ePub Ahead of Print.

[Request Form](#)

Department of Emergency Medicine

Introduction: High-quality data are important to understanding racial differences in outcome following out of hospital cardiac arrest (OHCA). Previous studies have shown differences in OHCA outcomes according to both race and socioeconomic status. EMS reporting of data on race is often incomplete. We aim to determine the effect of missing data on the determination of racial differences in outcomes for OHCA patients. Methods: We performed a secondary analysis of a data set developed by probabilistically linking the Michigan Cardiac Arrest Registry to Enhance Survival (CARES) and the Michigan Inpatient Database (MIDB). Adult OHCA patients (age >18) who survived to hospital admission between 2014 and 2017 were included. Both datasets recorded patient race and ethnicity with CARES using a single race/ethnicity variable. Patients were categorized as White, Black, other, or missing and only a single choice was allowed. Due to the small number of Hispanic patients and the combined race/ethnicity variable, these patients were excluded. The outcomes of interest were survival to hospital discharge and survival to discharge with Cerebral Performance Category 1 or 2 (good outcome). Outcomes were stratified according to EMS- or hospital-documented race. Results: We included 3,756 matched patients, after excluding 34 Hispanic patients from analysis. Documentation of patient race was missing in 892 (22.1%) of CARES and 212 (5.6%) of MIDB patients. When both datasets documented

Black or White race, agreement in race documentation was excellent ($\kappa=0.83$). White patients were more likely to have good outcomes than Black in both the CARES (27.3% vs 14.8%) and MIDB (26.9% vs 16.1%) databases (both $p < 0.001$), but were not more likely to survive (30.8% vs 27.3% $p = 0.22$; 30.3% vs 28.1%, $p = 0.07$). Moreover, we found no significant difference in outcome measures based on race documentation for White vs Black patients (good outcome [27.3 vs 26.9% (MIDB)] and [16.1% vs 14.8% (CARES)] respectively and survival [30.8% vs 30.3% (MIDB)] and [27.3 vs 28.1% (CARES)] respectively). Conclusion: Despite higher rates of missing EMS documentation, we identified statistically similar rates in OHCA outcome measures between databases. Further work is needed to determine the true effect of missing documentation of race on OHCA outcome measures.

Schoenherr DT, Dereski MO, Bernacki KD, Khayyata S and Attardi SM (2022). "Development and evaluation of an online integrative histology module: Simple design, low-cost, and improves pathology self-efficacy." Medical Education Online 27(1): 2011692.

[Full Text](#)

OUWB Medical Student Author

Department of Foundational Medical Studies (BH)

Department of Foundational Medical Studies (OU)

Department of Pathology

Integration of core concepts is an important aspect of medical curriculum enhancement. Challenges to improving integration include the risk of curtailing the basic sciences in the process and the push to decrease contact hours in medical curricula. Self-paced learning tools can be developed that deliberately relate basic and clinical sciences to aid students in making interdisciplinary connections. The purpose of this project was to develop, implement, and evaluate a self-paced learning module that would be applicable to integration of different disciplines in medical education. The module was intended to improve integration between histology and anatomic pathology before a respiratory pathology laboratory session. Qualtrics XM, a survey software commonly available at educational institutions, was used in a novel manner to create the module. Module activities included pre- and post-module quizzes; four short videos emphasizing normal histological features and recalling associated pathologies; three categorization activities designed for students to recognize normal versus abnormal characteristics of lung specimens; and post-activity feedback. Preliminary data from first-year medical students showed that post-module quiz scores were significantly higher than pre-module quiz scores ($p < 0.001$) and that module users' pre-laboratory pathology self-efficacy was significantly higher than non-users ($p < 0.05$). These data suggest that module use facilitated short-term knowledge gain and improved pathology self-efficacy before the laboratory session. Online modules can be developed affordably using Qualtrics XM to integrate anatomical sciences with other disciplines, while providing students interactive learning resources without increasing contact hours. The module presented in this report focused on normal versus abnormal morphology, guiding students through recognizing the continuum from healthy to disease states before learning about the pathologies more in depth. A similar module design would likely be effective in integrating other disciplines in medicine, especially in disciplines that require recognition of changes in morphology.

Shanholtzer A, Geisenhoff A, Shah M and **Shetty S (2022).** "A rare case of pure n4-acetyl-sulfamethoxazole nephrolithiasis associated with trimethoprim-sulfamethoxazole treatment of pulmonary nocardiosis." Urology Case Reports 45: 102179.

[Full Text](#)

Department of Urology

Trimethoprim-Sulfamethoxazole is a commonly used antibiotic for treatment of urinary tract infections, but also used to treat less common conditions such as pulmonary nocardiosis. N4-acetyl-

sulfamethoxazole is the main active metabolite of Sulfamethoxazole. Pure stones of this compound are very rare with only a few cases documented in the literature. Here we present a case of a patient treated with long term trimethoprim-sulfamethoxazole therapy for pulmonary nocardiosis who developed pure N4-acetyl-sulfamethoxazole nephrolithiasis resulting in upper tract obstruction. This report provides an additional data point for this unique calculus etiology.

Shanholtzer A, Stephens JR, **Lauter C** and **Peters KM** (2022). "Post orgasmic illness syndrome successfully managed with antihistamine: A case report." *Urology Case Reports* 45: 102189.

[Full Text](#)

OUWB Medical Student Author

Department of Internal Medicine/Allergy-Immunology

Department of Urology

Post orgasmic illness syndrome (POIS) is increasingly being recognized as a debilitating cause of sexual dysfunction in males. It is often misdiagnosed due to its unfamiliarity to providers, resulting in numerous potentially unnecessary tests and treatments. Currently, there is no known single most effective treatment, but several case reports suggest desensitization, hormonal therapy, and other treatment modalities may be useful. However, these treatments are experimental in nature and have not been evaluated in placebo-controlled trials. We report on the use of a simple over-the-counter antihistamine in the management of POIS. © 2022 The Authors

Shao X, Vishweswaraiah S, Čuperlović-Culf M, **Yilmaz A**, Greenwood CMT, Surendra A, McGuinness B, Passmore P, Kehoe PG, **Maddens ME**, Bennett SAL, Green BD, Radhakrishna U and **Graham SF** (2022). "Dementia with lewy bodies post-mortem brains reveal differentially methylated CpG sites with biomarker potential." *Communications biology* 5(1): 1279.

[Full Text](#)

Department of Internal Medicine/Geriatric Medicine

Department of Obstetrics & Gynecology

Dementia with Lewy bodies (DLB) is a common form of dementia with known genetic and environmental interactions. However, the underlying epigenetic mechanisms which reflect these gene-environment interactions are poorly studied. Herein, we measure genome-wide DNA methylation profiles of post-mortem brain tissue (Broadmann area 7) from 15 pathologically confirmed DLB brains and compare them with 16 cognitively normal controls using Illumina MethylationEPIC arrays. We identify 17 significantly differentially methylated CpGs (DMCs) and 17 differentially methylated regions (DMRs) between the groups. The DMCs are mainly located at the CpG islands, promoter and first exon regions. Genes associated with the DMCs are linked to "Parkinson's disease" and "metabolic pathway", as well as the diseases of "severe intellectual disability" and "mood disorders". Overall, our study highlights previously unreported DMCs offering insights into DLB pathogenesis with the possibility that some of these could be used as biomarkers of DLB in the future.

Shen YC, Chen CH, **Chancellor MB** and Chuang YC (2022). "Prospective, randomized, double-blind, placebo-controlled, pilot study of extracorporeal shock wave therapy for detrusor underactivity/underactive bladder." *European Urology Focus*. ePub Ahead of Print.

[Full Text](#)

Department of Urology

Background: Detrusor underactivity/underactive bladder (DU/UAB) is a disease with great unmet needs and no current approved drug treatment. Extracorporeal shock wave therapy (ESWT) has been shown to improve regeneration of tissue and increase detrusor contractility in preclinical studies of DU/UAB. Objective: To assess ESWT as a treatment of DU/UAB. Design, setting, and participants: Patients with

DU/UAB were enrolled in this phase 2 randomized, double-blind, placebo-controlled, physician-initiated study. Intervention: The patients were assigned to ESWT (N = 6, 2500 shocks, frequency of four pulses per second, and maximum total energy flow density of 0.25 mJ/mm²) once a week for 6 wk at the suprapubic bladder area or to placebo (N = 5, shock wave setting without energy transmission). Outcome measurements and statistical analysis: The primary endpoint was the average changes in postvoid residual urine (PVR) from baseline to 4 wk after treatment. Other endpoints included the average changes in 3-d voiding diary, global response assessment of patient satisfaction, Underactive Bladder Questionnaire (UAB-Q) score, and urodynamic evaluation. Results and limitations: The difference in improvement in PVR was -157.8 ml (95% confidence interval [CI]: -380.1, 64.4) versus -6.6 ml (95% CI: -178.1, 164.9) and -77.5 ml (95% CI: -242.1, 87.1) versus 81.8 ml (95% CI: -137.2, 300.7) for ESWT versus placebo (p = 0.116 and 0.056) at 4 and 12 wk, respectively. The ESWT group exhibited a significant reduction in the UAB-Q score (-4.3; 95% CI: -9.1, 0.4) compared with the placebo group (-0.4; 95% CI: -1.8, 1.0) at 4 wk after treatment (p = 0.025), and the effects were decreased at 12 wk (p = 0.091). This study was limited by small sample size. Conclusions: ESWT was well tolerated with a statistically significant decrease of DU/UAB symptoms and a trend to decrease PVR versus placebo. These results indicate that ESWT may be a promising treatment for DU/UAB and multicenter studies are needed. Patient summary: Bladder shock wave therapy was studied in this randomized, double-blind, placebo-controlled study in patients with inadequate bladder emptying (underactive bladder). Bladder shock wave therapy was found to be well tolerated with an improvement in bladder emptying. These results indicate that bladder shock wave therapy may be a promising treatment for patients who cannot empty their bladder adequately.

Shohet JA, Borrelli M, Nasrollahi T and **Raskin J** (2022). "Penetration of the vestibule following a history of stapedectomy." *Ear, Nose and Throat Journal* 101(10_suppl): 33S-36S.

[Full Text](#)

OUWB Medical Student Author

This case study describes a 72-year-old female with a history of stapedectomy 40 years prior. She presented experiencing vertigo, fogginess, and imbalance for 9 months. Computed tomography (CT) imaging revealed that the prosthesis was displaced into the vestibule by approximately 2.1 to 2.4 mm. The patient was presented with treatment options, including observation, removal, replacement of the prosthesis, and an oval window patch. The patient opted for observation as the symptoms she was experiencing did not significantly impact her quality of life. Although a stapedectomy may fail for a multitude of reasons, some of the most common causes are prosthesis displacement, especially out of the oval window into the middle ear or away from the incus. Incus necrosis may also play a substantial role in failure.

Short NA, van Rooij SJH, Murty VP, Stevens JS, An X, Ji Y, McLean SA, House SL, Beaudoin FL, Zeng D, Neylan TC, Clifford GD, Linnstaedt SD, Germine LT, Bollen KA, Rauch SL, Haran JP, Lewandowski C, Musey PI, Hendry PL, Sheikh S, Jones CW, Panches BE, **Swor RA**, McGrath ME, Hudak LA, Pascual JL, Seamon MJ, Datner EM, Pearson C, Peak DA, Merchant RC, Domeier RM, Rathlev NK, O'Neil BJ, Sergot P, Sanchez LD, Bruce SE, Pietrzak RH, Joormann J, Barch DM, Pizzagalli DA, Sheridan JF, Smoller JW, Harte SE, Elliott JM, Kessler RC, Koenen KC and Jovanovic T (2022). "Anxiety sensitivity as a transdiagnostic risk factor for trajectories of adverse posttraumatic neuropsychiatric sequelae in the AURORA study." *Journal of Psychiatric Research* 156: 45-54.

[Full Text](#)

Department of Emergency Medicine

Anxiety sensitivity, or fear of anxious arousal, is cross-sectionally associated with a wide array of adverse posttraumatic neuropsychiatric sequelae, including symptoms of posttraumatic stress disorder, depression, anxiety, sleep disturbance, pain, and somatization. The current study utilizes a large-scale,

multi-site, prospective study of trauma survivors presenting to emergency departments. Hypotheses tested whether elevated anxiety sensitivity in the immediate posttrauma period is associated with more severe and persistent trajectories of common adverse posttraumatic neuropsychiatric sequelae in the eight weeks posttrauma. Participants from the AURORA study (n = 2,269 recruited from 23 emergency departments) completed self-report assessments over eight weeks posttrauma. Associations between heightened anxiety sensitivity and more severe and/or persistent trajectories of trauma-related symptoms identified by growth mixture modeling were analyzed. Anxiety sensitivity assessed two weeks posttrauma was associated with severe and/or persistent posttraumatic stress, depression, anxiety, sleep disturbance, pain, and somatic symptoms in the eight weeks posttrauma. Effect sizes were in the small to medium range in multivariate models accounting for various demographic, trauma-related, pre-trauma mental health-related, and personality-related factors. Anxiety sensitivity may be a useful transdiagnostic risk factor in the immediate posttraumatic period identifying individuals at risk for the development of adverse posttraumatic neuropsychiatric sequelae. Further, considering anxiety sensitivity is malleable via brief intervention, it could be a useful secondary prevention target. Future research should continue to evaluate associations between anxiety sensitivity and trauma-related pathology.

Sims MD, Podolsky RH, Childers KL, Higgins B, Trueman J, Homayouni R, Voss DR, Berkiw-Scenna N, Keil H, **Kennedy RH** and **Maine GN** (2022). "Dried blood spots are a valid alternative to venipuncture for COVID-19 antibody testing." *Journal of Immunology Methods* 513: 113420.

[Full Text](#)

Department of Internal Medicine/Infectious Diseases

Department of Foundational Medical Studies (OU)

Department of Pathology

Background: Serologic analysis is an important tool towards assessing the humoral response to COVID-19 infection and vaccination. Numerous serologic tests and platforms are currently available to support this line of testing. Two broad antibody testing categories are point-of-care lateral flow immunoassays and semi-quantitative immunoassays performed in clinical laboratories, which typically require blood collected from a finger-stick and a standard venipuncture blood draw, respectively. This study evaluated the use of dried blood spot (DBS) collections as a sample source for COVID-19 antibody testing using an automated clinical laboratory test system. Methods: Two hundred and ninety-four participants in the BLAST COVID-19 seroprevalence study (NCT04349202) were recruited at the time of a scheduled blood draw to have an additional sample taken via finger stick as a DBS collection. Using the EUROIMMUN assay to assess SARS-CoV-2 anti-spike IgG status, DBS specimens were tested on 7, 14, 21, and 28 days post-collection and compared to the reference serum sample obtained from a blood draw for the BLAST COVID-19 study. Results: SARS-CoV-2 anti-spike IgG status from DBS collections demonstrated high concordance with serum across all time points (7-28 days). However, the semi-quantitative value from DBS collections was lower on average than that from serum, resulting in increased uncertainty around the equivocal-to-positive analytical decision point. Conclusions: DBS collections can be substituted for venipuncture when assaying for COVID-19 IgG antibody, with samples being stable for at least 28 days at room temperature. Finger-stick sampling can therefore be advantageous for testing large populations for SARS-CoV-2 antibodies without the need for phlebotomists or immediate processing of samples. We have high confidence in serostatus determination from DBS collections, although the reduced semi-quantitative value may cause some low-level positives to fall into the equivocal or even negative range.

Singh N, Temin S, Baker S, Blanchard E, Brahmer JR, Celano P, Duma N, Ellis PM, Elkins IB, Haddad RY, Hesketh PJ, Jain D, Johnson DH, Leighl NB, Mamdani H, Masters G, Moffitt PR, Phillips T, Riely GJ, Robinson AG, Rosell R,

Schiller JH, Schneider BJ, Spigel DR and **Jaiyesimi IA** (2022). "Therapy for stage IV non-small-cell lung cancer with driver alterations: ASCO living guideline." Journal of Clinical Oncology 40(28): 3310-3322.

[Full Text](#)

Department of Internal Medicine/Hematology-Oncology

Living guidelines are routinely updated guidelines that are developed for selected topic areas with rapidly evolving evidence that drives frequent change in clinical practice. These guidelines are updated on a regular schedule, based on the work of a standing panel that reviews the literature on a continuous basis. Updates will be made regularly and can be found at <https://ascopubs.org/nsclc-da-living-guideline>. Purpose: To provide evidence-based recommendations updating the 2021 ASCO and Ontario Health (Cancer Care Ontario) guideline on systemic therapy for patients with stage IV non-small-cell lung cancer (NSCLC) with driver alterations. Methods: ASCO updated recommendations on the basis of an ongoing systematic review of randomized control trials from 2020 to 2021. Results: This guideline update reflects changes in evidence since the previous update. Two studies provide the evidence base. Outcomes of interest include efficacy and safety. Recommendations: For patients with an anaplastic lymphoma kinase rearrangement, a performance status (PS) of 0-2, and previously untreated NSCLC, clinicians should offer alectinib or brigatinib or lorlatinib. For patients with an anaplastic lymphoma kinase rearrangement, a PS of 0-2, and previously untreated NSCLC, if alectinib, brigatinib, or lorlatinib are not available, clinicians should offer ceritinib or crizotinib. For patients with a RET rearrangement, a PS of 0-2, and previously untreated NSCLC, clinicians may offer selpercatinib or pralsetinib. In second line, for patients with a RET rearrangement who have not received RET-targeted therapy, clinicians may offer selpercatinib or pralsetinib.

Sinz NJ, Hwang RW, Lee GH, Baker KC, Arnold P, Sasso R, Park D, **Fischgrund J**, Niu R and Kim DH (2022). "Pedicle screw-associated violation of the adjacent unfused facet joint: Clinical outcomes and fusion rates." Global Spine Journal. ePub Ahead of Print.

[Full Text](#)

Department of Orthopaedic Surgery

Study Design: Retrospective review of a prospective randomized trial. Objectives: To compare outcome scores and fusion rates in patients with and without pedicle screw-associated facet joint violation (FJV) after a single-level lumbar fusion. Methods: Clinical outcomes data and computed tomography (CT) imaging were reviewed for 157 patients participating in a multicenter prospective trial. Post-operative CT scans at 12-months follow-up were examined for fusion status and FJV. Patient-reported outcomes (PROs) included Oswestry Disability Index (ODI) and Visual Analog Scale (VAS) for leg and low back pain. Chi-square test of independence was used to compare proportions between groups on categorical measures. Two-sample t-test was used to identify differences in mean patient outcome scores. Logistic regression models were performed to determine association between FJV and fusion rates. Results: Of the 157 patients included, there were 18 (11.5%) with FJV (Group A) and 139 (88.5%) without FJV (Group B). Patients with FJV experienced less improvement in ODI ($P = .004$) and VAS back pain scores ($P = .04$) vs patients without FJV. There was no difference in mean VAS leg pain ($P = .4997$). The rate of fusion at 12-months for patients with FJV (27.8%) was lower compared to those without FJV (71.2%) ($P = .0002$). Patients with FJV were 76% less likely to have a successful fusion at 12-months. Conclusion: Pedicle screw-associated violation of the adjacent unfused facet joint during single-level lumbar fusion is associated with less improvement in back pain, back pain-associated disability, and a lower fusion rate at 1-year after surgery.

Sirls LT, Schonhoff A, Waldvogel A and **Peters KM** (2022). "Development of an implant technique and early experience using a novel implantable pulse generator with a quadripolar electrode array at the tibial nerve for refractory overactive bladder." Neurourology and Urodynamics. ePub Ahead of Print.

[Full Text](#)

Department of Urology

Objectives: Tibial nerve stimulation is an effective treatment for overactive bladder (OAB) and has been utilized as an in-person recurring session treatment option for many years. The primary objective of this study was to evaluate the safety and efficacy of a long-term implantable device and the method of utilizing a retrograde approach to place the device (a percutaneous implantable pulse generator [pIPG] with integrated quadripolar electrodes) at the tibial nerve (Protect PNS; Uro Medical Corp.). **Methods:** A novel retrograde implant technique was developed through multiple cadaveric dissections to percutaneously implant a chronic, wireless, minimally invasive pIPG device with integrated quadripolar electrodes (now licensed to Uro Medical) at the tibial nerve. A proof-of-concept pIPG device approved as part of an FDA IDE was designed to gain early experience in subjects with refractory OAB. The pIPG was implanted in the office under local anesthesia using the novel retrograde approach, and stimulation was activated using an external wireless energy source called a transmitter. Initially, a pilot study was designed to compare outcomes in subjects randomized to either percutaneous tibial nerve stimulation (PTNS) or Protect PNS. However, due to the small sample sizes available at this time, it was not possible to compare the two groups. Thus, the purpose of this manuscript is to describe the outcome of subjects who underwent implantation of the Protect PNS system. Twelve-month safety and efficacy were evaluated. **Results:** Nine subjects were enrolled in the randomized pilot study; 5 to the pIPG group and 4 to PTNS, and all completed the 13-week primary endpoint. Subsequently, two subjects in the PTNS group chose to cross over and have the pIPG implanted after 13 weeks. Outcomes of the seven subjects who underwent implantation of the pIPG are described. No complications related to the office procedure were noted. Two of the older model pIPG devices became nonresponsive at 1 and 4 weeks and were replaced. Six minor adverse events were reported and resolved. Subjects reported improvement in urge urinary incontinence (UUI) episodes, OAB symptoms, and quality of life. Subjects implanted with a pIPG reported a 50% reduction in UUI as early as 1 week. **Conclusions:** Results of this pilot study suggest that retrograde percutaneous implantation of a pIPG is a safe, minimally invasive one-stage office procedure for treatment for urge incontinence related OAB symptoms, without significant complications after 12 months follow-up. Future studies will be required to compare outcomes among treatment modalities.

Spehar SM, Seth M, Henke P, Alaswad K, Schreiber T, **Berman A**, Syrjamaki J, Ali OE, Bader Y, Nerenz D, Gurm H and Sukul D (2022). "Race and outcomes after percutaneous coronary intervention: Insights from the Blue Cross Blue Shield of Michigan Cardiovascular Consortium." *American Heart Journal*. ePub Ahead of Print.

[Full Text](#)

Department of Internal Medicine/Cardiovascular Disease

Background: Current studies show similar in-hospital outcomes following percutaneous coronary intervention (PCI) between Black and White patients. Long-term outcomes and the role of individual and community-level socioeconomic factors in differential risk are less understood. **Methods:** We linked clinical registry data from PCIs performed between January, 2013 and March, 2018 at 48 Michigan hospitals to Medicare Fee-for-service claims. We analyzed patients of Black and White race. We used propensity score matching and logistic regression models to estimate the odds of 90-day readmission and Cox regression to evaluate the risk of postdischarge mortality. We used mediation analysis to evaluate the proportion of association mediated by socioeconomic factors. **Results:** Of the 29,317 patients included in this study, 10.28% were Black and 89.72% were White. There were minimal differences between groups regarding post-PCI in-hospital outcomes. Compared with White patients, Black patients were more likely to be readmitted within 90-days of discharge (adjusted OR 1.62, 95% CI [1.32-2.00]) and had significantly higher risk of all-cause mortality (adjusted HR 1.45, 95% CI 1.30-1.61) when adjusting for age and gender. These associations were significantly mediated by dual eligibility

(proportion mediated [PM] for readmission: 11.0%; mortality: 21.1%); dual eligibility and economic well-being of the patient's community (PM for readmission: 22.3%; mortality: 43.0%); and dual eligibility, economic well-being of the community, and baseline clinical characteristics (PM for readmission: 45.0%; mortality: 87.8%). Conclusions: Black patients had a higher risk of 90-day readmission and cumulative mortality following PCI compared with White patients. Associations were mediated by dual eligibility, community economic well-being, and traditional cardiovascular risk factors. Our study highlights the need for improved upstream care and streamlined postdischarge care pathways as potential strategies to improve health care disparities in cardiovascular disease.

Sponagel J, Jones JK, Frankfater C, Zhang S, Tung O, Cho K, Tinkum KL, Gass H, Nunez E, Spitz DR, **Chinnaiyan P**, Schaefer J, Patti GJ, Graham MS, Mauguen A, Grkovski M, Dunphy MP, Krebs S, Luo J, Rubin JB and Ippolito JE (2022). "Sex differences in brain tumor glutamine metabolism reveal sex-specific vulnerabilities to treatment." *Med* 3(11): 792-811.e712.

[Full Text](#)

Department of Radiation Oncology

Background: Brain cancer incidence and mortality rates are greater in males. Understanding the molecular mechanisms that underlie those sex differences could improve treatment strategies. Although sex differences in normal metabolism are well described, it is currently unknown whether they persist in cancerous tissue. Methods: Using positron emission tomography (PET) imaging and mass spectrometry, we assessed sex differences in glioma metabolism in samples from affected individuals. We assessed the role of glutamine metabolism in male and female murine transformed astrocytes using isotope labeling, metabolic rescue experiments, and pharmacological and genetic perturbations to modulate pathway activity. Findings: We found that male glioblastoma surgical specimens are enriched for amino acid metabolites, including glutamine. Fluoroglutamine PET imaging analyses showed that gliomas in affected male individuals exhibit significantly higher glutamine uptake. These sex differences were well modeled in murine transformed astrocytes, in which male cells imported and metabolized more glutamine and were more sensitive to glutaminase 1 (GLS1) inhibition. The sensitivity to GLS1 inhibition in males was driven by their dependence on glutamine-derived glutamate for α -ketoglutarate synthesis and tricarboxylic acid (TCA) cycle replenishment. Females were resistant to GLS1 inhibition through greater pyruvate carboxylase (PC)-mediated TCA cycle replenishment, and knockdown of PC sensitized females to GLS1 inhibition. Conclusion: Our results show that clinically important sex differences exist in targetable elements of metabolism. Recognition of sex-biased metabolism may improve treatments through further laboratory and clinical research. Funding: This work was supported by NIH grants, Joshua's Great Things, the Siteman Investment Program, and the Barnard Research Fund.

Squires M, Schultz L, Schwalb J, Park P, Chang V, Nerenz D, **Perez-Cruet M**, Abdulhak M, **Khalil J** and Aleem I (2022). "Correlation of mJOA, PROMIS physical function, and patient satisfaction in patients with cervical myelopathy: An analysis of the Michigan Spine Surgery Improvement Collaborative (MSSIC) database." *Spine Journal*. ePub Ahead of Print.

[Full Text](#)

Department of Neurosurgery

Department of Orthopaedic Surgery

Background Context: Patient-reported outcomes (PROs) are increasingly utilized to evaluate the efficacy and value of spinal procedures. Among patients with cervical myelopathy, the modified Japanese Orthopaedic Association (mJOA) remains the standard instrument, with Patient-Reported Outcomes Measurement Information System (PROMIS) physical function (PF) and patient satisfaction also frequently assessed. These outcomes have not all been directly compared using a large spine registry at 2 years follow-up for cervical myelopathic patients undergoing surgery. Purpose: To determine the

correlation and association of PROMIS PF, mJOA, and patient satisfaction outcomes in patients undergoing surgery for cervical myelopathy. Study Design/Setting: Retrospective review of a multicenter spine registry database. Patient Sample: Adult patients with cervical myelopathy who underwent cervical spine surgery between 2/26/2018 and 4/17/2021. Outcome Measures: PROMIS PF, mJOA, and North American Spine Society (NASS) patient satisfaction index. Methods: The MSSIC database was accessed to gather pre- and postoperative outcome data on patients with cervical myelopathy. Spearman's correlation coefficients relating mJOA and PROMIS PF were quantified up to 2 years postoperatively. The correlations between patient satisfaction with mJOA and PROMIS were determined. Kappa statistics were used to evaluate for agreement between those reaching the minimum clinically important difference (MCID) for mJOA and PROMIS PF. Odds ratios were calculated to determine the association between patient satisfaction and those reaching MCID for mJOA and PROMIS PF. Support for MSSIC is provided by BCBSM and Blue Care Network as part of the BCBSM Value Partnerships program. RESULTS: Data from 2,023 patients were included. Moderate to strong correlations were found between mJOA and PROMIS PF at all time points ($p < .001$). These outcomes had fair agreement at all postoperative time points when comparing those who reached MCID. Satisfaction was strongly related to changes from baseline for both mJOA and PROMIS PF at all time points ($p < .001$). Odds ratios associating satisfaction with PROMIS PF MCID were higher at all time points compared with mJOA, although the differences were not significant. Conclusions: PROMIS PF has a strong positive correlation with mJOA up to 2 years postoperatively in patients undergoing surgery for cervical myelopathy, with similar odds of achieving MCID with both instruments. Patient satisfaction is predicted similarly by these outcome measures by 2 years postoperatively. These results affirm the validity of PROMIS PF in the cervical myelopathic population. Given its generalizability and ease of use, PROMIS PF may be a more practical outcome measure for clinical use compared with mJOA.

Tari AR, Selbæk G, **Franklin BA**, Bergh S, Skjellegrind H, Sallis RE, Bosnes I, Stordal E, Ziaei M, Lydersen S, Kobro-Flatmoen A, Huuha AM, Nauman J and Wisløff U (2022). "Temporal changes in personal activity intelligence and the risk of incident dementia and dementia related mortality: A prospective cohort study (HUNT)." *eClinicalMedicine* 52: 101607.

[Full Text](#)

Department of Internal Medicine/Cardiovascular Disease

Background: The Personal Activity Intelligence (PAI) translates heart rate during daily activity into a weekly score. Obtaining a weekly PAI score ≥ 100 is associated with reduced risk of premature morbidity and mortality from cardiovascular diseases. Here, we determined whether changes in PAI score are associated with changes in risk of incident dementia and dementia-related mortality. Methods: We conducted a prospective cohort study of 29,826 healthy individuals. Using data from the Trøndelag Health-Study (HUNT), PAI was estimated 10 years apart (HUNT1 1984–86 and HUNT2 1995–97). Adjusted hazard-ratios (aHR) and 95%-confidence intervals (CI) for incidence of and death from dementia were related to changes in PAI using Cox regression analyses. Findings: During a median follow-up time of 24.5 years (interquartile range [IQR]: 24.1–25.0) for dementia incidence and 23.6 years (IQR: 20.8–24.2) for dementia-related mortality, there were 1998 incident cases and 1033 dementia-related deaths. Individuals who increased their PAI score over time or maintained a high PAI score at both assessments had reduced risk of dementia incidence and dementia-related mortality. Compared with persistently inactive individuals (0 weekly PAI) at both time points, the aHRs for those with a PAI score ≥ 100 at both occasions were 0.75 (95% CI: 0.58–0.97) for incident dementia, and 0.62 (95% CI: 0.43–0.91) for dementia-related mortality. Using PAI score < 100 at both assessments as the reference cohort, those who increased from < 100 at HUNT1 to ≥ 100 at HUNT2 had aHR of 0.83 (95% CI: 0.72–0.96) for incident dementia, and gained 2.8 (95% CI: 1.3–4.2, $P < 0.0001$) dementia-free years. For dementia-related mortality, the corresponding aHR was 0.74 (95% CI: 0.59–0.92) and years of life gained were 2.4

(95% CI: 1.0–3.8, P=0.001). Interpretation: Maintaining a high weekly PAI score and increases in PAI scores over time were associated with a reduced risk of incident dementia and dementia-related mortality. Our findings extend the scientific evidence regarding the protective role of PA for dementia prevention, and suggest that PAI may be a valuable tool in guiding research-based PA recommendations. Funding: The Norwegian Research Council, the Liaison Committee between the Central Norway Regional Health Authority and Norwegian University of Science and Technology (NTNU), Trondheim, Norway.

Thomas GJ, Bauman JC, Bergeron S, **Wasvary HJ** and **Ziegler MA** (2022). "Perioperative lidocaine infusion reduces opioid use in enhanced recovery after surgery patients undergoing laparoscopic colectomy." [American Surgeon](#). ePub Ahead of Print.

[Request Form](#)

Department of Surgery

Background: Enhanced Recovery After Surgery (ERAS) programs have become a mainstay of modern surgical care, and efforts to decrease postoperative opioid consumption have been increasingly employed. A previous study from our institution demonstrated that ERAS protocols decreased opioid use in the first 48 hours after surgery by 61%. In the present study, a lidocaine infusion was added for postoperative pain control. The aim was to analyze the differences in opioid requirements with and without this infusion in the first 48 hours after laparoscopic colectomy in ERAS patients. Methods: Retrospective review of patients was conducted at an academically affiliated tertiary care hospital. The population included patients undergoing elective laparoscopic colon surgery enrolled in the ERAS program with the implementation of a lidocaine drip from June 2019 to October 2019, and compared to a previous patient cohort of ERAS patients evaluated without the lidocaine drip from September 2015 to May 2018. Results: The primary endpoint was postoperative opioid use in the first 48 hours based on IV morphine milligram equivalents (MME). Secondary measures included type of surgery, age, BMI, prior abdominal surgery, and prior opioid use. Median MMEs were 6.0 in the lidocaine infusion group and 12.5 in the group without lidocaine, representing a 52% reduction ($p < 0.001$). Discussion: This study demonstrates a significant reduction in post-op opioid use in ERAS patients who receive a lidocaine infusion after laparoscopic colectomy. Further studies should focus on measures to limit the treatment side effects in order to maximize the opioid-sparing benefits of this intervention.

Tomaszewski R, Rajpurohit P, Cheng M and **Tawfik A** (2022). "Isolation of primary mouse retinal pigmented epithelium cells." [Journal of Visualized Experiments](#) (189): e63543.

[Full Text](#)

Department of Foundational Medical Studies (BH)

The retinal pigmented epithelium (RPE) layer lies immediately behind the photoreceptors and harbors a complex metabolic system that plays several critical roles in maintaining the photoreceptors' function. Thus, the RPE structure and function are essential to sustain normal vision. This manuscript presents an established protocol for primary mouse RPE cell isolation. RPE isolation is a great tool to investigate the molecular mechanisms underlying RPE pathology in the different mouse models of ocular disorders. Furthermore, RPE isolation can help in comparing primary mouse RPE cells isolated from wild-type and genetically modified mice, as well as testing drugs that can accelerate the development of therapy for visual disorders. The manuscript presents a step-by-step RPE isolation protocol; the entire procedure, from enucleation to seeding, takes approximately 4 hours. The media shouldn't be changed for 5-7 days after seeding, to allow the growth of the isolated cells without disturbance. This process is followed by the characterization of morphology, pigmentation, and specific markers in the cells via immunofluorescence. Cells can be passaged a maximum of three or four times.

Tuma F, McKeown DG and **Al-Wahab Z** (2022). "Rectovaginal fistula," (ed). Statpearls. Treasure Island (FL): StatPearls Publishing.

[Full Text](#)

Department of Obstetrics & Gynecology

A fistula is an abnormal connection between 2 epithelial surfaces. This is a general definition that applies to most of the known fistula but not all of them. The general description differentiates fistulae from sinuses, abscesses, and other forms of luminal tracts or extra-luminal collections. Fistula connects 2 surfaces or lumens. It begins on the offending side and makes its way to an adjacent lumen or surface. It follows the easiest and shortest path to the adjacent organ. The recto-vaginal fistula starts from the rectum and extends to the vagina. It is not a healthy situation or physiological status. There is usually an underlying pathology, injury, or surgical event. Characteristics of rectovaginal fistula (RVF), for example, site, size, length, activity, and symptoms, vary depending on the cause of the fistula, patient factors, and the treatment received. It is a potentially challenging surgical condition for both the patient and the health care team. The underlying etiology determines the method of assessment, management, and prognosis. This article reviews the rectovaginal fistula under the general category of fistulae.

Unsworth SP, Tingle CF, Heisel CJ, Eton EA, Andrews CA, Chan MP, Bresler SC and **Kahana A** (2022). "Analysis of residual disease in periocular basal cell carcinoma following hedgehog pathway inhibition: Follow up to the visorb trial." PLoS ONE 17(12 December): 0265212.

[Full Text](#)

Department of Ophthalmology

Basal cell carcinoma (BCC) is a common skin cancer caused by deregulated hedgehog signaling. BCC is often curable surgically; however, for orbital and periocular BCCs (opBCC), surgical excision may put visual function at risk. Our recent clinical trial highlighted the utility of vismodegib for preserving visual organs in opBCC patients: 67% of patients displayed a complete response histologically. However, further analysis of excision samples uncovered keratin positive, hedgehog active (Gli1 positive), proliferative micro-tumors. Sequencing of pre-treatment tumors revealed resistance conferring mutations present at low frequency. In addition, one patient with a low-frequency SMO W535L mutation recurred two years post study despite no clinical evidence of residual disease. Sequencing of this recurrent tumor revealed an enrichment for the SMO W535L mutation, revealing that vismodegib treatment enriched for resistant cells undetectable by traditional histology. In the age of targeted therapies, linking molecular genetic analysis to prospective clinical trials may be necessary to provide mechanistic understanding of clinical outcomes.

van Rosendaal AR, van den Hoogen IJ, Lin FY, Gianni U, Lu Y, Andreini D, Al-Mallah MH, Cademartiri F, **Chinnaiyan K**, Chow BJW, Conte E, Cury RC, Feuchtner G, de Araújo Gonçalves P, Hadamitzky M, Kim YJ, Leipsic JA, Maffei E, Marques H, Plank F, Pontone G, Raff GL, Villines TC, Lee SE, Al'Aref SJ, Baskaran L, Cho I, Danad I, Gransar H, Budoff MJ, Samady H, Virmani R, Min JK, Narula J, Berman DS, Chang HJ, Shaw LJ and Bax JJ (2022). "Age related compositional plaque burden by CT in patients with future ACS." Journal of Cardiovascular Computed Tomography 16(6): 491-497.

[Full Text](#)

Department of Internal Medicine/Cardiovascular Disease

Background: We examined age differences in whole-heart volumes of non-calcified and calcified atherosclerosis by coronary computed tomography angiography (CCTA) of patients with future ACS. Methods: A total of 234 patients with core-lab adjudicated ACS after baseline CCTA were enrolled. Atherosclerotic plaque was quantified and characterized from the main epicardial vessels and side branches on a 0.5 mm cross-sectional basis. Calcified plaque and non-calcified plaque were defined by above or below 350 Hounsfield units. Patients were categorized according to their age by deciles. Also,

coronary artery calcium scores (CACS) were evaluated when available. Results: Patients were on average 62.2 ± 11.5 years old. On the pre-ACS CCTA, patients showed diffuse, multi-site, predominantly non-obstructive atherosclerosis across all age categories, with plaque being detected in 93.5% of all ACS cases. The proportion calcified plaque from the total plaque burden increased significantly with older presentation (10% calcification in those <50 years, and 50% calcification in those >80 years old). Patients with ACS <50 years had remarkably lower atherosclerotic burden compared with older patients, but a high proportion of high risk markers such as low-attenuation plaque. CACS was >0 in 85% of the patients older than 50 years, and in 57% of patients younger than 50 years. Conclusion: The proportion of calcified plaque varied depending on patient age at the time of ACS. Only a small proportion of plaque was calcified when ACS occurred at <50 years old, while this increased gradually with older age. Purely non-calcified atherosclerotic plaque was not uncommon in patients <50 years.

Vollstedt A, Tennyson L, Turner K, Hasenau D, **Saon M**, McCartney T, Beck D, **Gillera J** and **Peters K** (2022). "Evidence for early cyclosporine treatment for Hunner lesion interstitial cystitis." Obstetrical and Gynecological Survey 77(1): 22-24.

[Full Text](#)

*OUWB Medical Student Author
Department of Urology*

Wadhwanii SI, Barrera AG, **Shifman HP**, Baker E, Bucuvalas J, Gottlieb LM, Kotagal U, Rhee SJ, Lai JC and Lyles CR (2022). "Caregiver perspectives on the everyday medical and social needs of long-term pediatric liver transplant patients." Liver Transplantation 28(11): 1735-1746.

[Full Text](#)

OUWB Medical Student Author

Using in-depth interviews, we sought to characterize the everyday medical and social needs of pediatric liver transplant caregivers to inform the future design of solutions to improve care processes. Participants (parents/caregivers of pediatric liver transplant recipients) completed a survey (assessing socioeconomic status, economic hardship, health literacy, and social isolation). We then asked participants to undergo a 60-min virtual, semistructured qualitative interview to understand the everyday medical and social needs of the caregiver and their household. We intentionally oversampled caregivers who reported a social or economic hardship on the survey. Transcripts were analyzed using thematic analysis and organized around the Capability, Opportunity, Motivation–Behavior model. A total of 18 caregivers participated. Of the participants, 50% reported some form of financial strain, and about half had less than 4 years of college education. Caregivers had high motivation and capability in executing transplant-related tasks but identified several opportunities for improving care. Caregivers perceived the health system to lack capability in identifying and intervening on specific family social needs. Caregiver interviews revealed multiple areas in which family supports could be strengthened, including (1) managing indirect costs of prolonged hospitalizations (e.g., food, parking), (2) communicating with employers to support families' needs, (3) coordinating care across hospital departments, and (4) clarifying care team roles in helping families reduce both medical and social barriers. This study highlights the caregiver perspective on barriers and facilitators to posttransplant care. Future work should identify whether these themes are present across transplant centers. Caregiver perspectives should help inform future interventions aimed at improving long-term outcomes for children after liver transplantation.

Wiater JM, Oshikoya O, Shields E, Vara AD, Cavinatto L and Koueiter DM (2022). "Concomitant latissimus dorsi tendon transfer during reverse total shoulder arthroplasty does not improve active external rotation or clinical outcomes in patients with external rotation deficit." Journal of Shoulder & Elbow Surgery. ePub Ahead of Print

[Full Text](#)

Department of Orthopaedic Surgery

Purpose: To assess the role of latissimus dorsi tendon transfer concomitant with reverse total shoulder arthroplasty in patients with external rotation deficit secondary to severe rotator cuff deficiency with and without glenohumeral arthritis. Methods: Patients with a positive external lag sign and $<10^\circ$ of active external rotation (aER) treated with reverse shoulder arthroplasty (RTSA) at a single institution with a minimum 12 month follow-up were retrospectively identified from a prospective database. Basic demographic information along with preoperative and postoperative range of motion (ROM) measures, American Shoulder and Elbow Surgeons score (ASES), visual analog scale pain (VAS), and Subjective Shoulder Value (SSV) scores were obtained. Statistical analysis was performed to compare ROM and functional outcomes between patients that underwent concomitant LDT and those with no transfer. Results: The latissimus dorsi transfer (LDT [n=31]) and no transfer (NT [n=33]) groups had similar age, sex distributions, and follow-up length average (24 vs 30 months). No differences were found between groups at baseline, final follow-up, or magnitude of change for ASES, VAS pain, and SSV scores. Baseline ROM measures were similar, except for the LDT group having slightly less aER (-8° vs 0° ; $P=0.004$). In addition, all postoperative ROM measures including aER were similar, except for a slight improvement in active internal rotation (IR) in the NT group. The majority of patients were satisfied with their outcome (LDT 84% (n=26); NT 87% (n=27); $P=0.72$). Conclusion: Patients with external rotation deficit secondary to severe rotator cuff deficiency with and without glenohumeral arthritis undergoing RTSA do not have significantly improved external rotation or patient reported outcome measures with LDT.

Willen BD, Quinn TJ, Almahariq MF, Chen PY, Jawad MS, Gustafson GS, Leung E, Wu MKY and Dilworth JT (2022). "Clinical outcomes of hypofractionated whole breast irradiation in early stage, biologically high-risk breast cancer." *Practical Radiation Oncology* 12(6): e501-e511.

[Full Text](#)

Department of Radiation Oncology

OUWB Medical Student Author

Purpose: Adoption of hypofractionated whole breast irradiation (HWBI) for patients with early-stage, biologically high-risk breast cancer remains relatively low. We compared clinical outcomes of conventionally fractionated whole breast irradiation (CWBI) versus moderate HWBI in this patient population. Methods and Materials: We queried a prospectively maintained database for patients with early-stage (T1-2, N0, M0) breast cancer who received whole breast irradiation with either CWBI or moderate HWBI at a single institution. We included only patients with biologically high-risk tumors (defined as either estrogen receptor/progesterone receptor/human epidermal growth factor receptor 2 negative, human epidermal growth factor receptor 2 amplified, and/or patients with a high-risk multigene assay) who received systemic chemotherapy. Inverse probability of treatment weighting was used to compare treatment cohorts and to estimate 5-year time to event endpoints. Hazard ratios (HR) and 95% confidence interval (CI) were determined based on Cox proportional hazards model. Results: We identified 300 patients, of whom 171 received CWBI and 129 received HWBI. There was a statistically significant difference in median age at diagnosis, 59 years for CWBI versus 63 years for HWBI ($P = .004$), and in median follow-up time, 97 months for CWBI versus 55 months for HWBI ($P < .001$). After accounting for differences in patient and tumor characteristics with inverse probability of treatment weighting, we found similar 5-year freedom from local recurrence (HR, 0.76; 95% CI, 0.14-4.1), freedom from regional recurrence (HR, 3.395% CI 0.15-69), freedom from distant metastasis (HR 3.9, 95% CI 0.86-17), and disease-free survival (HR 0.84; 95% CI, 0.3-2.4), between those treated with CWBI and those treated with HWBI. Results were similar among each of the 3 high-risk subtypes. Conclusions: Our data support the use of moderate HWBI in patients with early-stage, biologically high-risk breast cancer.

Wind J, **Park D**, Lansford T, Nunley P, Peppers T, Russo A, Hassanzadeh H, Sembrano JN, Yoo J and Sales J (2022). "Twelve-month results from a prospective clinical study evaluating the efficacy and safety of cellular bone allograft in subjects undergoing lumbar spinal fusion." Neurology International 14(4): 875-883.

[Full Text](#)

Department of Orthopaedic Surgery

Background: While autologous bone grafts remain the gold standard for spinal fusion procedures, harvesting autologous bone is associated with significant complications, including donor site infection, hematomas, increased operative time, and prolonged pain. Cellular bone allograft (CBA) presents an alternative to autologous bone harvesting, with a favorable efficacy and safety profile. The current study further investigates CBA as an adjunct to lumbar spinal fusion procedures. Methods: A prospective, multicenter, open-label clinical study was conducted in subjects undergoing lumbar spinal fusion with CBA (NCT02969616). Radiographic fusion status was assessed by an independent review of dynamic radiographs and CT scans. Clinical outcome measures included the Oswestry Disability Index (ODI) and visual analogue scale (VAS) for back and leg pain. Adverse-event reporting was conducted throughout 12 months of follow-up. Available subject data at 12 months were analyzed. Results: A total of 274 subjects were enrolled into the study, with available data from 201 subjects (73.3%) who completed 12 months of postoperative radiographic and clinical evaluation at the time of analysis. Subjects had a mean age of 60.2 ± 11.5 years. A higher number of women ($n = 124$, 61.7%) than men ($n = 77$, 38.3%) were enrolled, with a collective mean BMI of $30.6 + 6.5$ kg/m² (range 18.0-51.4). At month 12, successful fusion was achieved in 90.5% of subjects. A significant ($p < 0.001$) improvement in ODI, VAS-back, and VAS-leg clinical outcomes was also observed compared to baseline scores. One adverse event related to CBA (postoperative radiculopathy) was reported, with surgical exploration demonstrating interbody extrusion of graft material. This subject reported successful fusion at month 12. Conclusions: CBA represents a viable substitute for harvesting of autograft alone with a high rate of successful fusion and significant improvements in subject-reported outcomes, such as pain and disability. Positive benefit was observed in subjects reporting single and multiple risk factors for pseudoarthrosis.

Won KB, Lee BK, Lin FY, Hadamitzky M, Kim YJ, Sung JM, Conte E, Andreini D, Pontone G, Budoff MJ, Gottlieb I, Chun EJ, Cademartiri F, Maffei E, Marques H, de Araújo Gonçalves P, Leipsic JA, Lee SE, Shin S, Choi JH, Virmani R, Samady H, **Chinnaiyan K**, Berman DS, Narula J, Shaw LJ, Bax JJ, Min JK and Chang HJ (2022). "Glycemic control is independently associated with rapid progression of coronary atherosclerosis in the absence of a baseline coronary plaque burden: A retrospective case-control study from the PARADIGM registry." Cardiovascular Diabetology 21(1): 239.

[Full Text](#)

Department of Internal Medicine/Cardiovascular Disease

Background: The baseline coronary plaque burden is the most important factor for rapid plaque progression (RPP) in the coronary artery. However, data on the independent predictors of RPP in the absence of a baseline coronary plaque burden are limited. Thus, this study aimed to investigate the predictors for RPP in patients without coronary plaques on baseline coronary computed tomography angiography (CCTA) images. Methods: A total of 402 patients (mean age: 57.6 ± 10.0 years, 49.3% men) without coronary plaques at baseline who underwent serial coronary CCTA were identified from the Progression of Atherosclerotic Plaque Determined by Computed Tomographic Angiography Imaging (PARADIGM) registry and included in this retrospective study. RPP was defined as an annual change of $\geq 1.0\%$ /year in the percentage atheroma volume (PAV). Results: During a median inter-scan period of 3.6 years (interquartile range: 2.7-5.0 years), newly developed coronary plaques and RPP were observed in 35.6% and 4.2% of the patients, respectively. The baseline traditional risk factors, i.e., advanced age (≥ 60 years), male sex, hypertension, diabetes mellitus, hyperlipidemia, obesity, and current smoking

status, were not significantly associated with the risk of RPP. Multivariate linear regression analysis showed that the serum hemoglobin A1c level (per 1% increase) measured at follow-up CCTA was independently associated with the annual change in the PAV (β : 0.098, 95% confidence interval [CI]: 0.048-0.149; $P < 0.001$). The multiple logistic regression models showed that the serum hemoglobin A1c level had an independent and positive association with the risk of RPP. The optimal predictive cut-off value of the hemoglobin A1c level for RPP was 7.05% (sensitivity: 80.0%, specificity: 86.7%; area under curve: 0.816 [95% CI: 0.574-0.999]; $P = 0.017$). Conclusion: In this retrospective case-control study, the glycemic control status was strongly associated with the risk of RPP in patients without a baseline coronary plaque burden. This suggests that regular monitoring of the glycemic control status might be helpful for preventing the rapid progression of coronary atherosclerosis irrespective of the baseline risk factors. Further randomized investigations are necessary to confirm the results of our study.

Wood EH, Rao P, **Mahmoud TH** and **Williams GA** (2022). "Nanovitreoretinal subretinal gateway device to displace submacular hemorrhage: Access to the subretinal space without vitrectomy." Retina 42(11): 2225-2228.

[Full Text](#)

Department of Ophthalmology

Zakko P, **Rontal M** and **Park D** (2022). "Delayed esophageal perforation diagnosed 12 years after anterior cervical discectomy and fusion: A case report and review of current literature." Journal of the American Academy of Orthopaedic Surgeons Global Research & Reviews 6(10): e22.00080.

[Full Text](#)

Department of Surgery

Department of Orthopaedic Surgery

Esophageal perforation associated with anterior cervical discectomy and fusion (ACDF) is a rare but serious complication. ACDF-related esophageal perforations can be acute or delayed. Delayed perforations more than 10 years after ACDF are exceedingly rare. Here, a delayed esophageal perforation discovered 12 years after a three-level ACDF is presented. This case highlights two main points. First, all diverticula after an ACDF warrant close clinical monitoring. Second, routine follow-up should be performed for patients with screw pullout to assist in early diagnosis of delayed esophageal perforation.

Zalikhah AK, Crespi Z, Tuluca A, Zakaria PK, Hussein IH and El-Othmani MM (2022). "Underweight body mass index is associated with increased in-hospital complications and length of stay after revision total joint arthroplasty." Journal of the American Academy of Orthopaedic Surgeons 30(20): 984-991.

[Full Text](#)

Department of Foundational Medical Studies (OU)

Introduction: The purpose of this study was to assess the impact of underweight status on in-hospital postoperative outcomes and complications after revision total joint arthroplasty (rTJA) of the hip and knee. Methods: Data from the National Inpatient Sample were used to identify all patients undergoing rTJA in the United States between 2006 and 2015. Patients were divided into two groups based on a concomitant diagnosis of underweight body mass index and a control normal weight group. Propensity score analysis was performed to determine whether underweight body mass index was a risk factor for in-hospital postoperative complications and resource utilization. Results: A total of 865,993 rTJAs were analyzed. Within the study cohort, 2,272 patients were classified as underweight, whereas 863,721 were classified as a normal weight control group. Underweight patients had significantly higher rates of several comorbidities compared with the control cohort. Underweight patients had significantly higher rates of any complication (49.98% versus 33.68%, $P = 0.0004$) than normal weight patients. Underweight patients also had significantly greater length of stay compared with normal weight patients (6.50 versus

4.87 days, $P < 0.0001$). Conclusion: Underweight patients have notably higher rates of any complication and longer length of stay after rTJA than those who are not underweight. These results have important implications in preoperative patient discussions and perioperative management. Standardized preoperative protocols should be developed and instituted to improve outcomes in this patient cohort.