

**OAKLAND UNIVERSITY WILLIAM BEAUMONT SCHOOL OF MEDICINE  
PUBLICATION LIST  
January - March 2022**

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**Abushukur Y, Cascardo C, Ibrahim Y, Teklehaimanot F and Knackstedt R (2022).** "Improving breast surgery outcomes through alternative therapy: A systematic review." *Cureus* 14(3): e23443.

[Full Text](#)

*OUWB Medical Student Author*

Enhanced recovery after surgery (ERAS) protocols are the current standard of care when it comes to improving post-surgical outcomes in breast cancer patients. Compliance with all protocol items is required in order for patients to experience significant benefits. Given that the ERAS protocols involve numerous medications which each have unique side effect profiles and medication interactions, this is often difficult to accomplish. Additionally, breast cancer patients are often left with a large psychological burden, which ERAS protocols fail to address. This review aims to determine the role that alternative therapies can play in improving both the emotional and physical strains patients experience during the post-operative stage of recovery. A PubMed search was conducted using the following search terms ("alternative medicine" or "complementary medicine" or "integrative medicine" or "holistic medicine" or "natural medicine" or "mediation" or "aromatherapy" or "music" or "art" or "reiki" or "massage") and ("surgery") and ("pain"). Studies selected for this review include articles published or translated in English that addressed alternative medical interventions affecting pre-, peri-, or post-operative outcomes in breast biopsies, surgeries, or breast-related procedures. Eighteen articles fit the inclusion criteria, with seven addressing music, five addressing meditation, yoga, and guided imagery, five addressing massage, one addressing myofascial release, four addressing aromatherapy, two addressing acupuncture, and three addressing hypnosis. Most forms of alternative therapies offered some benefit to patients following breast-related procedures, many resulting in improvements in post-operative outcomes including pain, fatigue, energy, stress, anxiety, mood, and depression. The reviewed studies demonstrated numerous benefits to integrating alternative medicine into standardized therapy to improve postoperative outcomes. Most studies analyzed did not include placebo controls as including proper placebos was often not feasible. Future studies with larger sample sizes are needed to better quantify the

benefits patients receive from these noninvasive, low-risk complementary therapies.

Agochukwu-Mmonu N, Qi J, Dunn RL, Montie J, Wittmann D, Miller D, Martin R, Kim T, **Johnston WK** and Peabody J (2022). "Patient- and surgeon-level variation in patient-reported sexual function outcomes following radical prostatectomy over 2 years: Results from a Statewide Surgical Improvement Collaborative." JAMA Surgery 157(2): 136-144.

[Full Text](#)

*Department of Urology*

Importance: Of patient-reported outcomes for individuals undergoing radical prostatectomy, sexual function outcomes are among the most reported and the most detrimental to quality of life. Understanding variations at the patient and surgeon level may inform collaborative quality improvement. Objective: To describe patient- and surgeon-level sexual function outcomes for patients undergoing radical prostatectomy in the Michigan Urological Surgery Improvement Collaborative (MUSIC) and to examine the correlation between surgeon case volume and sexual function outcomes. Design, Setting, and Participants: This is a prospective cohort study using the MUSIC registry and patient-reported sexual function outcome data. Patient- and surgeon-level variation in sexual function outcomes were examined among patients undergoing radical prostatectomy from May 2014 to August 2019. Sexual function outcome data were collected using validated questionnaires, which were completed before surgery and at 3, 6, 12, and 24 months' follow-up following surgery. All participants were male. Race and ethnicity data were self-reported and were included to examine potential variation in outcomes by race and/or ethnicity. Data were analyzed from January 2021 to March 2021. Main Outcomes and Measures: There were 4 outcomes in this study, including the 26-item Expanded Prostate Cancer Index Composite (EPIC-26) sexual function scores at 3, 6, 12, and 24 months' follow-up; patient-level sexual function recovery at 12- and 24-month follow-up; surgeon-level variation in sexual function outcomes at 12- and 24-month follow-up; and correlation between surgeon case volume and sexual function outcomes. Results: A total of 1426 male patients met inclusion criteria for this study. The median (IQR) age was 64 (58-68) years. A total of 115 participants (8%) were Black, 1197 (84%) were White, 25 (2%) were of another race or ethnicity (consolidated owing to low numbers), and 89 (6%) were of unknown race or ethnicity. Among patients undergoing bilateral nerve-sparing radical prostatectomy, mean (SD) EPIC-26 sexual function scores at 12- and 24-month follow-up (12 months, 39 [28]; 24 months, 63 [29]) did not return to baseline levels. There was wide variation in EPIC-26 sexual function scores at both 12-month follow-up (range, 23-69;  $P < .001$ ) and 24-month follow-up (range, 27-64;  $P < .001$ ). Similar variations were found in EPIC-26 sexual function scores and recovery of sexual function by surgeon. Recovery rates ranged from 0% to 40% of patients at 12-month follow-up (18 surgeons;  $P < .001$ ) and 3% to 44% of patients at 24-month follow-up (12 surgeons;  $P < .001$ ). Surgeon case volume and sexual function outcomes were not significantly correlated. On multivariable analysis, the following variables were associated with better recovery at 24-month follow-up: younger age ( $P < .001$ ), lower baseline EPIC-26 sexual function score ( $P < .001$ ), lower Gleason score ( $P = .05$ ), and nonobesity ( $P = .03$ ). Conclusions and Relevance: In this study, there was significant patient- and surgeon-level variation in sexual function recovery over 2 years following radical prostatectomy. Variation in surgeon-level sexual function outcomes presents an opportunity and model for surgical collaborative quality improvement.

Ajibade DA, Mourad W, Medina G and **Wiater JM** (2022). "Simultaneous bilateral shoulder arthroplasty: A case series." Journal of Shoulder and Elbow Surgery. ePub Ahead of Print.

[Full Text](#)

### *Department of Orthopaedic Surgery*

Background: Staged bilateral shoulder arthroplasty procedures have been shown to have good functional outcomes. The next step is to explore the option of simultaneous bilateral shoulder arthroplasty (SBSA). We report on the first case series of SBSA in the United States. The purpose of this study was to examine the safety and postoperative complication profile of SBSA and provide a technique reference for surgeons considering performing or investigating this procedure. Methods: We conducted a retrospective record review of all the SBSA procedures performed by the senior author between 2007 and 2020. Patient demographic characteristics, surgical information, and postoperative data were collected. Data were compiled, and means, standard deviations, and ranges were calculated. Any readmissions or postoperative complications requiring revision were noted. A cohort of patients matched for age, sex, and body mass index with staged (sequential) bilateral total shoulder arthroplasty was analyzed for comparison. Results: Thirteen patients were identified in the simultaneous group (SBSA). The mean age was  $64 \pm 15$  years, with 9 women (69%) and 4 men (31%); the mean body mass index was  $29.1 \pm 7.5$ . The mean American Society of Anesthesiologists score was  $2.55 \pm 0.7$ , average blood loss was  $364 \pm 170$  mL (range, 50-600 mL), 5 of 13 patients (38%) underwent blood transfusions, and the mean surgical time was  $183 \pm 42$  minutes. Postoperatively, the mean visual analog scale pain score on postoperative day 1 was  $4 \pm 2$  (range, 0-7), and the mean length of stay was 3.3 days. Postoperative complications included urinary tract infections in 2 patients, urinary retention in 2 patients, and recurrence of paroxysmal atrial fibrillation in 1 patient. No patient was readmitted within 90 days of surgery. One patient underwent a reoperation 2 years postoperatively for symptomatic hardware removal (cerclage cables around the tuberosities). A matched cohort of staged bilateral total shoulder arthroplasty patients was analyzed for comparison. Postoperative complications in the staged group included 1 reverse total shoulder arthroplasty patient with subjective instability that was managed with additional physical therapy. There were no documented readmissions within 90 days or revision arthroplasty procedures in either cohort. Conclusions: SBSA is a reasonable procedure that can be useful in select patients, with promising short-term safety noted in this series. Prospective randomized studies are needed to assess the long-term safety and efficacy of the procedure.

Al-Othman YA, Kroneman O, Kumar S, **Li W, Kanaan HD**, Liu ML, Qu H and **Zhang PL** (2022). "Resolving primary membranous glomerulopathy (MGN) reveals a dynamically metabolic pathway from sub-epithelium to glomerular basement membranes." *Ultrastructural Pathology* 46(1): 122-129.

[Full Text](#)

### *Department of Pathology*

In idiopathic (primary) membranous glomerulopathy (MGN), there is a phenomenon of subepithelial deposits (stages 1 and 2) transitioned to intramembranous deposits, with lucent resolving features (stages 3 and 4). This phenomenon has not been described in other types of immune complex mediated glomerulonephritis with either subendothelial or mesangial deposits. The goal of this study was to evaluate what unique immunostaining pattern could occur in primary MGNs with intramembranous resolving features. PLA2R and IgG4 immunostains were performed in 50 primary MGNs, and 39 secondary MGNs after the clinical history was reviewed. Primary MGNs with resolving features were further evaluated in detail. A total of 84% (42/50) of primary MGN cases had diffuse positive immunostaining for IgG4 in the glomeruli, and most of them were also positive for PLA2R staining. Eight of the remaining primary MGN cases (8/50) with positive PLA2R but negative IgG4 staining in the glomeruli had diffuse resolving features as observed by electron microscopy. All secondary MGNs were stained negatively for both IgG4 and PLA2R except for one case with positive IgG4 staining but negative

staining for PLA2R. Our data indicate that IgG4 staining on paraffin tissue is a very reliable screening tool to confirm the presence of primary MGN. Primary MGN with PLA2R+/IgG4- stains were seen in those with intramembranous resolving features. This finding is consistent with the known weak-binding capacity of IgG4 to the glomerular basement membranes. The transitional phenomenon from PLA2R+/IgG4+ subepithelial deposits to PLA2R+/IgG4- intramembranous resolving deposits in primary MGN implies that there may be a continuous metabolic activity from podocyte to glomerular basement membrane.

**Alakhras H**, Goodman BD, Zimmer M and Aguinaga S (2022). "Confusion, hallucinations, and primary polydipsia: A rare presentation of neurosarcoidosis." Cureus 14(1): e21687.

[Full Text](#)

*OUWB Medical Student Author*

Neurosarcoidosis is a rare manifestation of sarcoidosis that can exhibit a variety of neuropsychiatric symptoms and can present independently of pulmonary or other systemic symptoms. This is the case of a 51-year-old African American male who presented with recurrent episodes of auditory and visual hallucinations, confusion, seizures that did not respond to antiepileptics, and recent-onset primary polydipsia. In the emergency department, he did not have meningeal signs, focal neurologic deficits, or a fever. Magnetic resonance imaging (MRI) of the brain demonstrated diffuse meningeal enhancement. The patient underwent a lumbar puncture (LP), with cerebrospinal fluid (CSF) analysis notably revealing an elevated angiotensin-converting enzyme (ACE), an elevated CD4:CD8 ratio, and a negative infectious panel, while computed tomography (CT) imaging showed bilateral hilar lymphadenopathy. He also had an endobronchial ultrasound (EBUS) with biopsy which did not reveal granulomas. Although sarcoidosis requires granulomas for a definite diagnosis, studies and symptoms were consistent with neurosarcoidosis, and this can suggest that the disease was isolated to the central nervous system (CNS). This case highlights the need for further understanding of psychiatric symptoms as a sign of isolated neurosarcoidosis.

**Alhousseini A**, Sajja S, Turkoglu O, **Wharton K**, Gage K, **Saad J**, 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?" American Journal of Obstetrics & Gynecology 226(1): S28-S29.

[Full Text](#)

*Department of Obstetrics and Gynecology*

*OUWB Medical Student Author*

Allen SG, Dragovic AF, Yin H, Bryant AK, Paximadis P, Matuszak MM, Schipper M, Dess RT, Hayman JA, Dominello MM, Kestin LL, **Grills IS**, Movsas B, Jolly S and Bergsma DP (2022). "Prospective evaluation of Limited Stage Small Cell Lung Cancer (LS-SCLC) fractionation regimen usage and toxicity in a large Statewide Quality Collaborative." International Journal of Radiation Oncology Biology Physics 112(2): E7-E8.

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*Department of Radiation Oncology*

**Attardi SM**, Harmon DJ, **Barremkala M**, Bentley DC, Brown KM, Dennis JF, Goldman HM, Harrell KM, Klein BA, Ramnanan CJ and Farkas GJ (2022). "An analysis of anatomy education before and during COVID-19: August-December 2020." Anatomical Sciences Education 15(1): 5-26.

[Full Text](#)

*Department of Foundational Medical Studies (OU)*

Coronavirus disease-2019 (Covid-19) disrupted the in-person teaching format of anatomy. To study changes in gross anatomy education that occurred during August-December, 2020 compared to before the pandemic, an online survey was distributed to anatomy educators. The 191 responses received were analyzed in total and by academic program, geographic region, and institution type. Cadaver use decreased overall (before:  $74.1 \pm 34.1\%$ , during:  $50.3 \pm 43.0\%$ ,  $P < 0.0001$ ), as well as across allopathic and osteopathic medicine, therapy, undergraduate, and veterinary programs ( $P < 0.05$ ), but remained unchanged for other programs ( $P > 0.05$ ). Cadaver use decreased internationally and in the US ( $P < 0.0001$ ), at public and private ( $P < 0.0001$ ) institutions, and among allopathic medical programs in Northeastern, Central, and Southern ( $P < 0.05$ ), but not Western, US geographical regions. Laboratories during Covid-19 were delivered through synchronous (59%), asynchronous (4%), or mixed (37%) formats ( $P < 0.0001$ ) and utilized digital resources (47%), dissection (32%), and/or prosection (21%) ( $P < 0.0001$ ). The practical laboratory examination persisted during Covid-19 ( $P = 0.419$ ); however, the setting and materials shifted to computer-based ( $P < 0.0001$ ) and image-based ( $P < 0.0001$ ), respectively. In-person lecture decreased during Covid-19 (before: 88%, during: 24%,  $P = 0.003$ ). When anatomy digital resources were categorized, dissection media, interactive software, and open-access content increased ( $P \leq 0.008$ ), with specific increases in BlueLink, Acland's Videos, and Complete Anatomy ( $P < 0.05$ ). This study provided evidence of how gross anatomy educators continued to adapt their courses past the early stages of the pandemic.

**Attardi SM**, Mintz NM and Rogers KA (2022). "Perspectives of online anatomy teachers: A neglected study population struggles with the invisible student." *Anatomical Sciences Education* 15(2): 233-248.

[Full Text](#)

*Department of Foundational Medical Studies (OU)*

Online teachers are an under-researched population, but their perspectives are crucial to the successful implementation of online education. A fully online section of an established face-to-face (F2F) two-semester undergraduate anatomy course with a prosection laboratory commenced in 2012 at The University of Western Ontario, Canada. Professors' lectures for F2F students were broadcast in live and archived format to online students using Blackboard Collaborate (BBC) video conferencing software. Teaching assistants (TAs) delivered online laboratories using BBC and three-dimensional (3D) anatomical computer models. This study explored the common experiences and issues faced by the course teachers from 2012 to 2014. Transcripts from open-ended, individual interviews with professors ( $n = 4$ ) and TAs ( $n = 5$ ) were coded and analyzed thematically. The teachers' concern for their inability to see the students during sessions to assess class engagement and their teaching effectiveness, and to develop social relationships, was the main finding. However, video conferencing software and email were sufficient communication methods for the students' questions and the teachers' answers. The TAs noted usability challenges and anatomical inaccuracies in the 3D models compared to cadavers. Due to limitations of BBC's screen sharing function, live manipulation for the 3D computer models was not possible; however, the TAs found pedagogical value in using screen captures of the models for drawing activities with the students. Overall, preparation time for teaching online was longer than for F2F. The study's findings provide science educators with issues to consider when preparing for online teaching and recommendations to optimize the teaching experience.

**Bahado-Singh RO**, Turkoglu O, **Yilmaz A**, Kumar P, Zeb A, Konda S, Sherman E, Kirma J, Allos M, Odibo A, Maulik D and **Graham SF** (2022). "Metabolomic identification of placental alterations in fetal growth restriction." *Journal of Maternal-Fetal & Neonatal Medicine* 35(3): 447-456.

[Full Text](#)

*Department of Obstetrics and Gynecology*

**Bahado-Singh RO**, Vishweswaraiah S, Aydas B, **Yilmaz A**, Saiyed NM, Mishra NK, Guda C and Radhakrishna U (2022). "Precision cardiovascular medicine: Artificial intelligence and epigenetics for the pathogenesis and prediction of coarctation in neonates." Journal of Maternal-Fetal & Neonatal Medicine 35(3): 457-464.

[Full Text](#)

*Department of Obstetrics and Gynecology*

**Bahl A**, **Hijazi M** and Chen NW (2022). "Vesicant infusates are not associated with ultrasound-guided peripheral intravenous catheter failure: A secondary analysis of existing data." PLoS ONE 17(1 January): e0262793.

[Full Text](#)

*Department of Emergency Medicine*

*OUWB Medical Student Author*

Background: Intravenous vesicants are commonly infused via peripheral intravenous catheters (PIVC) despite guidelines recommending administration via central route. The impact of these medications on PIVC failure is unclear. We aimed to assess dose-related impact of these caustic medications on ultrasound-guided (US) PIVC survivorship. Methods: We performed a secondary analysis of a randomized control trial that compared survival of two catheters: A standard long (SL) and an ultra-long (UL) US PIVC. This study involved reviewing and recording all vesicant infusions through the PIVCs. Type and number of vesicant doses were extracted and characterized as one, two or multiple. The most commonly used vesicants were individually categorized for further analysis. The primary outcome was PIVC failure accounting for use and timing of vesicant infusates. Results: Between October 2018 and March 2019, 257 subjects were randomized with 131 in the UL group and 126 in the SL group. Vesicants were infused in 96 (37.4%) out of 257 study participants. In multivariable time-dependent extended Cox regression analysis, there was no significant increased risk of failure due to vesicant use [adjusted hazard ratio, aHR 1.71 (95% CI 0.76-1.81) p = 0.477]. The number of vesicant doses was not significantly associated with the increased risk of PIVC failure [(1 vs 0) aHR 1.20 (95% CI 0.71-2.02) p = 0.500], [(2 vs 0) aHR 1.51 (95% CI 0.67-3.43) p = 0.320] and [(≥ 3 vs 0) aHR 0.98 (95% CI 0.50-1.92) p = 0.952]. Conclusion Vesicant usage did not significantly increase the risk of PIVC failure even when multiple doses were needed in this investigation. Ultrasound-guided PIVCs represent a pragmatic option when vesicant therapy is anticipated. Nevertheless, it is notable that overall PIVC failure rates remain high and other safety events related to vesicant use should be considered when clinicians make vascular access decisions for patients. Conclusion: Vesicant usage did not significantly increase the risk of PIVC failure even when multiple doses were needed in this investigation. Ultrasound-guided PIVCs represent a pragmatic option when vesicant therapy is anticipated. Nevertheless, it is notable that overall PIVC failure rates remain high and other safety events related to vesicant use should be considered when clinicians make vascular access decisions for patients.

Balanescu DV, Schick A, Chen A, **Pataroque K**, **Sekhon M**, **Davila FR** and **Long GW** (2022). "Septic endarteritis due to vascular closure device infection." Journal of the American College of Cardiology 79(9): 3311-3311.

[Full Text](#)

*OUWB Medical Student Author*

*Department of Internal Medicine/Hospitalist Medicine  
Department of Surgery*

**Balinski AM** and Preuss CV (2022). "Cilostazol," (ed). StatPearls. Treasure Island (FL): StatPearls Publishing.

[Full Text](#)

*OUWB Medical Student Author*

Cilostazol is a quinolone derivative primarily used to treat intermittent claudication due to peripheral vascular disease, the FDA-approved indication. Cilostazol is also indicated for secondary prevention in patients with a history of transient ischemic attacks or non-cardioembolic ischaemic stroke. Cilostazol improves walking distance by promoting vasodilation and antiplatelet activity with inhibition of phosphodiesterase III and subsequent increases in available cAMP. This activity reviews the indications, contraindications, and use of cilostazol and highlights the role of the interprofessional team in monitoring the adverse effects of the drug.

Bax AM, Yoon YE, Gianni U, van Rosendaal AR, Lu Y, Ma XY, Goebel BP, Tantawy SW, Andreini D, Budoff MJ, Cademartiri F, **Chinnaiyan K**, Choi JH, Conte E, Goncalves PD, Gottlieb I, Hadamitzky M, Leipsic JA, Maffei E, Pontone G, Shin S, Kim YJ, Lee BK, Chun EJ, Sung JM, Lee SE, Berman DS, Narula J, Lin FY, Chang HJ and Shaw LJ (2022). "Vessel-specific plaque features on coronary computed tomography angiography among patients of varying atherosclerotic cardiovascular disease risk." European Heart Journal-Cardiovascular Imaging. ePub Ahead of Print.

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*Department of Internal Medicine/Cardiovascular Disease*

**Aims:** The relationship between AtheroSclerotic CardioVascular Disease (ASCVD) risk and vessel-specific plaque evaluation using coronary computed tomography angiography (CCTA), focusing on plaque extent and composition, has not been examined. To evaluate differences in quantified plaque characteristics (using CCTA) between the three major coronary arteries [left anterior descending (LAD), right coronary (RCA), and left circumflex (LCx)] among subgroups of patients with varying ASCVD risk. **Methods and Results:** Patients were included from a prospective, international registry of consecutive patients who underwent CCTA for evaluation of coronary artery disease. ASCVD risk groups were <7.5% (low), 7.5-20% (intermediate), and ≥ 20% (high). Among the ASCVD risk groups, the three coronary arteries were compared regarding quantified plaque volume and composition. Whole-heart plaque quantification was performed in 1340 patients (age 60 +/- 9 years, 58% men). Across low, intermediate, and high ASCVD risk patients, the volume of plaque increased proportionally but was least in the LCx (7.4, 9.0, and 25.3 mm<sup>3</sup>), respectively) as compared with the RCA (19.3, 32.6, and 67.0 mm<sup>3</sup>), respectively, all P ≤ 0.006) and LAD (39.9, 60.8, and 93.3 mm<sup>3</sup>), respectively, all P < 0.001). In each ASCVD risk group, the composition of plaque in the LCx exhibited the least necrotic core and fibrofatty plaque (P < 0.05 vs. LAD and RCA). **Conclusion:** Among patients with varying risk of ASCVD, plaque in the LCx is decidedly less and is comprised of less non-calcified plaque supporting prior evidence of the lower rates of acute coronary events in this vessel.

Beaudoin FL, Zhai W, Merchant RC, Clark MA, Kurz MC, Hendry P, **Swor RA**, Peak D, Pearson C, Domeier R, Ortiz C and McLean SA (2022). "This article corrects: "Persistent and widespread pain among blacks six weeks after MVC: Emergency department-based cohort study"." Western Journal of Emergency Medicine 23(2): 289.

[Full Text](#)

*Department of Emergency Medicine*

**Becker S**, Spiller HA, Badeti J, Funk AR, Casavant MJ, Zhu M, Michaels NL and Smith GA (2022). "Cocaine exposures reported to United States poison control centers, 2000-2020." Clinical Toxicology. ePub Ahead of Print.

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*OUWB Medical Student Author*

Objective: To investigate characteristics of cocaine exposures reported to US Poison Control Centers. Methods: Data from the National Poison Data System regarding cocaine-related calls to regional poison control centers from January 1, 2000 to December 31, 2020 were analyzed. Results: There were 59,466 first-ranked cocaine-related calls managed by poison control centers during the study period. Males accounted for more than two-thirds (70.3%) of these cases. The 20-29-year-old age group had the highest cocaine exposure rate, followed by 30-39-year-olds. Admission to a health care facility (HCF) occurred in 38.9% of cases and 41.1% of individuals had a serious medical outcome. Serious medical outcome (OR: 1.50, 95% CI: 1.39-1.61) and admission to a HCF (OR: 1.12, 95% CI: 1.06-1.19) were more likely to occur among individuals 13 years or older than among individuals <13 years old. Cocaine exposures involving additional substances were more likely to lead to a serious medical outcome (OR: 2.22, 95% CI: 2.14-2.29) and admission to a HCF (OR: 2.52, 95% CI: 2.43-2.61) than exposures to cocaine alone. Overall, the proportion of exposures resulting in a serious medical outcome increased from 39.9% in 2000 to 60.4% in 2020 ( $p < 0.0001$ ). Likewise, the proportion of exposures resulting in admission to a HCF increased from 49.1% in 2000 to 54.4% in 2020 ( $p < 0.0001$ ). There was also an increase in the rate of fatal cocaine cases from 2012 to 2020, driven by multiple-substance exposures. Conclusions: Cocaine exposures are a serious public health problem associated with substantial morbidity and mortality. The severity of cocaine exposures increased during the study period, reflected in an increased rate of fatal cocaine exposures since 2012 and increased proportions of serious medical outcomes and cases requiring admission to a health care facility. Additional efforts to prevent initiation of cocaine use and treat addiction among high-risk groups should be undertaken.

**Berger DA** and Yiadom M (2022). "ECG to activation: Not an appropriate physician metric, but a worthy process metric." Journal of Emergency Medicine 62(1): 129-130.

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*Department of Emergency Medicine*

Boudiab E, Kawak S, Tom A, Studzinski D, **Novotny N**, **Brahmamdham P** and **Akay B** (2022). "Prospective evaluation of an evidence-based decision tool to assess pediatric blunt abdominal trauma (BAT)." Pediatric Surgery International 38(1): 183-191.

[Full Text](#)

*Department of Pediatrics*

*Department of Surgery*

**Brummett A** (2022). "Defending secular clinical ethics expertise from an Engelhardt-inspired sense of theoretical crisis." Theoretical Medicine & Bioethics 43(1): 47-66.

[Full Text](#)

*Department of Foundational Medical Studies (OU)*

**Brummett A** and Bach M (2022). "Dementia, beauty, and play: A way of seeing and being with the wearisome patient." Clinical Ethics 17(1): 87-89.

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*Department of Foundational Medical Studies (OU)*

We describe a case of an elderly patient suffering from advanced dementia (Mrs. M) whose chronic confusion has become a source of frustration for her caregivers. Mrs. M experiences a touching interaction with a new nurse (Nathan) who takes a different approach with her. We describe this interaction and elaborate upon it by drawing from Catholic social teaching and the philosophy of play. Cases like these do not involve dramatic or esoteric ethical problematics, but rather the sort of dilemma born of the everyday tragedies of lingering illness, aging and caretakers' fatigue. Nathan's approach offers a different way of seeing and being with the wearisome patient.

**Brummett AL** (2022). "The baffling babble of brain injury." Health Communication 37: 255-257.

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*Department of Foundational Medical Studies (OU)*

This paper presents a dialogue that demonstrates the baffling babble of brain injury, a phenomenon that can occur when physicians' medical information is either exceedingly vague or delivered through terminology that can be misinterpreted by surrogates. Brain babble is distinguished from more traditional forms of miscommunication in the clinical context because of the significant degree of clinical uncertainty, existential weight, and the ability to create lose-lose decisions from which clinicians experience moral distress after providing treatments the surrogates never would have requested had they a better understanding of their loved one's neurologic injury. The paper ends with some recommendations for discussing severe brain injury with surrogates.

Calderwood AH, Sawhney MS, Thosani NC, Rebbeck TR, Wani S, Canto MI, Fishman DS, Golan T, Hidalgo M, Kwon RS, Riegert-Johnson DL, Sahani DV, Stoffel EM, Vollmer CM, Al-Haddad MA, Amateau SK, Buxbaum JL, DiMaio CJ, Fujii-Lau LL, **Jamil LH**, Jue TL, Law JK, Lee JK, Naveed M, Pawa S, Storm AC and Qumseya BJ (2022). "American Society for Gastrointestinal Endoscopy guideline on screening for pancreatic cancer in individuals with genetic susceptibility: Methodology and review of evidence." Gastrointestinal Endoscopy. ePub Ahead of Print.

[Full Text](#)

*Department of Internal Medicine/Gastroenterology*

Campbell JP, Chiang MF, Chen JS, Moshfeghi DM, Nudleman E, Ruambivoonsuk P, Cherwek H, Cheung CY, Singh P, Kalpathy-Cramer J, Ostmo S, Eydelman M, Chan RVP and **Capone A, Jr.** (2022). "Artificial intelligence for retinopathy of prematurity: Validation of a vascular severity scale against international expert diagnosis." Ophthalmology. ePub Ahead of Print.

[Full Text](#)

*Department of Ophthalmology*

Purpose: To validate a vascular severity score as an appropriate output for artificial intelligence (AI) Software as a Medical Device (SaMD) for retinopathy of prematurity (ROP) through comparison with ordinal disease severity labels for stage and plus disease assigned by the International Classification of Retinopathy of Prematurity, Third Edition (ICROP3), committee. Design: Validation study of an AI-based ROP vascular severity score. Participants: A total of 34 ROP experts from the ICROP3 committee. Methods: Two separate datasets of 30 fundus photographs each for stage (0-5) and plus disease (plus, preplus, neither) were labeled by members of the ICROP3 committee using an open-source platform. Averaging these results produced a continuous label for plus (1-9) and stage (1-3) for each image. Experts were also

asked to compare each image to each other in terms of relative severity for plus disease. Each image was also labeled with a vascular severity score from the Imaging and Informatics in ROP deep learning system, which was compared with each grader's diagnostic labels for correlation, as well as the ophthalmoscopic diagnosis of stage. Main Outcome Measures: Weighted kappa and Pearson correlation coefficients (CCs) were calculated between each pair of grader classification labels for stage and plus disease. The Elo algorithm was also used to convert pairwise comparisons for each expert into an ordered set of images from least to most severe. Results: The mean weighted kappa and CC for all interobserver pairs for plus disease image comparison were 0.67 and 0.88, respectively. The vascular severity score was found to be highly correlated with both the average plus disease classification (CC = 0.90,  $P < 0.001$ ) and the ophthalmoscopic diagnosis of stage ( $P < 0.001$  by analysis of variance) among all experts. Conclusions: The ROP vascular severity score correlates well with the International Classification of Retinopathy of Prematurity committee member's labels for plus disease and stage, which had significant intergrader variability. Generation of a consensus for a validated scoring system for ROP SaMD can facilitate global innovation and regulatory authorization of these technologies.

Chang P, Wagner AA, Regan MM, Smith JA, Saigal CS, Litwin MS, Hu JC, Cooperberg MR, Carroll PR, Klein EA, Kibel AS, Andriole GL, Han M, Partin AW, **Wood DP**, Crociani CM, Greenfield TK, Patil D, Hembroff LA, Davis K, Stork L, Spratt DE, Wei JT and Sanda MG (2022). "Prospective multicenter comparison of open and robotic radical prostatectomy: The PROST-QA/RP2 Consortium." Journal of Urology 207(1): 127-136.

[Request Form](#)

*Department of Urology*

Purpose: Our goal was to evaluate the comparative effectiveness of robotassisted laparoscopic prostatectomy (RALP) and open radical prostatectomy (ORP) in a multicenter study. Materials and Methods: We evaluated men with localized prostate cancer at 11 high-volume academic medical centers in the United States from the PROST-QA (2003-2006) and the PROST-QA/RP2 cohorts (2010-2013) with a pre-specified goal of comparing RALP (549) and ORP (545). We measured longitudinal patient-reported health-related quality of life (HRQOL) at pre-treatment and at 2, 6, 12, and 24 months, and pathological and perioperative outcomes/complications. Results: Demographics, cancer characteristics, and margin status were similar between surgical approaches. ORP subjects were more likely to undergo lymphadenectomy (89% vs 47%;  $p < 0.01$ ) and nerve sparing (94% vs 89%;  $p < 0.01$ ). RALP vs ORP subjects experienced less mean intraoperative blood loss (192 vs 805 mL;  $p < 0.01$ ), shorter mean hospital stay (1.6 vs 2.1 days;  $p < 0.01$ ), and fewer blood transfusions (1% vs 4%;  $p < 0.01$ ), wound infections (2% vs 4%;  $p = 0.02$ ), other infections (1% vs 4%;  $p < 0.01$ ), deep venous thromboses (0.5% vs 2%;  $p = 0.04$ ), and bladder neck contractures requiring dilation (1.6% vs 8.3%;  $p < 0.01$ ). RALP subjects reported less pain ( $p = 0.04$ ), less activity interference ( $p < 0.01$ ) and higher incision satisfaction ( $p < 0.01$ ). Surgical approach (RALP vs ORP) was not a significant predictor of longitudinal HRQOL change in any HRQOL domain. Conclusions: In high-volume academic centers, RALP and ORP patients may expect similar long-term HRQOL outcomes. Overall, RALP patients have less pain, shorter hospital stays, and fewer post-surgical complications such as blood transfusions, infections, deep venous thromboses, and bladder neck contractures.

Chernyavsky A, Khylynskyi MM, **Patel KG** and Grando SA (2022). "Chronic exposure to the anti-M3 muscarinic acetylcholine receptor autoantibody in pemphigus vulgaris contributes to disease pathophysiology." Journal of Biological Chemistry 298(3): 101687.

[Full Text](#)

*OUWB Medical Student Author*

*Pemphigus vulgaris* (PV) is a potentially lethal autoimmune mucocutaneous blistering disease characterized by binding of IgG autoantibodies (AuAbs) to keratinocytes (KCs). In addition to AuAbs against adhesion molecules desmogleins 1 and 3, PV patients also produce an AuAb against the M3 muscarinic acetylcholine (ACh) receptor (M3AR) that plays an important role in regulation of vital functions of KCs upon binding endogenous ACh. This anti-M3AR AuAb is pathogenic because its adsorption eliminates the acantholytic activity of PV IgG; however, the molecular mechanism of its action is unclear. In the present study, we sought to elucidate the mode of immunopharmacologic action of the anti-M3AR AuAb in PV. Short-term exposures of cultured KCs to PV IgG or the muscarinic agonist muscarine both induced changes in the expression of keratins 5 and 10, consistent with the inhibition of proliferation and upregulated differentiation and in keeping with the biological function of M3AR. In contrast, long-term incubations induced a keratin expression pattern consistent with upregulated proliferation and decreased differentiation, in keeping with the hyperproliferative state of KCs in PV. This change could result from desensitization of the M3AR, representing the net antagonist-like effect of the AuAb. Therefore, chronic exposure of KCs to the anti-M3AR AuAb interrupts the physiological regulation of KCs by endogenous ACh, contributing to the onset of acantholysis. Since cholinergic agents have already demonstrated antiacantholytic activity in a mouse model of PV and in PV patients, our results have translational significance and can guide future development of therapies for PV patients employing cholinergic drugs.

**Cholack G**, Garfein J, Krallman R, Feldeisen D, Montgomery D, Kline-Rogers E, Barnes GD, Eagle K, Rubenfire M and Bumpus S (2022). "Predictors of early (0-7 Days) and late (8-30 days) readmission in a cohort of acute coronary syndrome patients." *International Journal of Medical Studies* 10(1): 38-48.

[Full Text](#)

*OUWB Medical Student Author*

**Background:** Readmissions following acute coronary syndrome are unevenly distributed across the 30-day post-discharge period. There is limited data on predictors of all-cause readmission in early (0-7 day) and late (8-30 day) post-discharge periods for this population; the purpose of this retrospective cohort study was to identify predictors of early and late readmission. **Methods:** Patients at Michigan Medicine (Ann Arbor, Michigan, United States) with a principal discharge diagnosis of unstable angina, ST-segment elevation myocardial infarction, or non-ST segment elevation myocardial infarction between April 2008 and November 2017 were identified. Predictors of early and late readmission were analyzed with multivariable logistic regression models. **Results:** Of 1120 patients hospitalized following acute coronary syndrome, 198 (17.68%) were readmitted within 30 days while 70 (6.25%) were readmitted within 7 days of discharge. Of 30-day readmissions, early readmissions were more likely in females [OR 2.26, 95% confidence interval (CI) 1.23, 4.16], non-white individuals ( $p=0.05$ ), or patients requiring intensive care unit admission during hospitalization (OR 2.20, 95% CI 1.14, 4.24). Relative to patients not readmitted within 7 days, patients who were female, had history of atrial fibrillation, principal discharge diagnosis of non-ST segment elevation myocardial infarction, or required intensive care unit admission were more likely readmitted early. History of congestive heart failure was a predictor of late readmission when compared to patients not readmitted in 30 days. **Conclusion:** Following acute coronary syndrome, predictors of readmission varied between early and late readmission groups. Readmission predictors provides healthcare providers with information useful in minimizing readmissions and concomitant financial penalties.

Cicerone AP, Dailey W, Sun M, Santos A, Jeong D, Jones L, Koustas K, Drekh M, Schmitz K, Haque N,

Felisky JA, Guzman AE, Mellert K, **Trese MT, Capone A, Dreenser KA and Mitton KP** (2022). "A survey of multigenic protein-altering variant frequency in Familial Exudative Vitreo-Retinopathy (FEVR) patients by targeted sequencing of seven FEVR-linked genes." *Genes* 13(3): 495.

[Full Text](#)

*Department of Ophthalmology*

*Department of Foundational Medical Studies (BH)*

While Inherited Retinal Diseases (IRDs) are typically considered rare diseases, Familial Exudative Vitreo-Retinopathy (FEVR) and Norrie Disease (ND) are more rare than retinitis pigmentosa. We wanted to determine if multigenic protein-altering variants are common in FEVR subjects within a set of FEVR-related genes. The potential occurrence of protein-altering variants in two different genes has been documented in a very small percentage of patients, but potential multigenic contributions to FEVR remain unclear. Genes involved in these orphan pediatric retinal diseases are not universally included in available IRD targeted-sequencing panels, and cost is also a factor limiting multigenic-sequence-based testing for these rare conditions. To provide an accurate solution at lower cost, we developed a targeted-sequencing protocol that includes seven genes involved in Familial Exudative Vitreo-Retinopathy (FEVR) and Norrie disease. Seventy-six DNA samples from persons referred to clinic with possible FEVR and some close relatives were sequenced using a novel Oakland-ERI orphan pediatric retinal disease panel (version 2) providing 900 times average read coverage. The seven genes involved in FEVR/ND were: NDP (ChrX), CTNNA1 (Chr3); TSPAN12 (Chr7); KIF11 (Chr10), FZD4 (Chr11), LRP5 (Chr11), ZNF408 (Chr11). A total of 33 variants were found that alter protein sequence, with the following relative distribution: LRP5 13/33 (40%), FZD4 9/33 (27%), ZNF408 6/33 (18%), (KIF11 3/33 (9%), NDP 1/33 (3%), CTNNA1 1/33 (3%). Most protein-altering variants, 85%, were found in three genes: FZD4, LRP5, and ZNF408. Four previously known pathogenic variants were detected in five families and two unrelated individuals. Two novel, likely pathogenic variants were detected in one family (FZD4: Cys450Ter), and a likely pathogenic frame shift termination variant was detected in one unrelated individual (LRP5: Ala919CysfsTer67). The average number of genes with protein-altering variants was greater in subjects with confirmed FEVR (1.46, n = 30) compared to subjects confirmed unaffected by FEVR (0.95, n = 20), ( $p = 0.009$ ). Thirty-four percent of persons sequenced had digenic and trigenic protein-altering variants within this set of FEVR genes, which was much greater than expected in the general population (3.6%), as derived from GnomAD data. While the potential contributions to FEVR are not known for most of the variants in a multigenic context, the high multigenic frequency suggests that potential multigenic contributions to FEVR severity warrant future investigation. The targeted-sequencing format developed will support such exploration by reducing the testing cost to \$250 (US) for seven genes and facilitating greater access to genetic testing for families with this very rare inherited retinal disease.

Ciufo DJ and **Grant AM** (2022). "Orthogonal locked plating for tibiototalcalcaneal arthrodesis." *Techniques in Foot and Ankle Surgery* 21(1): 40-47.

[Full Text](#)

*Department of Orthopaedic Surgery*

Management of concomitant tibiotalar and subtalar arthrosis, particularly in the setting of talar avascular necrosis or deformity, is a challenging problem. There are poor union rates and risk of stress fracture at the proximal aspect of intramedullary devices. Fixation can be poor in the calcaneus and talus with current methods. This study describes the technique of orthogonal plating, using an anatomic precontoured plating system, for tibiototalcalcaneal arthrodesis, with and without bulk allograft. We feel this technique provides increased construct stability and

good outcomes, and 2 of our cases are presented that underwent arthrodesis using this construct at a single academic center.

Cornet MC, Kemper AR, **Maisels MJ**, Watchko J and Newman TB (2022). "Neonatal hyperbilirubinemia and bilirubin neurotoxicity: What can be learned from the database analysis?" Pediatric Research. ePub Ahead of Print.

[Request Form](#)

*Department of Pediatrics*

**Cortes C**, Desler C, Mazzoli A, Chen JY and Ferreira VP (2022). "The role of properdin and Factor H in disease." Advances in Immunology. ePub Ahead of Print.

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*Department of Foundational Medical Studies (OU)*

The complement system consists of three pathways (alternative, classical, and lectin) that play a fundamental role in immunity and homeostasis. The multifunctional role of the complement system includes direct lysis of pathogens, tagging pathogens for phagocytosis, promotion of inflammatory responses to control infection, regulation of adaptive cellular immune responses, and removal of apoptotic/dead cells and immune complexes from circulation. A tight regulation of the complement system is essential to avoid unwanted complement-mediated damage to the host. This regulation is ensured by a set of proteins called complement regulatory proteins. Deficiencies or malfunction of these regulatory proteins may lead to pro-thrombotic hematological diseases, renal and ocular diseases, and autoimmune diseases, among others. This review focuses on the importance of two complement regulatory proteins of the alternative pathway, Factor H and properdin, and their role in human diseases with an emphasis on: (a) characterizing the main mechanism of action of Factor H and properdin in regulating the complement system and protecting the host from complement-mediated attack, (b) describing the dysregulation of the alternative pathway as a result of deficiencies, or mutations, in Factor H and properdin, (c) outlining the clinical findings, management and treatment of diseases associated with mutations and deficiencies in Factor H, and (d) defining the unwanted and inadequate functioning of properdin in disease, through a discussion of various experimental research findings utilizing in vitro, mouse and human models.

DiLoreto E and **Bahl A** (2022). "Inadvertent arterial peripherally inserted central catheter insertion with corresponding electrocardiographic tracings: A case report." Journal of Infusion Nursing 45(1): 37-40.

[Full Text](#)

*Department of Emergency Medicine*

Electrocardiographic (ECG) tip confirmation is a validated technique to place the distal tip of a peripherally inserted central catheter (PICC) in the distal superior vena cava at or near the cavoatrial junction during point-of-care insertions. This case report discusses an inadvertent arterial PICC placement despite navigation technology demonstrating similar confirmatory ECG changes seen in standard venous insertions. The findings demonstrate that ECG navigation technology should not be used to rule out arterial PICC placement.

**Dixon SR**, **Rabah M**, **Emerson S**, Schultz C and Madder RD (2022). "A novel catheterization laboratory radiation shielding system: Results of pre-clinical testing." Cardiovascular Revascularization Medicine 36: 51-55.

[Full Text](#)

*Department of Internal Medicine/Cardiovascular Disease*

*Department of Diagnostic Radiology and Molecular Imaging*

Background: This pre-clinical study evaluated the efficacy of a novel shielding system to reduce scatter radiation in the cardiac catheterization laboratory. Methods: Using a scatter radiation phantom in a standard cardiac catheterization laboratory, a radiation physicist recorded radiation measurements at 20 reference points on the operator side of the table.

Measurements were made with fluoroscopy and cine with the C-arm in the posterior-anterior (PA) and 40 degrees left anterior oblique (LAO) orientations. Scatter radiation doses were compared with and without use of the shielding system. Results: Use of the shielding system was associated with >94.2% reduction in scatter radiation across all reference points in the PA and LAO projections with fluoroscopy and cine. With the shielding system, dose reductions at the location of the primary operator ranged from 97.8% to 99.8%. At locations of maximum scatter radiation, use of the shielding system resulted in dose reductions ranging from 97.8% to 99.8% with fluoroscopy and from 97.9% to 99.8% with cine. Conclusions: In this pre-clinical study, a novel radiation shielding system was observed to dramatically reduce scatter radiation doses. Based on these results, clinical testing is warranted to determine whether the shielding system will enable operators and staff to perform interventional procedures with less radiation exposure that may obviate the need to wear standard lead apparel.

Evans R, Kohan A, Moldwin R, Radecki D, Geib T and **Peters KM** (2022). "Re: Safety, tolerability, and efficacy of LIRIS 400 mg in women with interstitial cystitis/bladder pain syndrome with or without Hunner Lesions." Journal of Urology 207(1): 233-234.

[Request Form](#)

*Department of Urology*

Feuerstadt P, Louie TJ, Lashner B, Wang EEL, Diao L, Bryant JA, **Sims M**, Kraft CS, Cohen SH, Berenson CS, Korman LY, Ford CB, Litcofsky KD, Lombardo M-J, Wortman JR, Wu H, Auninš JG, McChalicher CWJ, Winkler JA and McGovern BH (2022). "SER-109, an oral microbiome therapy for recurrent infection." New England Journal of Medicine 386(3): 220-229.

[Full Text](#)

*Department of Internal Medicine/Infectious Disease*

Background: Current therapies for recurrent *Clostridioides difficile* infection do not address the disrupted microbiome, which supports *C. difficile* spore germination into toxin-producing bacteria. SER-109 is an investigational microbiome therapeutic composed of purified Firmicutes spores for the treatment of recurrent *C. difficile* infection. Methods: We conducted a phase 3, double-blind, randomized, placebo-controlled trial in which patients who had had three or more episodes of *C. difficile* infection (inclusive of the qualifying acute episode) received SER-109 or placebo (four capsules daily for 3 days) after standard-of-care antibiotic treatment. The primary efficacy objective was to show superiority of SER-109 as compared with placebo in reducing the risk of *C. difficile* infection recurrence up to 8 weeks after treatment. Diagnosis by toxin testing was performed at trial entry, and randomization was stratified according to age and antibiotic agent received. Analyses of safety, microbiome engraftment, and metabolites were also performed. Results: Among the 281 patients screened, 182 were enrolled. The percentage of patients with recurrence of *C. difficile* infection was 12% in the SER-109 group and 40% in the placebo group (relative risk, 0.32; 95% confidence interval [CI], 0.18 to 0.58;  $P < 0.001$  for a relative risk of  $< 1.0$ ;  $P < 0.001$  for a relative risk of  $< 0.833$ ). SER-109 led to less frequent recurrence than placebo in analyses stratified according to age stratum (relative risk, 0.24 [95% CI, 0.07 to 0.78] for patients  $< 65$  years of age and 0.36 [95% CI, 0.18 to 0.72] for those  $\geq 65$  years) and antibiotic received (relative risk, 0.41 [95% CI, 0.22 to 0.79] with vancomycin and 0.09 [95%

CI, 0.01 to 0.63] with fidaxomicin). Most adverse events were mild to moderate and were gastrointestinal in nature, with similar numbers in the two groups. SER-109 dose species were detected as early as week 1 and were associated with bile-acid profiles that are known to inhibit *C. difficile* spore germination. Conclusions: In patients with symptom resolution of *C. difficile* infection after treatment with standard-of-care antibiotics, oral administration of SER-109 was superior to placebo in reducing the risk of recurrent infection. The observed safety profile of SER-109 was similar to that of placebo.

Finch A, Metcalfe K, Akbari M, Friedman E, Tung NA, **Rosen B**, Eisen A, Karlan B, Foulkes W, Neuhausen SL, Senter L, McKinnon W, Elser C, Sun P, Narod SA and Hereditary Breast Cancer C (2022). "The risks of breast and ovarian cancer associated with the Ashkenazi Jewish founder allele BRCA2 6174delT." Clinical Genetics 101(3): 317-323.

[Full Text](#)

*Department of Obstetrics and Gynecology*

Approximately 1% of the Ashkenazi Jewish population carries the BRCA2 6174delT (c.5946del) pathogenic variant. It is important to have accurate knowledge of the risks of breast and ovarian cancer associated with this specific variant so that women may be counseled accordingly. In this prospective study, we estimated the risks of breast and ovarian cancer associated with the 6174delT variant compared with the risks for other pathogenic variants in the BRCA2 gene. The annual risk for developing breast cancer was significantly lower in 246 women who carried the 6174delT variant compared with 721 non-Jewish women who carried a variant at any other locus in BRCA2 (1.2% per year vs. 2.4% per year,  $p = 0.003$ ). We estimated the cumulative risk of breast cancer from age 30 to 70 to be 39% for carriers of the BRCA2 6174delT variant and 61% for carriers of other BRCA2 variants. The annual risk for ovarian or fallopian tube cancer was 0.51% per year for the 233 women who carried the 6174delT variant compared to 0.22% per year for the 1128 carriers of other BRCA2 variants; the difference was not significant. Lower risks for breast cancer associated with 6174delT may not impact screening and prevention choices, however, the discussion should be based on accurate risk assessment.

**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. ePub Ahead of Print.

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*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 socioeconomic 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 \$55 258 (SD, \$26 252). 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.

Foglesong A, Rusia A, Mertens A, Schott J, **Bloomington R**, **Bowers TR** and **Gallagher MJ** (2022). "Wait for (H)IT: Immediate and complete bypass graft failure due to heparin induced thrombocytopenia." Journal of the American College of Cardiology 79(9): 2985-2985.

[Full Text](#)

*Department of Internal Medicine/Cardiovascular Disease*

Foote DC, **Kirsch A**, **Metz T** and **Brahmamdam P** (2022). "Fetus in fetu: Use of intraoperative ultrasound for safe excision of a rare entity." BMJ Case Reports 15(3): e245371.

[Full Text](#)

*OUWB Medical Student Author*

*Department of Diagnostic Radiology and Molecular Imaging*

*Department of Pediatrics*

A prenatally diagnosed abdominal mass at 36 weeks and 0 days was further characterised by postnatal ultrasound and MRI to be likely a rare case of fetus in fetu in an otherwise healthy male. Due to close proximity to both the coeliac axis and superior mesenteric artery (SMA), surgical excision was delayed for several months. Interim CT with intravenous contrast performed at 2 months of age demonstrated the SMA travelling through the posterior aspect of the mass. Surgery proceeded at 2 months of age. Intraoperative ultrasound was used to definitively identify both the coeliac axis and SMA in order to facilitate a safe excision. The patient recovered well with an uneventful discharge to home on postoperative day 8. Pathology confirmed the diagnosis of fetus in fetu.

**Franklin BA** (2022). "Compounders of the COVID crisis: The "perfect storm"." Baylor University Medical Center Proceedings 35(1): 133-136.

[Full Text](#)

*Department of Internal Medicine/Cardiovascular Disease*

Cultural and societal factors have placed some demographic, racial, and ethnic groups at increased risk of contracting and dying from coronavirus disease (COVID-19). This commentary addresses these population disparities and other potential modulators that negatively impact associated health outcomes in the US population, with specific reference to the need for greater self-responsibility.

**Franklin BA**, Arena R, Kaminsky LA, Peterman JE, Kokkinos P and Myers J (2022). "Maximizing the cardioprotective benefits of exercise with age-, sex-, and fitness-adjusted target intensities for training." European Journal of Preventive Cardiology 29(1): E1-E3.

[Request Form](#)

*Department of Internal Medicine/Cardiovascular Disease*

**Franklin BA** and Quindry J (2022). "High level physical activity in cardiac rehabilitation: Implications for exercise training and leisure-time pursuits." Progress in Cardiovascular Diseases 70: 22-32.

[Full Text](#)

*Department of Internal Medicine/Cardiovascular Disease*

Importance: Regular moderate-to-vigorous physical activity and increased levels of cardiorespiratory fitness (CRF) are widely promoted as cardioprotective measures in secondary prevention interventions. Observations: A low level of CRF increases the risk of cardiovascular disease (CVD) to a greater extent than merely being physically inactive. An exercise capacity <5 metabolic equivalents (METs), generally corresponding to the bottom 20% of the fitness continuum, indicates a higher mortality group. Accordingly, a key objective in early cardiac rehabilitation (CR) is to increase the intensity of training to >3 METs, to empower patients to vacate this "high risk" group. Moreover, a "good" exercise capacity, expressed as peak METs, identifies individuals with a favorable long-term prognosis, regardless of the underlying extent of coronary disease. On the other hand, vigorous-to-high intensity physical activity, particularly when unaccustomed, and some competitive sports are associated with a greater incidence of acute cardiovascular events. Marathon and triathlon training/competition also have limited applicability and value in CR, are associated with acute cardiac events each year, and do not necessarily provide immunity to the development of or the progression of CVD. Furthermore, extreme endurance exercise regimens are associated with an increased incidence of atrial fibrillation and accelerated coronary artery calcification. Conclusions and Relevance: High-intensity training offers a time-saving alternative to moderate intensity continuous training, as well as other potential advantages. Additional long-term studies assessing safety, adherence, and morbidity and mortality are required before high-intensity CR training can be more widely recommended, especially in previously sedentary patients with known or suspected CVD exercising in non-medically supervised settings.

**Friedman BJ**, Chen I, Asantey K, Loeb S, Kim SP, Malik RD, Karabon P, Wunderlich-Barillas T and Chandrasekar T (2022). "Twitter engagement of medical students applying to urology residency during COVID-19: A mixed methods study." *Urology*. ePub Ahead of Print.

[Full Text](#)

*OUWB Medical Student Author*

Objective: To determine how medical students' Twitter engagement impacted the urology residency match and overall student perception of Twitter. Methods: We utilized a mixed methods approach with (1) Twitter metrics data, (2) online student surveys, and (3) qualitative semi-structured interviews. Interviews were evaluated with iterative thematic content analysis, while quantitative data were analyzed with descriptive statistics, and univariate analyses. Results: We identified 245 Twitter accounts of Urology residency applicants from the 2021 cycle. Matched students were more likely to have a Twitter account (59% matched vs 28% unmatched,  $P = .002$ ) and account creation increased following the COVID-19 pandemic announcement. Matched students' profiles were associated with more followers, bios mentioning Urology, home Urology residency programs, and no international flags and/or references. The online survey had a 16% response rate. A majority reported utilizing Twitter for residency information (95%), wanting to continue Twitter throughout residency (67%), and feeling uncomfortable tweeting about racial, political, or diversity issues (64%). Nine interviews revealed 4 themes: Twitter's opportunities for networking, Twitter's role in the application process, the burden of social media use, and professionalism. Conclusion: Students applying to Urology residency increasingly utilized Twitter during the COVID-19 pandemic and having a Twitter account was associated with matching. While Twitter may not be necessary to succeed in the match and can pose an additional time burden, applicants view it as an opportunity for learning, networking, and personal branding.

**Friedman BJ**, Nguyen J, Vollstedt A, Diaz M, Hoang Roberts L and **Sirls LT** (2022). "A modified Altis® mid-urethral sling that allows immediate post-operative adjustment: Experience in 197 patients." International Urology and Nephrology 54(2): 241-247.

[Full Text](#)

*OUWB Medical Student Author*

*Department of Urology*

Objectives: The transobturator mid-urethral Altis® “mini-sling” uses a static and a dynamic anchor on either end of a pulley suture for intraoperative tension adjustment. Given the potential for incorrect tensioning with sling placement, we adopted a modification for post-operative adjustment should stress urinary incontinence (SUI) persist. The objective is to describe technique, rate of postoperative adjustment driven by patient symptoms, and impact of preoperative/intraoperative variables. Methods: In this single-surgeon experience, retrospective chart review, demographic and clinical data were collected on patients who received the Altis® sling for SUI between 2014 and 2019. We used descriptive statistics and three-group comparison tests to assess difference in variables among tightening, loosening, or no adjustment. Results: Altis® sling placement was performed on 197 female patients with an average age of 58.7 years. Eighty-four percent (165/197) did not receive post-operative adjustment. Of the 32 patients with post-operative adjustment, 8 (4.1%) had loosening and 24 (12.2%) had tightening at an average of 10.5 days post-operatively. All tightening procedures were done in the clinic. Of the 8 patients with post-operative loosening, 6 were performed in clinic and 2 in the operating room. Preoperative and intraoperative variables were not significantly different among tightening, loosening, and no adjustment cohorts. Conclusions: This modification of the Altis® sling provides surgeons with the ability to tighten and loosen the sling for persistent SUI. All tightening and most loosening procedures were able to be performed in the clinic. The ability to easily tighten a sling in the early post-operative period may be a critical advantage.

Fung MA, Vidal CI, Armbrecht EA, Andea AA, Cassarino DS, Comfere NI, Emanuel PO, Ferringer T, Hristov AC, Kim J, Lauer SR, Linos K, Missall TA, Motaparathi K, Novoa RA, Patel R, Shalin SC, **Sundram U**, Calame A, Bennett DD, Duncan LM, Elston DM, Hosler GA, Hurley YM, Lazar AJ, Lowe L, Messina J, Myles J, Plaza JA, Prieto VG, Reddy V, Schaffer A and Subtil A (2022). "Appropriate use criteria for ancillary diagnostic testing in dermatopathology: New recommendations for 11 tests and 220 clinical scenarios from the American Society of Dermatopathology Appropriate Use Criteria Committee." Journal of Cutaneous Pathology 49(3): 231-245.

[Full Text](#)

*Department of Pathology*

Background: Appropriate use criteria (AUC) provide patient-centered physician guidance in test selection. An initial set of AUC was reported by the American Society of Dermatopathology (ASDP) in 2018. AUC reflect evidence collected at single timepoints and may be affected by evolving evidence and experience. The objective of this study was to update and expand AUC for selected tests. Methods: RAND/UCLA (RAND Corporation [Santa Monica, CA]/University of California Los Angeles) methodology used includes the following: (a) literature review; (b) review of previously rated tests and previously employed clinical scenarios; (c) selection of previously rated tests for new ratings; (d) development of new clinical scenarios; (e) selection of additional tests; (f) three rating rounds with feedback and group discussion after rounds 1 and 2. Results: For 220 clinical scenarios comprising lymphoproliferative (light chain clonality), melanocytic (comparative genomic hybridization, fluorescence in situ hybridization, reverse transcription polymerase chain reaction, telomerase reverse transcriptase promoter), vascular

disorders (MYC), and inflammatory dermatoses (periodic acid-Schiff, Gömöri methenamine silver), consensus by panel raters was reached in 172 of 220 (78%) scenarios, with 103 of 148 (70%) rated "usually appropriate" or "rarely appropriate" and 45 of 148 (30%), "appropriateness uncertain." Limitations: The study design only measures appropriateness. Cost, availability, test comparison, and additional clinical considerations are not measured. The possibility that the findings of this study may be influenced by the inherent biases of the dermatopathologists involved in the study cannot be excluded. Conclusions: AUC are reported for selected diagnostic tests in clinical scenarios that occur in dermatopathology practice. Adhering to AUC may reduce inappropriate test utilization and improve healthcare delivery.

Gill I, Edhi A, **Amin M** and **Cappell MS** (2022). "Simultaneous massive esophageal mucosal candidiasis and profound cytomegaloviral esophageal ulcers with recurrence of both infections 12 years later in a patient with long-standing AIDS: Endoscopic, radiologic, and pathologic findings." Case Reports in Gastrointestinal Medicine 2022: 9956650.

[Full Text](#)

*Department of Pathology*

*Department of Internal Medicine/Gastroenterology*

Immunocompromised patients with acquired immunodeficiency syndrome (AIDS) can develop opportunistic esophageal candidial and cytomegaloviral infections. A case is reported which extends the clinico-endoscopic severity of these infections. A 32-year-old bisexual man with AIDS since 1997, and intermittently compliant with antiretroviral therapy, presented (2007) with dysphagia and 32 kg-weight loss. EGD revealed a massive, cheesy, esophageal mucosal exudate from *Candida albicans*. Cytomegalovirus was isolated by viral culture. The patient improved after fluconazole/ganciclovir therapy. The patient re-presented (2019) with hematemesis and dysphagia. EGD revealed cheesy esophageal exudate and profound "punched out" esophageal ulcers mimicking pseudo-diverticula. Histopathology confirmed candidiasis. Viral cultures revealed cytomegalovirus. Barium esophagram revealed deep esophageal ulcers/pseudo-diverticula. Repeat EGD 8 weeks later after ganciclovir/micafungin therapy revealed mostly healed lesions. This demonstrates that AIDS patients may have massive mucosal esophageal candidiasis; that both infections can recur years after apparent eradication; and that cytomegaloviral esophageal ulcers may be profound and mimic pseudo-diverticula. A comprehensive literature review revealed only one abstract of esophageal pseudo-diverticula associated with cytomegalovirus. Simultaneous esophageal candidial and CMV infections have also been rarely reported in immunocompromised patients without AIDS.

Gilligan C, Volschenk W, Russo M, Green M, Gilmore C, Mehta V, Deckers K, De Smedt K, Latif U, Georgius P, Gentile J, Mitchell B, Langhorst M, Huygen F, Baranidharan G, Patel V, Mironer E, Ross E, Carayannopoulos A, Hayek S, Gulve A, Van Buyten JP, Tohmeh A, **Fischgrund J**, Lad S, Ahadian F, Deer T, Klemme W, Rauck R, Rathmell J, Maislin G, Heemels JP and Eldabe S (2022). "Long-term outcomes of restorative neurostimulation in patients with refractory chronic low back pain secondary to multifidus dysfunction: Two-year results of the ReActiv8-B pivotal trial." Neuromodulation. ePub Ahead of Print.

[Full Text](#)

*Department of Orthopaedic Surgery*

Background: Impaired neuromuscular control and degeneration of the multifidus muscle have been linked to the development of refractory chronic low back pain (CLBP). An implantable restorative-neurostimulator system can override the underlying multifidus inhibition by eliciting episodic, isolated contractions. The ReActiv8-B randomized, active-sham-controlled trial provided effectiveness and safety evidence for this system, and all participants received

therapeutic stimulation from four months onward. Objective: This study aimed to evaluate the two-year effectiveness of this restorative neurostimulator in patients with disabling CLBP secondary to multifidus muscle dysfunction and no indications for spine surgery. Materials and Methods: Open-label follow-up of 204 participants implanted with a restorative neurostimulation system (ReActiv8, Mainstay Medical, Dublin, Ireland) was performed. Pain intensity (visual analog scale [VAS]), disability (Oswestry disability index [ODI]), quality-of-life (EQ-5D-5L), and opioid intake were assessed at baseline, six months, one year, and two years after activation. Results: At two years (n = 156), the proportion of participants with  $\geq 50\%$  CLBP relief was 71%, and 65% reported CLBP resolution (VAS  $\leq 2.5$  cm); 61% had a reduction in ODI of  $\geq 20$  points, 76% had improvements of  $\geq 50\%$  in VAS and/or  $\geq 20$  points in ODI, and 56% had these substantial improvements in both VAS and ODI. A total of 87% of participants had continued device use during the second year for a median of 43% of the maximum duration, and 60% (34 of 57) had voluntarily discontinued (39%) or reduced (21%) opioid intake. Conclusions: At two years, 76% of participants experienced substantial, clinically meaningful improvements in pain, disability, or both. These results provide evidence of long-term effectiveness and durability of restorative neurostimulation in patients with disabling CLBP, secondary to multifidus muscle dysfunction.

**Goldstein JA and Mehta NK (2022).** "Extent of coronary atherosclerosis and ischemic myocardium foment sudden cardiac death COMMENT." Catheterization and Cardiovascular Interventions 99(3): 812-813.

[Full Text](#)

*Department of Internal Medicine/Cariovascular Disease*

Goodman MT, Lo SK, Yadav D, Wu BU, **Jamil LH**, Kwok KK, Papachristou GI, Afghani E, Choi-Kuaea Y, Waldron RT, Lombardi C, Jeon CY, Helenowski IB, Richmond E, Benante K, Habtezion A, Schering T, Khan SA, Rodriguez LM and Pandol SJ (2022). "A randomized, double-blinded, placebo-controlled trial of simvastatin to prevent recurrent pancreatitis." Pancreas 51(1): E10-E12.

[Full Text](#)

*Department of Internal Medicine/Gastroenterology*

Gorsi HS, Toll SA, Sood S, Miler S, Altinok D, Kumar-Sinha C, Mody R and **Yankelevich M (2022).** "Ongoing response in a multiply relapsed metastatic posterior fossa ependymoma A after vorinostat and concomitant irradiation." Journal of Pediatric Hematology Oncology 44(2): E576-E579.

[Full Text](#)

*Department of Pediatrics*

Posterior fossa ependymomas A confer the worst prognosis among all subtypes. They demonstrate distinct epigenetic changes, which can be targeted with epigenetic modifiers like histone deacetylase inhibitors (Vorinostat). We describe a 3-year-old male diagnosed with a posterior fossa ependymoma who had a number of recurrences requiring multimodal therapy. Molecular analysis demonstrated a BCL-6 corepressor mutation, and methylation profiling matched with posterior fossa ependymomas A. He received craniospinal irradiation and focal boost with Vorinostat. Serial imaging after irradiation revealed a progressively decreasing tumor burden with nearly complete resolution of disease at 15 months. Histone deacetylase inhibitors demonstrate promise in treatment of carefully selected cases of ependymoma.

Gudipati S and **Hanson I (2022).** "Artrial septostomy used to treat acute right heart failure in COVID-19 patient on ECMO." Journal of the American College of Cardiology 79(9): 2358-2358.

[Full Text](#)

*Department of Internal Medicine/Cardiovascular Disease*

**Guina J**, Dornfeld B and Pinals DA (2022). "A 20-year follow-up survey of police officers' experience with Tarasoff warnings: How law enforcement reacts to clinicians' duty to protect." Behavioral Sciences & the Law. ePub Ahead of Print.

[Full Text](#)

*Department of Psychiatry*

Since the Tarasoff case of 1976, mental health professionals are recognized to have a "duty to protect" third-party targets from violence-threatening patients, but little is known about what happens after clinicians warn law enforcement. In 2000, Huber et al. published a study that surveyed Michigan police about "Tarasoff warnings." We conducted a 20-year follow-up study, inviting all Michigan police and sheriff departments to participate. There were no significant differences between studies about knowledge of Tarasoff-related policies, which was low in both surveys. We found significant decreases in the number of officers who had ever intervened due to warning calls. Of the survey respondents, 83% supported documenting warning calls. For those who received warnings, 96% followed up with at least one intervention. In both studies, notifying other officers was the most common action taken. 56% said they would take action to remove a firearm. We identified opportunities for training law enforcement.

Habib PM, Serena T, Flynn CM, Hartkop A, **Wey E**, Lang D and Laveroni E (2022). "Incidental pathogenic fibrin-associated diffuse large B-cell lymphoma found during aorto-biiliac bypass." Cureus Journal of Medical Science 14(3): 23681.

[Full Text](#)

*Department of Pathology*

Fibrin-associated diffuse large B-cell lymphoma (FA-DLBCL) is in and of itself a rare entity and is a subset of the Epstein-Barr virus (EBV)-associated lymphoma. Due to its indolent course, FA-DLBCL is generally an incidental finding on histopathological examinations. We present the first reported case of FA-DLBCL found within a native aortic thrombus during an aorto-biiliac bypass. This is a 77-year-old male who was taken to the operative theater for open aorto-biiliac bypass secondary to aortoocclusive disease resulting in intermittent claudication and gangrene of the right lower extremity digits. Intraoperatively, suspicious inflammatory changes were noted around the aorta. Pathological evaluation of the thrombus within the aorta noted cells of B-cell lineage with BCL2 and MYC positivity in addition to CD30 and EBV positivity. Postoperatively, the patient's course was complicated by acute tubular necrosis, uremia, dialysis dependence, intubation, and cardiac arrhythmias including cardiac arrest. He was able to recover from these complications, however, he ultimately chose to self-enroll in hospice care. An extensive literature review of over 128 mentions of FA-DLBCL noted a complete paucity of reported cases of FA-DLBCL within a native aorta. The patient's clinical presentation and histopathology without mass-forming lesions lead to the diagnosis of FA-DLBCL. FA-DLBCL is an extremely rare EBV+ lymphoproliferative disorder associated with chronic inflammation (DLBCL-CI). FA-DLBCL is a rare condition without defined uniform treatment. This article serves to highlight the first reported case of FA-DLBCL found within an abdominal aortic thrombus in a native aorta. Given the paucity of literature on this condition, postoperative treatment and long-term outcomes should be the focus of this condition.

**Hafron JM**, Wilfehrt HM, Ferro C, Harmon M, Flanders SC and McKay RR (2022). "Real-world effectiveness of sipuleucel-T on overall survival in men with advanced prostate cancer treated with

androgen receptor-targeting agents." Advances in Therapy. ePub Ahead of Print.

[Full Text](#)

*Department of Urology*

**Introduction:** The treatment landscape for metastatic castration-resistant prostate cancer (mCRPC) continues to evolve. Sipuleucel-T was the first immunotherapy approved by the US Food and Drug Administration (FDA) to treat asymptomatic or minimally symptomatic mCRPC. The androgen receptor-targeting agents (ARTAs) abiraterone acetate and enzalutamide were initially approved to treat mCRPC. Looking at chemotherapy-naïve men with mCRPC, we compared survival outcomes between the sipuleucel-T + ARTA cohort (men who received either sipuleucel-T or an ARTA in the first line, and then the other in the second line within 6 months) and the ARTA monotherapy cohort (men who only received ARTA monotherapy). **Methods:** This retrospective cohort analysis used longitudinal, adjudicated claims data from the US Medicare Fee-for-Service 100% research identifiable dataset that includes both urologic and oncologic practice settings. Eligible men started their first mCRPC treatment with either sipuleucel-T or ARTA in either 2014 or 2015 and had continuous Medicare Parts A, B, and D eligibility for the subsequent 3 years. A multivariable Cox proportional hazards regression model was used to analyze overall survival (OS), both overall and by index year, and to control for differences. **Results:** The sipuleucel-T + ARTA and ARTA monotherapy cohorts comprised 773 and 4642 men, respectively, with different characteristics at treatment start. The most commonly used ARTAs were enzalutamide in the former and abiraterone in the latter cohort. Median OS was 30.4 and 14.3 months in the sipuleucel-T + ARTA and ARTA monotherapy cohorts, respectively, with the sipuleucel-T + ARTA cohort having a 28.3% lower risk of death than the ARTA monotherapy cohort (hazard ratio 0.717; 95% CI 0.648, 0.793;  $p < 0.01$ ). **Conclusions:** This real-world study of mCRPC treatment indicates that men receiving sipuleucel-T and ARTAs had a longer median OS than patients receiving treatment with an ARTA alone, suggesting that leveraging mechanisms of action can be beneficial in treating patients with mCRPC.

**Haines DE** (2022). "What is different about pulsed-field ablation horizontal ellipsis everything?" Journal of Cardiovascular Electrophysiology 33(3): 368-370.

[Full Text](#)

*Department of Internal Medicine/Cardiovascular Disease*

**Halalau A**, Sonmez M, Uddin A, Karabon P, Scherzer Z and Keeney S (2022). "Efficacy of a pharmacist-managed diabetes clinic in high-risk diabetes patients, a randomized controlled trial - "Pharm-MD": Impact of clinical pharmacists in diabetes care." BMC Endocrine Disorders 22(1): 1-10.

[Full Text](#)

*Department of Internal Medicine*

**Background:** Diabetes mellitus affects 13% of American adults. To address the complex care requirements necessary to avoid diabetes-related morbidity, the American Diabetes Association recommends utilization of multidisciplinary teams. Research shows pharmacists have a positive impact on multiple clinical diabetic outcomes. **Methods:** Open-label randomized controlled trial with 1:1 assignment that took place in a single institution resident-run outpatient medicine clinic. Patients 18–75 years old with type 2 diabetes mellitus and most recent HbA1c  $\geq 9\%$  were randomized to standard of care (SOC) (continued with routine follow up with their primary provider) or to the SOC + pharmacist-managed diabetes clinic PMDC group (had an additional 6 visits with the pharmacist within 6 months from enrollment). Patients were followed for 12 months after enrollment. Data collected included HbA1c, lipid panel, statin use, blood pressure control, immunization status, and evidence of diabetic complications (retinopathy, nephropathy,

neuropathy). Intention-to-treat and per-protocol analysis were performed. Results: Forty-four patients were enrolled in the SOC + PMDC group and 42 patients in the SOC group. Average decrease in HbA1c for the intervention compared to the control group at 6 months was -2.85% vs. -1.32%, ( $p = 0.0051$ ). Additionally, the odds of achieving a goal HbA1c of  $\leq 8\%$  at 6 months was 3.15 (95% CI = 1.18, 8.42,  $p = 0.0222$ ) in the intervention versus control group. There was no statistically significant difference in the remaining secondary outcomes measured. Conclusions: Addition of pharmacist managed care for patients with type 2 diabetes mellitus is associated with significant improvements in HbA1c compared with standard of care alone. Missing data during follow up limited the power of secondary outcomes analyses.

Han D, Lin A, Kuronuma K, Tzolos E, Kwan AC, Klein E, Andreini D, Bax JJ, Cademartiri F, **Chinnaiyan K**, Chow BJW, Conte E, Cury RC, Feuchtner G, Hadamitzky M, Kim YJ, Leipsic JA, Maffei E, Marques H, Plank F, Pontone G, Villines TC, Al-Mallah MH, Goncalves PD, Danad I, Gransar H, Lu Y, Lee JH, Lee SE, Baskaran L, Al'Aref SJ, Yoon YE, Van Rosendaal A, Budoff MJ, Samady H, Stone PH, Virmani R, Achenbach S, Narula J, Chang HJ, Min JK, Lin FY, Shaw LJ, Slomka PJ, Dey D and Berman DS (2022). "Association of plaque location and vessel geometry determined by coronary computed tomographic angiography with future acute coronary syndrome-causing culprit lesions." *JAMA Cardiology* 7(3): 309-319.

[Full Text](#)

*Department of Internal Medicine/Cardiovascular Disease*

Importance: Distinct plaque locations and vessel geometric features predispose to altered coronary flow hemodynamics. The association between these lesion-level characteristics assessed by coronary computed tomographic angiography (CCTA) and risk of future acute coronary syndrome (ACS) is unknown. Objective: To examine whether CCTA-derived adverse geometric characteristics (AGCs) of coronary lesions describing location and vessel geometry add to plaque morphology and burden for identifying culprit lesion precursors associated with future ACS. Design, Setting, and Participants: This substudy of ICONIC (Incident Coronary Syndromes Identified by Computed Tomography), a multicenter nested case-control cohort study, included patients with ACS and a culprit lesion precursor identified on baseline CCTA ( $n = 116$ ) and propensity score-matched non-ACS controls ( $n = 116$ ). Data were collected from July 20, 2012, to April 30, 2017, and analyzed from October 1, 2020, to October 31, 2021. Exposures: Coronary lesions were evaluated for the following 3 AGCs: (1) distance from the coronary ostium to lesion; (2) location at vessel bifurcations; and (3) vessel tortuosity, defined as the presence of 1 bend of greater than 90 degrees or 3 curves of 45 degrees to 90 degrees using a 3-point angle within the lesion. Main Outcomes and Measures: Association between lesion-level AGCs and risk of future ACS-causing culprit lesions. Results: Of 548 lesions, 116 culprit lesion precursors were identified in 116 patients (80 [69.0%] men; mean [SD], age 62.7 [11.5] years). Compared with nonculprit lesions, culprit lesion precursors had a shorter distance from the ostium (median, 35.1 [IQR, 23.6-48.4] mm vs 44.5 [IQR, 28.2-70.8] mm), more frequently localized to bifurcations (85 [73.3%] vs 168 [38.9%]), and had more tortuous vessel segments (5 [4.3%] vs 6 [1.4%]; all  $P < .05$ ). In multivariable Cox regression analysis, an increasing number of AGCs was associated with a greater risk of future culprit lesions (hazard ratio [HR] for 1 AGC, 2.90 [95% CI, 1.38-6.08];  $P = .005$ ; HR for  $\geq 2$  AGCs, 6.84 [95% CI, 3.33-14.04];  $P < .001$ ). Adverse geometric characteristics provided incremental discriminatory value for culprit lesion precursors when added to a model containing stenosis severity, adverse morphological plaque characteristics, and quantitative plaque characteristics (area under the curve, 0.766 [95% CI, 0.718-0.814] vs 0.733 [95% CI, 0.685-0.782]). In per-patient comparison, patients with ACS had a higher frequency of lesions with adverse plaque characteristics, AGCs, or both compared with control patients ( $\geq 2$  adverse plaque characteristics, 70 [60.3%] vs 50 [43.1%];  $\geq 2$  AGCs, 92

[79.3%] vs 60 [51.7%];  $\geq 2$  of both, 37 [31.9%] vs 20 [17.2%]; all  $P < .05$ ). CONCLUSIONS AND RELEVANCE These findings support the concept that CCTA-derived AGCs capturing lesion location and vessel geometry are associated with risk of future ACS-causing culprit lesions. Adverse geometric characteristics may provide additive prognostic information beyond plaque assessment in CCTA.

Handelsman Y, Anderson JE, Bakris GL, Ballantyne CM, Beckman JA, Bhatt DL, Bloomgarden ZT, Bozkurt B, Budoff MJ, Butler J, Dagogo-Jack S, de Boer IH, DeFronzo RA, Eckel RH, Einhorn D, Fonseca VA, Green JB, **Grunberger G**, Guerin C, Inzucchi SE, Jellinger PS, Kosiborod MN, Kushner P, Lepor N, Mende CW, Michos ED, Plutzky J, Taub PR, Umpierrez GE, Vaduganathan M and Weir MR (2022). "DCRM Multispecialty Practice Recommendations for the management of diabetes, cardiorenal, and metabolic diseases." Journal of Diabetes and its Complications 36(2): 108101.

[Full Text](#)

*Department of Internal Medicine*

Type 2 diabetes (T2D), chronic kidney disease (CKD), atherosclerotic cardiovascular disease (ASCVD), and heart failure (HF)—along with their associated risk factors—have overlapping etiologies, and two or more of these conditions frequently occur in the same patient. Many recent cardiovascular outcome trials (CVOTs) have demonstrated the benefits of agents originally developed to control T2D, ASCVD, or CKD risk factors, and these agents have transcended their primary indications to confer benefits across a range of conditions. This evolution in CVOT evidence calls for practice recommendations that are not constrained by a single discipline to help clinicians manage patients with complex conditions involving diabetes, cardiorenal, and/or metabolic (DCRM) diseases. The ultimate goal for these recommendations is to be comprehensive yet succinct and easy to follow by the nonexpert—whether a specialist or a primary care clinician. To meet this need, we formed a volunteer task force comprising leading cardiologists, nephrologists, endocrinologists, and primary care physicians to develop the DCRM Practice Recommendations, a multispecialty consensus on the comprehensive management of the patient with complicated metabolic disease. The task force recommendations are based on strong evidence and incorporate practical guidance that is clinically relevant and simple to implement, with the aim of improving outcomes in patients with DCRM. The recommendations are presented as 18 separate graphics covering lifestyle therapy, patient self-management education, technology for DCRM management, prediabetes, cognitive dysfunction, vaccinations, clinical tests, lipids, hypertension, anticoagulation and antiplatelet therapy, antihyperglycemic therapy, hypoglycemia, nonalcoholic fatty liver disease (NAFLD) and nonalcoholic steatohepatitis (NASH), ASCVD, HF, CKD, and comorbid HF and CKD, as well as a graphical summary of medications used for DCRM.

Harnett NG, Dumornay NM, Delity M, Sanchez LD, Mohiuddin K, Musey PI, Seamon MJ, McLean SA, Kessler RC, Koenen KC, Beaudoin FL, Lebois LAM, van Rooij SJH, Sampson NA, Michopoulos V, Maples-Keller JL, Haran JP, Storrow AB, Lewandowski C, Hendry PL, Sheikh S, Jones CW, Panches BE, Kurz MC, **Swor RA**, McGrath ME, Hudak LA, Pascual JL, House SL, An X, Stevens JS, Neylan TC, Jovanovic T, Linnstaedt SD, Germaine LT, Datner EM, Chang AM, Pearson C, Peak DA, Merchant RC, Domeier RM, Rathlev NK, O'Neil BJ, Sergot P, Bruce SE, Miller MW, Pietrzak RH, Joormann J, Barch DM, Pizzagalli DA, Sheridan JF, Smoller JW, Luna B, Harte SE, Elliott JM and Ressler KJ (2022). "Prior differences in previous trauma exposure primarily drive the observed racial/ethnic differences in posttrauma depression and anxiety following a recent trauma." Psychological Medicine. ePub Ahead of Print.

[Full Text](#)

*Department of Emergency Medicine*

Background: Racial and ethnic groups in the USA differ in the prevalence of posttraumatic stress disorder (PTSD). Recent research however has not observed consistent racial/ethnic differences in posttraumatic stress in the early aftermath of trauma, suggesting that such differences in chronic PTSD rates may be related to differences in recovery over time. Methods: As part of the multisite, longitudinal AURORA study, we investigated racial/ethnic differences in PTSD and related outcomes within 3 months after trauma. Participants (n = 930) were recruited from emergency departments across the USA and provided periodic (2 weeks, 8 weeks, and 3 months after trauma) self-report assessments of PTSD, depression, dissociation, anxiety, and resilience. Linear models were completed to investigate racial/ethnic differences in posttraumatic dysfunction with subsequent follow-up models assessing potential effects of prior life stressors. Results: Racial/ethnic groups did not differ in symptoms over time; however, Black participants showed reduced posttraumatic depression and anxiety symptoms overall compared to Hispanic participants and White participants. Racial/ethnic differences were not attenuated after accounting for differences in sociodemographic factors. However, racial/ethnic differences in depression and anxiety were no longer significant after accounting for greater prior trauma exposure and childhood emotional abuse in White participants. Conclusions: The present findings suggest prior differences in previous trauma exposure partially mediate the observed racial/ethnic differences in posttraumatic depression and anxiety symptoms following a recent trauma. Our findings further demonstrate that racial/ethnic groups show similar rates of symptom recovery over time. Future work utilizing longer time-scale data is needed to elucidate potential racial/ethnic differences in long-term symptom trajectories.

Harrison HF, Kinsella EA, DeLuca S and **Loftus S** (2022). "“We know what they’re struggling with”": Student peer mentors’ embodied perceptions of teaching in a health professional education mentorship program." *Advances in Health Sciences Education* 27(1): 63-86.

[Full Text](#)

*Department of Foundational Medical Studies (OU)*

Hasan S, Waheed M, Suhrawardy AK, Braithwaite C, Ahmed L, Zakko P, **Khalil JG** and **Saleh ES** (2022). "Pediatric upper cervical spine trauma: A 10-year retrospective review at a pediatric trauma center." *Cureus* 14(1): e20995.

[Full Text](#)

*Department of Orthopaedic Surgery*

Background: Traumatic upper cervical spine injuries (tUCSI) are generally caused by high-impact injuries to the C1-C2 vertebral level. The current literature is limited with regards to comparing epidemiological trends, treatment options, and overall outcomes for tUCSI within the pediatric cohort. The purpose of this study was to analyze pediatric tUCSI epidemiological data, potential variations in treatment and patient outcomes, and to evaluate any specific trends that may be clinically relevant. Methodology: We conducted a retrospective cohort study on pediatric patients ages 1 day to 16 years old, admitted for tUCSI over the past 10 years (1/2011 to 1/2021) at a Midwest level 1 trauma center. Retrospective data was queried using ICD-9 and ICD-10 diagnosis codes for tUCSI. Children were stratified into three age groups: Group 1 - Infants and Toddlers (children under three years of age); Group 2 - Young Children (children between three and seven years of age); Group 3 - Juveniles and Adolescents (children between the ages of seven and 16). Numerical data and categorical variables were summarized and the normality of the distribution of data was evaluated using the Anderson-Darling normality test. Differences between the age groups were examined using either an unpaired, independent Two-Sample t-test or Unpaired Mann-Whitney U test. Pearson's chi-squared or

Fisher's exact tests were used to compare categorical data between groups. Results: Forty total patients were included in the final analysis, 23 female (57.5%) and 17 male (42.5%). The mean age was  $11 \pm 4$  (range 2-16). Overall, the most common mechanism of injury was a motor vehicle collision (n=16, 40%), followed by sports injury (n=13, 32.5%), falls (n=6, 15%), and unknown mechanism (n=5, 12.5%). The most common mechanism of injury in young children was a fall (n=4, 57.5%,  $p < 0.001$ ). Adolescents and Juveniles significantly suffer from sports injuries compared to young children (n=13, 39.4%,  $p = 0.043$ ). Mechanisms of injuries presented with unique associated concomitant injuries. The most common associated sites of injuries were lower cervical spine (n=31, 77.5%), and skull injury (n=4, 10%). The vast majority of these cases were managed nonoperatively (pain medication and non-operative cervical orthosis) (n=36, 90%). Mortality and morbidity rates from tUCSI were rare in our cohort (n=1, 2.5%). Conclusion: This study found that the majority of pediatric tUCSI patients can be managed nonoperatively, with dislocations and spinal instability being the most common indications for operative management. Commonly used non-operative external fixation methods include cervical collars and Minerva jackets. Our cohort showed very low mortality and morbidity rates, however, these preliminary results will require validation by future prospective multicenter studies.

Hasbini YG, Goyert G, Tarca AL, Keerthy M, Jones T, Thiel L, Green PM, Youssef Y, Townsel C, Vengalil S, Paladino P, Wright A, Ayyash M, Vadlamudi G, Szymanska M, Sajja S, Sterenberg G, Baracy M, Grace K, Houston K and **Bahado-Singh R** (2022). "COVID-19 is associated with early emergence of preeclampsia: Results from a large regional collaborative." *American Journal of Obstetrics & Gynecology* 226(1): S594-S595.

[Full Text](#)

*Department of Obstetrics and Gynecology*

Hendrickson KD, Haskin-Popp C and **Franklin BA** (2022). "Questions individuals with cardiac conditions engaging in exercise often ask health fitness professionals: Research-based responses." *ACSM Health & Fitness Journal* 26(2): 29-35.

[Full Text](#)

*Department of Internal Medicine/Cardiovascular Disease*

By reading this article, the health and fitness professional will learn empiric and research-based responses and answers to common questions individuals with cardiac conditions often pose. These practical data, and the authors' shared clinical experiences in fielding these questions over the years, should be helpful to the health and fitness professional when working with the escalating population of clients with known cardiovascular disease who are seeking safe and effective exercise regimens to enhance cardiovascular health, functional independence, and well-being.

Herrman E, Ghimire B and **Chisti MM** (2022). "Thrombotic thrombocytopenic purpura following administration of the Moderna booster vaccine." *BMJ Case Reports* 15(3): e247576.

[Full Text](#)

*Department of Internal Medicine/Hematology-Oncology*

Thrombotic thrombocytopenic purpura (TTP) is a type of thrombotic microangiopathy that is characterized by microangiopathic haemolytic anaemia, consumption thrombocytopenia and organ injury. It is caused by a severe deficiency of ADAMTS13, which can be either congenital or acquired. There is a plethora of things that can cause the acquired form, including medications and infections. Vaccines have also been shown to cause TTP. In the midst of the COVID-19 pandemic, with multiple new vaccines being developed and distributed to the masses, the

medical community needs to be aware of adverse events associated with these new vaccines. We present a case of TTP following administration of the Moderna booster vaccine.

Hess AL, **Halalau A**, **Dokter JJ**, Paydawy TS, Karabon P, **Bastani A**, Baker RE, Balla AK and **Galens SA** (2022). "High-dose intravenous vitamin C decreases rates of mechanical ventilation and cardiac arrest in severe COVID-19." Internal and Emergency Medicine. ePub Ahead of Print.

[Full Text](#)

*Department of Internal Medicine*

*Department of Internal Medicine/Pulmonary and Critical Care Medicine*

*OUWB Medical Student Author*

*Department of Emergency Medicine*

Intravenous vitamin C (IV-VitC) has been suggested as a treatment for severe sepsis and acute respiratory distress syndrome; however, there are limited studies evaluating its use in severe COVID-19. Efficacy and safety of high-dose IV-VitC (HDIVC) in patients with severe COVID-19 were evaluated. This observational cohort was conducted at a single-center, 530 bed, community teaching hospital and took place from March 2020 through July 2020. Inverse probability treatment weighting (IPTW) was utilized to compare outcomes in patients with severe COVID-19 treated with and without HDIVC. Patients were enrolled if they were older than 18 years of age and were hospitalized secondary to severe COVID-19 infection, indicated by an oxygenation index < 300. Primary study outcomes included mortality, mechanical ventilation, intensive care unit (ICU) admission, and cardiac arrest. From a total of 100 patients enrolled, 25 patients were in the HDIVC group and 75 patients in the control group. The average time to death was significantly longer for HDIVC patients ( $P = 0.0139$ ), with an average of 22.9 days versus 13.7 days for control patients. Patients who received HDIVC also had significantly lower rates of mechanical ventilation (52.93% vs. 73.14%; ORIPTW = 0.27;  $P = 0.0499$ ) and cardiac arrest (2.46% vs. 9.06%; ORIPTW = 0.23;  $P = 0.0439$ ). HDIVC may be an effective treatment in decreasing the rates of mechanical ventilation and cardiac arrest in hospitalized patients with severe COVID-19. A longer hospital stay and prolonged time to death may suggest that HDIVC may protect against clinical deterioration in severe COVID-19.

**Homayouni R**, Hong H, Manda P, Nanduri B and Toby IT (2022). "Editorial: Unleashing innovation on precision public health-highlights from the MCBIOS and MAQC 2021 Joint Conference." Frontiers in Artificial Intelligence 5: 859700.

[Full Text](#)

*Department of Foundational Medical Studies (OU)*

Horattas I, Fenton A, Gabra J, Mendiola A, Li FY, Namm J, Solomon N, Gass J, Lum S, Murray M, Howard-McNatt M, Dupont E, Levine E, **Brown E**, Ollila D, Chiba A and Chagpar AB (2022). "Does breast cancer subtype impact margin status in patients undergoing partial mastectomy?" American Surgeon. ePub Ahead of Print.

[Full Text](#)

*Department of Surgery*

Background: Molecular subtype in invasive breast cancer guides systemic therapy. It is unknown whether molecular subtype should also be considered to tailor surgical therapy. The present investigation was designed to evaluate whether breast cancer subtype impacted surgical margins in patients with invasive breast cancer stage I through III undergoing breast-conserving therapy. Methods: Data from 2 randomized trials evaluating cavity shave margins (CSM) on margin status in patients undergoing partial mastectomy (PM) were used for this analysis.

Patients were included if invasive carcinoma was present in the PM specimen and data for all 3 receptors (ER, PR, and HER2) were known. Patients were classified as luminal if they were ER and/or PR positive; HER2 enriched if they were ER and PR negative but HER2 positive; and TN if they were negative for all 3 receptors. The impact of subtype on the margin status was evaluated at completion of standard PM, prior to randomization to CSM versus no CSM. Non-parametric statistical analyses were performed using SPSS Version 26. Results: Molecular subtype was significantly correlated with race ( $P = .011$ ), palpability ( $P = .007$ ), and grade ( $P < .001$ ). Subtype did not correlate with Hispanic ethnicity ( $P = .760$ ) or lymphovascular invasion ( $P = .756$ ). In this cohort, the overall positive margin rate was 33.7%. This did not vary based on molecular subtype (positive margin rate 33.7% for patients with luminal tumors vs 36.4% for those with TN tumors,  $P = .425$ ). Discussion: Molecular subtype does not predict margin status. Therefore, molecular subtype should not, independent of other factors, influence surgical decision-making.

Hudson MF, Strassels SA, Durham DD, Siddique S, Adler D, Yeung SCJ, Bernstein SL, Baugh CW, Coyne CJ, Grudzen CR, Henning DJ, Klotz A, Madsen TE, Pallin DJ, Rico JF, Ryan RJ, Shapiro NI, **Swor R**, Venkat A, Wilson J, Thomas CR, Bischof JJ, Lyman GH and Caterino JM (2022). "Examining pain among non-Hispanic Black and non-Hispanic White patients with cancer visiting emergency departments: CONCERN (Comprehensive Oncologic Emergencies Research Network)." Academic Emergency Medicine 29(3): 364-368.

[Full Text](#)

*Department of Emergency Medicine*

**Hussein IH**, Zalikha AK, Tuluca A, Crespi Z and El-Othmani MM (2022). "Epidemiology of obese patients undergoing revision total knee arthroplasty: Understanding demographics, comorbidities, and propensity weighted analysis of inpatient outcomes." Journal of the American Academy of Orthopaedic Surgeons. Global Research & Reviews 6(2): e21.00263.

[Full Text](#)

*Department of Foundational Medical Studies (OU)*

Introduction: Obesity is a public health epidemic that is projected to grow in coming years. Observational data on the epidemiologic profile and immediate postoperative outcomes of obesity and morbid obesity after revision total knee arthroplasty (rTKA) are limited. Methods: Discharge data from the National Inpatient Sample was used to identify patients who underwent rTKA from 2006 to 2015. Patients were stratified into morbidly obese, obese, and not obese control cohorts. An analysis was performed to compare etiology of revision, demographic and medical comorbidity profiles, and immediate in-hospital economic and complication outcomes after rTKA. Results: An estimated 605,603 rTKAs were included in this analysis. Morbidly obese and obese patients were at significantly higher risk for any complication than not obese patients. Patients with obesity were associated with an increased risk of postoperative anemia but a lower risk of peripheral vascular disease and gastrointestinal, and hematoma/seroma complications compared with not obese patients. Patients with morbid obesity were associated with an increased risk of any, hematoma/seroma, wound dehiscence, postoperative infection, pulmonary embolism, and postoperative anemia complications and a lower risk of gastrointestinal complications when compared with not obese patients. Morbidly obese patients had a significantly longer length of stay than both obese and not obese patients, while no significant difference in length of stay was observed between obese and not obese patients. Discussion: Morbidly obese patients are at higher odds for worse postoperative medical and economic outcomes compared with those with obesity after rTKA. As the number

of patients with obesity and morbid obesity continues to rise, these risk factors should be considered in preoperative discussions and perioperative protocol optimization.

Ichkhanian Y, Barawi M, Seoud T, Thakkar S, Kothari TH, Halabi ME, Ullah A, Edris W, Aepli P, Kowalski T, Shinn B, Shariha RZ, Mahadev S, Mosko JD, Andrisani G, Di Matteo FM, Albrecht H, Giap AQ, Tang SJ, Naga YM, Van Geenen E, Friedland S, Tharian B, Irani S, Ross AS, **Jamil LH**, Lew D, Nett AS, Farha J, Runge TM, Jovani M and Khashab MA (2022). "Endoscopic full-thickness resection of polyps involving the appendiceal orifice: A multicenter international experience." Endoscopy 54(1): 16-24.

[Full Text](#)

*Department of Internal Medicine/Gastroenterology*

Background: Endoscopic resection of lesions involving the appendiceal orifice remains a challenge. We aimed to report outcomes with the full-thickness resection device (FTRD) for the resection of appendiceal lesions and identify factors associated with the occurrence of appendicitis. Methods: This was a retrospective study at 18 tertiary-care centers (USA 12, Canada 1, Europe 5) between November 2016 and August 2020. Consecutive patients who underwent resection of an appendiceal orifice lesion using the FTRD were included. The primary outcome was the rate of R0 resection in neoplastic lesions, defined as negative lateral and deep margins on post-resection histologic evaluation. Secondary outcomes included the rates of: technical success (en bloc resection), clinical success (technical success without need for further surgical intervention), post-resection appendicitis, and polyp recurrence. Results: 66 patients (32 women; mean age 64) underwent resection of colonic lesions involving the appendiceal orifice (mean [standard deviation] size, 14.5 (6.2) mm), with 40 (61%) being deep, extending into the appendiceal lumen. Technical success was achieved in 59/66 patients (89%), of which, 56 were found to be neoplastic lesions on post-resection pathology. Clinical success was achieved in 53/66 (80%). R0 resection was achieved in 52/56 (93%). Of the 58 patients in whom EFTR was completed who had no prior history of appendectomy, appendicitis was reported in 10 (17%), with six (60%) requiring surgical appendectomy. Follow-up colonoscopy was completed in 41 patients, with evidence of recurrence in five (12%). Conclusions: The FTRD is a promising non-surgical alternative for resecting appendiceal lesions, but appendicitis occurs in 1/6 cases.

Idler J, **Yilmaz A**, Ashrafi N, Ustun I, Turkoglu O, Patek K, Szymanska M, **Whitten A**, **Graham S** and **Bahado-Singh R** (2022). "Precision medicine in preeclampsia: Metabolomic and lipidomic investigation of disease mechanisms." American Journal of Obstetrics & Gynecology 226(1): S109-S110.

[Request Form](#)

*Department of Ophthalmology*

*Department of Obstetrics and Gynecology*

Ismailova I, Sokol RJ, Gudicha DW, Hasbini YG, Tarca AL, Green PM, Jones T, Goyert G, Thiel L, Youssef Y, Townsel C, Vengalil S, Paladino P, Wright A, Ayyash M, Vadlamudi G, Szymanska M, Sajja S, Sterenberg G, Baracy M, Grace K, Houston K, Norman J, **Bahado-Singh R** and Hassan SS (2022). "Racial disparities and risk for COVID-19 among pregnant patients: Results from the Michigan Statewide Collaborative." American Journal of Obstetrics and Gynecology 226(1): S192-S192.

[Full Text](#)

*Department of Obstetrics and Gynecology*

Jagsi R, Griffith KA, Moran JM, Matuszak MM, Marsh R, Grubb M, Abu-Isa E, **Dilworth JT**, Dominello MM, Heimburger D, Lack D, Walker EM, Hayman JA, Vicini F and Pierce LJ (2022). "Comparative effectiveness analysis of 3D-conformal radiation therapy versus Intensity Modulated Radiation Therapy (IMRT) in a

prospective multicenter cohort of patients with breast cancer." International Journal of Radiation Oncology Biology Physics 112(3): 643-653.

[Request Form](#)

*Department of Radiation Oncology*

Purpose: Simple intensity modulation of radiation therapy reduces acute toxicity compared with 2-dimensional techniques in adjuvant breast cancer treatment, but it remains unknown whether more complex or inverse-planned intensity modulated radiation therapy (IMRT) offers an advantage over forward-planned, 3-dimensional conformal radiation therapy (3DCRT). Methods and Materials: Using prospective data regarding patients receiving adjuvant whole breast radiation therapy without nodal irradiation at 23 institutions from 2011 to 2018, we compared the incidence of acute toxicity (moderate-severe pain or moist desquamation) in patients receiving 3DCRT versus IMRT (either inverse planned or, if forward-planned, using  $\geq 5$  segments per gantry angle). We evaluated associations between technique and toxicity using multivariable models with inverse probability-of-treatment weighting, adjusting for treatment facility as a random effect. Results: Of 1185 patients treated with 3DCRT and conventional fractionation, 650 (54.9%) experienced acute toxicity; of 774 treated with highly segmented forward-planned IMRT, 458 (59.2%) did; and of 580 treated with inverse-planned IMRT, 245 (42.2%) did. Of 1296 patients treated with hypofractionation and 3DCRT, 432 (33.3%) experienced acute toxicity; of 709 treated with highly segmented forward-planned IMRT, 227 (32.0%) did; and of 623 treated with inverse-planned IMRT, 164 (26.3%) did. On multivariable analysis with inverse-probability-of-treatment weighting, the odds ratio for acute toxicity after inverse-planned IMRT versus 3DCRT was 0.64 (95% confidence interval, 0.45-0.91) with conventional fractionation and 0.41 (95% confidence interval, 0.26-0.65) with hypofractionation. Conclusions: This large, prospective, multicenter comparative effectiveness study found a significant benefit from inverse planned IMRT compared with 3DCRT in reducing acute toxicity of breast radiation therapy. Future research should identify the dosimetric differences that mediate this association and evaluate cost-effectiveness.

**Jahshan A, Aoun M, Dekhou A and Folbe A** (2022). "The underrepresentation of women and ethnic minorities in anesthesiology." Journal of the National Medical Association 114(1): 26-29.

[Full Text](#)

*OUWB Medical Student Author*

*Department of Surgery*

Purpose: Diversity is crucial in the medical field, where patients have a significantly wide range of ethnic and racial backgrounds. With the increase in diversity in medical school and the growing list of subspecialties in medicine, we would expect to see a rise in diversity in the field of anesthesiology. The purpose of this study is to analyze the representation of gender and underrepresented minorities in anesthesiology residency programs from 2013 through 2019. Methods: To study the ethnic, racial and gender diversity in residents in the field of anesthesiology, data was analyzed from the self-reported data collected in the Journal of the American Medical Association annual report on Graduate Medical Education over the academic period from 2013 through 2019. Results: In 2013, female trainees made up 36.0% and Black trainees encompassed 5.9% whereas in 2019, female trainees comprised a mere 33.0% of total anesthesiology residents while Black trainees decreased to 5.5%. Conclusion: This study illustrates the disparity in the demographic composition of anesthesiology trainees and emphasizes the importance of having a more diverse workforce in the field of anesthesiology.

**James E, Lioi J and Yang F** (2022). "Conscientious objection and the impact on transgender patients: A

response to "Identifying and addressing barriers to transgender healthcare." Journal of General Internal Medicine 37: 971-971.

[Full Text](#)

*OUWB Medical Student Author*

Throughout the past year, a number of different states have introduced bills aimed at expanding the right of healthcare providers to object to providing certain treatments on religious or moral grounds, including over 16 states according to the American Civil Liberties Union.[1] In their paper, "Identifying and Addressing Barriers to Transgender Healthcare: Where We Are and What We Need to Do About It", Warner and Mehta highlighted the anticipation of potential discrimination or mistreatment being a barrier to care for transgender and gender non-conforming patients.[2] We hope to validate the concern for potential discrimination and highlight the unprecedented legislation of discrimination across the country under the guise of religious and moral conscience.

**John J, Gupta R, Grossbauer A, Chung M, Sethna A, Abboud M, Cox E, Hart J, Folbe A and Chaiyasate K** (2022). "Outcomes associated with nasal reconstruction post-rhinectomy: A narrative review." Archives of Plastic Surgery 49(2): 184-194.

[Full Text](#)

*OUWB Medical Student Author*

*Department of Surgery*

The face and the external nose define an individual's physical appearance. Nasal deformities can cause facial disfigurement along with unwanted psychological repercussions. Nasal deformities range in severity, with the most severe cases being indications for a rhinectomy, due to the complexity of the nasal defect. According to published literature, there is no consensus among otolaryngologists and plastic surgeons on which technique or flap use is preferred in terms of complications, aesthetic outcome, or patient satisfaction. The goal of this study is to provide a comprehensive analysis of published studies on nasal reconstruction following rhinectomy. Using the Preferred Reporting Items for Systematic Review and Meta-Analysis Protocols guidelines for writing systematic reviews, a systematic review was conducted. Four databases were searched using a search strategy. These articles were then imported into the COVIDENCE software and went screening and thorough article review. After screening 2,237 articles, 23 studies were then extracted for data collection analysis. We collected data from 12 case series, 4 case studies, 1 prospective case series, and 4 retrospective chart review studies. The most commonly reported flaps were forehead flaps, superior extended nasal myocutaneous island, forearm free flaps, anterolateral thigh (ALT) free flap, medial femoral condyle free flap (n ¼ 8), and zygomaticus implants (n ¼ 6), and retained nasal prosthesis. Although not specifically indicated by a certain number, the most common indication for the rhinectomy was malignancy, followed by traumas, postsurgical complications, radionecrosis, and congenital nasal malformations. Although several donor flaps can be used after rhinectomy, we conclude that there is no preference over what flap has superior patient outcomes after analysis. As of current, there are no prospective studies that exist. Therefore, more research is necessary to determine the results of each flap.

Johnson SE, Lakis D, Kuxhause J and **Bahl A** (2022). "Applying a modern pedagogy to emergency residency ultrasound education." Cureus 14(3) 22758.

[Full Text](#)

*Department of Emergency Medicine*

Background: Modern technology has revolutionized pedagogy in medicine. With the availability

of high-quality resources in the palm of our hands, the flipped classroom model has gained widespread support. Additionally, devices such as "clickers" allow for the ability to interact much more directly with lecture participants. Objective: We aimed to investigate the impact of a modern refresh to our emergency point of care ultrasound (POCUS) curriculum on resident exam performance and satisfaction. Methods: In 2021, we conducted a single-site pre-post interventional study with Emergency residents as eligible participants. The interventions included two modifications to the POCUS curriculum. First, residents prepared and delivered mini-lectures in lieu of formal didactic sessions. Second, weekly image review was reimplemented with more active participation. Our primary outcome was end-of-rotation exam performance and our secondary outcome was learner satisfaction. Results: During the study period, 19 residents participated in the curriculum. Exam scores were similar, 90.84% +/-2.27% and 89.34% +/- 3.43% (p = 0.105) for pre and post-intervention scores respectively. Satisfaction surveys were completed by 12 of the 19 participants. On a scale of 1-5, average satisfaction was fair (3.9 to 4.1) regarding the mini-lecture intervention and high (4.3 to 4.6) for the active weekly image review modification. Conclusions: The POCUS curriculum refresh was well-received by emergency medicine residents. However, there was no clear competency benefit when compared to the traditional approach. The modified active weekly review was particularly well-received amongst our residents and maybe a strong model for emergency POCUS programs across the country.

**Kahana A** and Jovanovic N (2022). "Reply re: "direct Injection of 5-Fluorouracil Improves Outcomes in Cicatrizing Conjunctival Disorders Secondary to Systemic Disease"." Ophthalmic Plastic and Reconstructive Surgery 38(2): 208-210.

[Full Text](#)

*Department of Ophthalmology*

Kalra RK, Jayadeep S and **Ball AL** (2022). "Acute pancreatitis in an adolescent following COVID vaccination." Clinical Pediatrics 61(3): 236-240.

[Full Text](#)

*Department of Pediatrics*

**Kelekar A, Rubino I, Kavanagh M, Lewis-Bedz R, LeClerc G, Pedell L and Afonso N** (2022). "Vaccine hesitancy counseling—An educational intervention to teach a critical skill to preclinical medical students." Medical Science Educator 32(1): 141-147.

[Full Text](#)

*Department of Internal Medicine/Hospitalist Medicine*

*Department of Family Medicine and Community Health*

*Department of Foundational Medical Studies (OU)*

Introduction: There has been a recent rise in public perception that vaccines are unsafe, fostering vaccine hesitancy (VH). Few interventions have focused on teaching medical students' communication skills for counseling vaccine-hesitant patients. Methods: Our educational intervention, designed for medical students, involved a self-study module followed by an interactive session on VH. Students practiced counseling vaccine-hesitant standardized patients (SPs). Faculty and SPs assessed student counseling skills. Students completed pre- and post-intervention surveys to assess attitudes and preparedness to counsel VH patients. Results: Students showed a better ability to talk to parents about Human Papillomavirus (HPV) vaccine concerns and Measles Mumps Rubella (MMR)/autism-related issues than to address patients' concerns related to the Varicella Zoster Virus (VZV) vaccine. Students' surveys pre- and post-

intervention revealed significant improvement in their vaccination knowledge and comfort with counseling vaccine-hesitant patients. Student counseling skills as part of an Objective: Structured Clinical Exam (OSCE) showed 73% of students asked about immunization and elicited SP concerns, but only 36% counseled appropriately. Conclusions: In the face of emerging VH, physicians play a critical role in advising and influencing vaccination decisions. Therefore, it is a core responsibility of medical educators to train medical students on recommending vaccinations and responding effectively to vaccine-hesitant parents and patients. Our multifaceted interactive session provided preclinical students with knowledge and skills to improve communication skills with VH patients and parents and the need for ongoing practice of these VH counseling skills.

Kelsch RD, **Moore M** and **Krishnan A** (2022). "Pre and postnatal magnetic resonance imaging of ventriculomegaly." *Pediatric Radiology* 52(SUPPL 1): S106.

[Full Text](#)

*OUWB Medical Student Author*

*Department of Diagnostic Radiology and Molecular Imaging*

**Purpose or Case Report:** The purpose of this research was to analyze our institution's large database of fetal magnetic resonance (MR) for cases of ventriculomegaly in order to understand trends in pre and postnatal MR. **Methods & Materials:** In this retrospective study, 316 individual fetal MR exams from the past 10 years at our institution were reviewed. Of those, 86 patients had fetal MRs with findings of either ventriculomegaly or an ordering indication of ventriculomegaly. Our inclusion criteria of a diagnosis of ventriculomegaly (lateral ventricle measured at the trigone on coronal imaging of over 10mm) on fetal MR with a corresponding postnatal MR for that patient yielded 21 patients. Information extracted included degree of ventriculomegaly, and cause as determined by imaging. Correlation was performed via chart review to understand each patient's clinical outcome. Poor outcome was defined as permanent neurological deficits including seizures and developmental delay. The majority of the clinical outcome information was collected from the first few years of life. **Results:** Of the 21 patients with ventriculomegaly with pre and postnatal MR imaging, the cause for ventriculomegaly was determined by prenatal imaging in 10 patients, by postnatal imaging in 4, while in 7 patients, a definite cause was not determined by the combination of prenatal and post-natal imaging. On prenatal imaging 7 fetuses had mild ventriculomegaly (10-12mm), 6 fetuses had moderate ventriculomegaly (>12-15mm) and 6 fetuses had severe ventriculomegaly (>15mm). Of the patients with mild ventriculomegaly, 5/7 had a normal neurological outcome while 2/7 have thus far had a poor neurological outcome. Of the patients with moderate ventriculomegaly, all 6, and similarly of the severe ventriculomegaly, 4/5 have thus far had a poor neurological outcome, with one patient not having enough clinical information thus far to determine outcome. **Conclusions:** Our study demonstrates the utility of fetal MR in characterizing ventriculomegaly, with 48% (10/21) of patients receiving an etiology for the ventriculomegaly based on fetal MR findings. Our study also confirms previously reported studies that fetuses with mild ventriculomegaly more often have a normal neurological outcome (71%, 5/7) when compared to those with moderate to severe ventriculomegaly.

**Kemp K, Baxa D and Cortes C** (2022). "Exploration of a collaborative self-directed learning model in medical education." *Medical Science Educator* 32(1): 195-207.

[Full Text](#)

*Department of Foundational Medical Studies (OU)*

**Purpose:** One of the aims of medical education is to generate lifelong learners, leading to the

identification of self-directed learning (SDL) as an essential component of medical education. While SDL is focused on an individual learner, collaboration is critically important in medicine. We developed an online course using the collaborative SDL (CSDL) framework. A goal for the course was for students to gain a better appreciation for the SDL process by exploring the COVID-19 pandemic. Methods: We utilized CSDL to implement a 2-week elective attended by fifteen M3 and M4 medical students. Students submitted short videos reflecting on their course experience and the relevance of the material to their future training. Qualitative analysis of reflections was conducted to determine the effectiveness of the CSDL framework, and an assessment of the course evaluations was performed to explore student perceptions of the course and its effectiveness at preparing them for practice. A survey regarding student perceptions of SDL was offered to M3 and M4 students in order to explore their experiences with SDL and perceptions of its importance in the context of the school curriculum. Results: The CSDL framework was effective in making students aware of the importance of SDL in medical practice. Students gained basic and clinical knowledge about the subject, experienced increased confidence, and appreciated collaborating with their peers. The survey offered to the general student body reflected that all students perceived that they employed SDL in their time as medical students. However, many students indicated that they had not utilized components of SDL beyond synthesizing and assessing their learning needs. Conclusion: CSDL is an effective method for promoting self-directed learning. Undergraduate medical course constructs utilizing CSDL will benefit students as they continue their career development.

Keshinro A, Butler P, Fayanju O, Khabele D, Newman E, Greene W, Ude Welcome A, Joseph KA, **Stallion A**, Backhus L, Frangos S, Dimaggio C, Berman R, Hasson R, Rodriguez LM, Stain S, Bukur M, Klein MJ, Henry-Tillman R, Barry L, Oseni T, Martin C, Johnson-Mann C, Smith R, Karpeh M, White C, Turner P, Pugh C, Hayes-Jordan A and Berry C (2022). "Examination of intersectionality and the pipeline for black academic surgeons." *JAMA Surgery* 157(4): 327-334.

[Full Text](#)

#### *Department of Surgery*

Importance: The lack of underrepresented in medicine physicians within US academic surgery continues, with Black surgeons representing a disproportionately low number. Objective: To evaluate the trend of general surgery residency application, matriculation, and graduation rates for Black trainees compared with their racial and ethnic counterparts over time. Design, Setting, and Participants: In this nationwide multicenter study, data from the Electronic Residency Application Service (ERAS) for the general surgery residency match and Graduate Medical Education (GME) surveys of graduating general surgery residents were retrospectively reviewed and stratified by race, ethnicity, and sex. Analyses consisted of descriptive statistics, time series plots, and simple linear regression for the rate of change over time. Medical students and general surgery residency trainees of Asian, Black, Hispanic or Latino of Spanish origin, White, and other races were included. Data for non-US citizens or nonpermanent residents were excluded. Data were collected from 2005 to 2018, and data were analyzed in March 2021. Main Outcomes and Measures: Primary outcomes included the rates of application, matriculation, and graduation from general surgery residency programs. Results: Over the study period, there were 71687 applicants, 26237 first-year matriculants, and 24893 graduates. Of 71687 applicants, 24618 (34.3%) were women, 16602 (23.2%) were Asian, 5968 (8.3%) were Black, 2455 (3.4%) were Latino, and 31197 (43.5%) were White. Women applicants and graduates increased from 29.4% (1178 of 4003) to 37.1% (2293 of 6181) and 23.5% (463 of 1967) to 33.5% (719 of 2147), respectively. When stratified by race and ethnicity, applications from Black women increased from 2.2% (87 of 4003) to 3.5% (215 of 6181) ( $P < .001$ ) while applications

from Black men remained unchanged (3.7% [150 of 4003] to 4.6% [284 of 6181]). While the matriculation rate for Black women remained unchanged (2.4% [46 of 1919] to 2.3% [52 of 2264]), the matriculation rate for Black men significantly decreased (3.0% [57 of 1919] to 2.4% [54 of 2264];  $P = .04$ ). Among Black graduates, there was a significant decline in graduation for men (4.3% [85 of 1967] to 2.7% [57 of 2147];  $P = .03$ ) with the rate among women remaining unchanged (1.7% [33 of 1967] to 2.2% [47 of 2147]). Conclusions and Relevance: Findings of this study show that the underrepresentation of Black physicians at every stage in surgical training pipeline persists. Black men are especially affected. Identifying factors that address intersectionality and contribute to the successful recruitment and retention of Black trainees in general surgery residency is critical for achieving racial and ethnic as well as gender equity.

Kesserwan S, Lewis BE, Mao L, Sharafieh R, Atwood T, Kreutzer DL and Klueh U (2022). "Inflammation at site of insulin infusion diminishes glycemic control." Journal of Pharmaceutical Sciences. ePub Ahead of Print.

[Full Text](#)

*OUWB Medical Student Author*

The approximation of euglycemia is the most effective means of preventing diabetic complications, which is achieved through effective insulin delivery. Recent reports indicate that insulin phenolic preservatives, which are found in all commercial insulin formulations, are cytotoxic, pro-inflammatory and induce secondary fibrosis. Therefore, we hypothesize that these preservatives induce an inflammatory response at the site of insulin infusion leading to diminished glycemic control and adverse pharmacokinetic outcomes. Insulin degradation by inflammatory cell proteases was quantitated following protease treatment in vitro. A modified murine air pouch model was utilized to evaluate the relative inflammatory responses following infusions of saline, insulin preservatives, and insulin, utilizing the adjuvant irritant thioglycolate. Blood glucose levels were monitored in diabetic mice with and without air pouch irritation. A pharmacokinetic analysis evaluated insulin effectiveness for diabetic mice between these two conditions. Inflammatory cells are significantly present in insulin preservative-induced inflammation, which effects diminished blood glucose control by both insulin uptake and degradation. Insulin containing these preservatives resulted in similar degrees of inflammation as observed with the irritant thioglycolate. These studies imply that the preservative agents found in commercial insulin formulations induce an intense localized inflammatory reaction. This inflammatory reaction may be responsible for the premature failure of insulin infusion devices. Future studies directed at reducing this inflammatory reaction may prove to be an important step in extending the lifespan of insulin infusion devices.

Khatter NJ and Khan MAB (2022). "Clotrimazole," (ed). StatPearls. Treasure Island (FL): StatPearls.

[Full Text](#)

*OUWB Medical Student Author*

Clotrimazole is a medication used in the management and treatment of fungal infections. It is in the imidazole class of drugs. This activity outlines the indications, action, and contraindications for clotrimazole as a valuable agent in the treatment of fungal infections.

Khemraj RR, Solano C, Patel NM and Franklin BA (2022). "Impact of social disparities on cardiovascular disease and COVID-19 outcomes: Barriers to care and preventative interventions." Journal of Cardiopulmonary Rehabilitation and Prevention 42(2): 84-89.

[Full Text](#)

*OUWB Medical Student Author*

*Department of Internal Medicine/Cardiovascular Disease*

The COVID-19 pandemic has exposed significant disparities within certain population subsets that manifest through greater disease burden and worse outcomes. In this commentary, we propose specific preventive interventions to address these disparities within the United States.

Kishan AU, Steigler A, Denham JW, Zapatero A, Guerrero A, Joseph D, Maldonado X, Wong JK, Stish BJ, Dess RT, Pilar A, Reddy C, Wedde TB, Lilleby WA, Fiano R, Merrick GS, Stock RG, Demanes DJ, Moran BJ, Tran PT, Martin S, Martinez-Monge R, **Krauss DJ**, Abu-Isa EI, Pisansky TM, Choo CR, Song DY, Greco S, Deville C, McNutt T, DeWeese TL, Ross AE, Ciezki JP, Tilki D, Karnes RJ, Tosoian JJ, Nickols NG, Bhat P, Shabsovich D, Juarez JE, Jiang T, Ma TM, Xiang M, Philipson R, Chang A, Kupelian PA, Rettig MB, Feng FY, Berlin A, Tward JD, Davis BJ, Reiter RE, Steinberg ML, Elashoff D, Boutros PC, Horwitz EM, Tendulkar RD, Spratt DE and Romero T (2022). "Interplay between duration of androgen deprivation therapy and external beam radiotherapy with or without a brachytherapy boost for optimal treatment of high-risk prostate cancer a patient-level data analysis of 3 cohorts." *JAMA Oncology* 8(3): e216871.

[Full Text](#)

*Department of Radiation Oncology*

Importance: Radiotherapy combined with androgen deprivation therapy (ADT) is a standard of care for high-risk prostate cancer. However, the interplay between radiotherapy dose and the required minimum duration of ADT is uncertain. Objective: To determine the specific ADT duration threshold that provides a distant metastasis-free survival (DMFS) benefit in patients with high-risk prostate cancer receiving external beam radiotherapy (EBRT) or EBRT with a brachytherapy boost (EBRT+BT). Design, Settings, and Participants: This was a cohort study of 3 cohorts assembled from a multicenter retrospective study (2000-2013); a post hoc analysis of the Randomized Androgen Deprivation and Radiotherapy 03/04 (RADAR; 2003-2007) randomized clinical trial (RCT); and a cross-trial comparison of the RADAR vs the Deprivación Androgénica y Radio Terápía (Androgen Deprivation and Radiation Therapy; DART) 01/05 RCT (2005-2010). In all, the study analyzed 1827 patients treated with EBRT and 1108 patients treated with EBRT+BT from the retrospective cohort; 181 treated with EBRT and 203 with EBRT+BT from RADAR; and 91 patients treated with EBRT from DART. The study was conducted from October 15, 2020, to July 1, 2021, and the data analyses, from January 5 to June 15, 2021. Exposures: High-dose EBRT or EBRT+BT for an ADT duration determined by patient-physician choice (retrospective) or by randomization (RCTs). Main Outcomes and Measures: The primary outcome was DMFS; secondary outcome was overall survival (OS). Natural cubic spline analysis identified minimum thresholds (months). Results: This cohort study of 3 studies totaling 3410 men (mean age [SD], 68 [62-74] years; race and ethnicity not collected) with high-risk prostate cancer found a significant interaction between the treatment type (EBRT vs EBRT+BT) and ADT duration (binned to <6, 6 to <18, and ≥18 months). Natural cubic spline analysis identified minimum duration thresholds of 26.3 months (95% CI, 25.4-36.0 months) for EBRT and 12 months (95% CI, 4.9-36.0 months) for EBRT+BT for optimal effect on DMFS. In RADAR, the prolongation of ADT for patients receiving only EBRT was not associated with significant improvements in DMFS (hazard ratio [HR], 1.01; 95% CI, 0.65-1.57); however, for patients receiving EBRT+BT, a longer duration was associated with improved DMFS (DMFS HR, 0.56; 95% CI, 0.36-0.87; P =.01). For patients receiving EBRT alone (DART), 28 months of ADT was associated with improved DMFS compared with 18 months (RADAR HR, 0.37; 95% CI, 0.17-0.80; P =.01). Conclusions and Relevance: These cohort study findings suggest that the optimal minimum ADT duration for treatment with high-dose EBRT alone is more than 18 months; and for EBRT+BT, it is 18 months or possibly less. Additional studies are needed to determine more precise minimum durations.

Komatsu C, van der Merwe Y, He L, Kasi A, Sims JR, Miller MR, Rosner IA, **Khatter NJ**, Su AJA, Schuman JS, Washington KM and Chan KC (2022). "In vivo MRI evaluation of anterograde manganese transport along the visual pathway following whole eye transplantation." Journal of Neuroscience Methods. ePub Ahead of Print.

[Full Text](#)

*OUWB Medical Student Author*

**Background:** Since adult mammalian retinal ganglion cells cannot regenerate after injury, we have recently established a whole-eye transplantation (WET) rat model that provides an intact optical system to investigate potential surgical restoration of irreversible vision loss. However, it remains to be elucidated whether physiological axoplasmic transport exists in the transplanted visual pathway. **New Method:** We developed an in vivo imaging model system to assess WET integration using manganese-enhanced magnetic resonance imaging (MEMRI) in rats. Since Mn<sup>2+</sup> is a calcium analogue and an active T1-positive contrast agent, the levels of anterograde manganese transport can be evaluated in the visual pathways upon intravitreal Mn<sup>2+</sup> administration into both native and transplanted eyes. **Results:** No significant intraocular pressure difference was found between native and transplanted eyes, whereas comparable manganese enhancement was observed between native and transplanted intraorbital optic nerves, suggesting the presence of anterograde manganese transport after WET. No enhancement was detected across the coaptation site in the higher visual areas of the recipient brain. **Comparison with Existing Methods:** Existing imaging methods to assess WET focus on either the eye or local optic nerve segments without direct visualization and longitudinal quantification of physiological transport along the transplanted visual pathway, hence the development of in vivo MEMRI. **Conclusion:** Our established imaging platform indicated that essential physiological transport exists in the transplanted optic nerve after WET. As neuroregenerative approaches are being developed to connect the transplanted eye to the recipient's brain, in vivo MEMRI is well-suited to guide strategies for successful WET integration for vision restoration. **Keywords (Max 6):** Anterograde transport, magnetic resonance imaging, manganese, neuroregeneration, optic nerve, whole-eye transplantation

Kushner-Lenhoff S, Kogachi K, Mert M, Chu Z, Shahidzadeh A, Palejwala NV, Wolfe J, Itty S, **Drenser KA**, **Capone A**, Dugel PU, Moshfeghi AA, Ameri H, Daskivich LP, Wang RK and Kashani AH (2022). "Capillary density and caliber as assessed by optical coherence tomography angiography may be significant predictors of diabetic retinopathy severity." PLoS ONE 17(1 January): 0262996.

[Full Text](#)

*Department of Ophthalmology*

**Purpose:** To validate retinal capillary density and caliber associations with diabetic retinopathy (DR) severity in different clinical settings. **Methods:** This cross-sectional study assessed retinal capillary density and caliber in the superficial retinal layer of 3-mm OCTA scans centered on the fovea. Images were collected from non-diabetic controls and subjects with mild or referable DR (defined DR worse than mild DR) between February 2016 and December 2019 at secondary and tertiary eye care centers. Vessel Skeleton Density (VSD), a measure of capillary density, and Vessel Diameter Index (VDI), a measure of vascular caliber, were calculated from these images. Discriminatory performance of VSD and VDI was evaluated using multivariable logistic regression models predicting DR severity with adjustments for sex, hypertension, and hyperlipidemia. Area under the curve (AUC) was estimated. Model performance was evaluated in two different cohorts. **Results:** This study included 594 eyes from 385 subjects. Cohort 1 was a training cohort of 509 eyes including 159 control, 155 mild non-proliferative DR (NPDR) and 195

referable DR eyes. Cohort 2 was a validation cohort consisting of 85 eyes including 16 mild NPDR and 69 referable DR eyes. In Cohort 1, addition of VSD and VDI to a model using only demographic data significantly improved the model's AUC for discrimination of eyes with any DR severity from controls (0.91 [95% CI, 0.88-0.93] versus 0.80 [95% CI, 0.76-0.83],  $p < 0.001$ ) and eyes with referable DR from mild NPDR (0.90 [95% CI, 0.86-0.93] versus 0.69 [95% CI, 0.64-0.75],  $p < 0.001$ ). The transportability of this regression model was excellent when implemented in Cohort 2 for the referable DR versus mild NPDR comparison. The odds ratio of having any DR compared to control subjects, and referable DR compared to mild DR decreased by 15% (95% CI: 12-18%), and 13% (95% CI: 10-15%), respectively, for every 0.001 unit increase in VSD after adjusting for comorbidities. Conclusion: OCTA-derived capillary density has real world clinical value for rapidly assessing DR severity.

**Lamb LE**, Timar R, Wills M, Dhar S, Lucas SM, Komnenov D, Chancellor MB and Dhar N (2022). "Long COVID and COVID-19-associated cystitis (CAC)." International Urology and Nephrology 54(1): 17-21.

[Full Text](#)

*Department of Urology*

Purpose: There is scarce literature regarding genitourinary symptoms in COVID-19, especially post-acute disease otherwise known as Long COVID. We identified recovered COVID-19 patients presenting with new or worsening overactive bladder symptoms, known as COVID-19-associated cystitis (CAC). Methods: We used the American Urological Association Urology Care Foundation Overactive Bladder (OAB) Assessment Tool to screen COVID-19 recovered patients presenting with urological complaints at our urban-located institution from 5/22/2020 to 12/31/2020. Patients 10–14 weeks post-discharge responded to 5 symptom and 4 quality-of-life (QoL) questions. We reported median symptom scores, as well as QoL scores, based on new or worsening urinary symptoms, and by sex. Results: We identified 350 patients with de novo or worsening OAB symptoms 10–14 weeks after hospitalization with COVID-19. The median total OAB symptom score in both men and women was 18. The median total QoL score for both men and women was 19. Patients with worsening OAB symptoms had a median pre-COVID-19 symptom score of 8 (4–10) compared to post-COVID-19 median symptom score of 19 (17–21). Median age was 64.5 (range 47–82). Median hospital length-of-stay was 10 days (range 5–30). Conclusion: We report survey-based results of patients suffering from new or worsening OAB symptoms months after their hospitalization from COVID-19. Future studies with larger sample sizes and more extensive testing will hopefully elucidate the specific pathophysiology of OAB symptoms in the context of long COVID so urologists can timely and appropriately treat their patients.

Lao K, Sykes E, van Wijk XMR, Li J, Williams JA, Gherasim C and **Sun Q** (2022). "Large inter-assay difference of serum creatinine in pediatric population: A threat to accurate staging of chronic kidney disease." Pediatric Nephrology 37(3): 677-681.

[Full Text](#)

*Department of Pathology*

Background: Serum creatinine concentration is a primary component of Bedside Schwartz equation for estimated glomerular filtration rate (eGFR) in children. To standardize creatinine measurement, most manufacturers have adopted calibration procedures traceable to isotope dilution mass spectrometry (IDMS) using National Institute of Standards and Technology reference material. However, reference material representing much lower creatinine concentrations seen in children is not available and it is unclear how well commercial assays perform at pediatric levels. Methods: One thousand nine hundred seventy-one specimens from

consecutive children <19 years, with creatinine  $\leq 0.8$  mg/dL by Abbott Jaffe method were included. Creatinine measurements were compared between Abbott-Jaffe and Abbott-enzymatic methods. Furthermore, we evaluated performance of six commercial creatinine assays at concentrations seen in pediatric patients utilizing IDMS traceable serum samples. Results: Median difference (enzymatic-Jaffe) for prepubertal females was  $-0.18$  mg/dL (2.5%tile, 97.5%tile:  $-0.30, -0.06$ ),  $-0.12$  mg/dL ( $-0.25, -0.00$ ) for pubertal females,  $-0.17$  mg/dL ( $-0.30, -0.04$ ) for prepubertal males,  $-0.11$  mg/dL ( $-0.24, 0.01$ ) for pubertal males. Bias appeared proportional for each subgroup and decreased as creatinine concentrations increased. Using IDMS traceable samples, the greatest inter-assay variability was seen with the lowest creatinine levels (target  $0.273$  mg/dL), where 67% (4/6) of methods failed to reach minimal bias specification of 8% (range  $-7.5$  to 86%). For samples with higher creatinine targets ( $0.440$ – $0.634$  mg/dL), two methods failed to meet minimal bias specification, whereas four showed bias  $< 8\%$ . Conclusion: Many commonly used creatinine assays remain inaccurate for pediatric populations after over a decade of nationwide efforts to standardize measurements. When creatinine-based eGFR is used for chronic kidney disease (CKD) staging in children, large inter-assay variability can lead to disease misclassification, inappropriate diagnostic and therapeutic interventions.

**Lee PB**, Miano DI, Sesselmann M, Johnson J, Chung MT, Abboud M, Johnson AP and Zuliani GF (2022). "RealSelf social media analysis of rhinoplasty patient reviews." Journal of Plastic, Reconstructive and Aesthetic Surgery. ePub Ahead of Print.

[Request Form](#)

*OUWB Medical Student Author*

Background: Social media has become increasingly important for patients when deciding whether they should undergo rhinoplasty. The purpose of this study is to analyze patient satisfaction of rhinoplasty procedures through RealSelf social media reviews. Methods: We collected data from 583 rhinoplasty reviews published on the RealSelf portal. In posts dated between 2016 and 2020, we included those which were labeled as "Worth It" and "Not Worth It." Posts that were labeled as "Unsure" or were left unlabeled were excluded from the study. In addition, posts not including the cost of their rhinoplasty were excluded. Taking into account patient demographics and cost of the procedure, we analyzed reasons for choosing to undergo surgery, reasons for choosing surgeons, and reasons for liking or disliking their procedure. Results: Of the 583 reviews analyzed, most (45.4%) were categorized from the 18-24 years age group and there was an overall 93.8% satisfaction rate. While there was no statistically significant difference in the cost of rhinoplasty surgeries between "Worth It" and "Not Worth It" groups, the average cost of recorded rhinoplasties was US\$ 8043 with a standard deviation  $\pm$  \$3296. According to our analysis, younger patients aged 18-24 years relied more on social media to choose their surgeons and desired a more natural appearance to their nose while older ones preferred compatible physician personalities and increased self-esteem for rhinoplasty. Conclusion: This study offers a unique perspective into the distinguishing characteristics of different age groups and the values they place in pursuing rhinoplasty, choosing their surgeons, and why they like/dislike their surgical outcomes.

Lee R, Shields RA, Maywood MJ, Nemeth C, Wa CA, **Williams GA**, Hassan TS, Garretson BR, Capone A, Ruby AJ, Drenser KA, Faia LJ, Randhawa S, Mahmoud TH and Wolfe JD (2022). "Long-term visual outcomes and the timing of surgical repair of fovea-splitting rhegmatogenous retinal detachments." Retina 42(2): 244-249.

[Full Text](#)

*Department of Ophthalmology*

**Purpose:** To evaluate the visual outcomes and the affect of timing of surgical repair of fovea-splitting rhegmatogenous retinal detachments. **Method:** A retrospective, consecutive cohort from multiple surgeons at a single center. Fovea status (fovea-on, fovea-splitting, or fovea-off) was classified by preoperative optical coherence tomography. The primary outcome measure was the visual acuity at the last follow-up that was further correlated with the timing of surgical repair. **Results:** One hundred and ninety-five eyes were included with 62 fovea-on, 65 fovea-splitting, and 68 fovea-off detachments. The mean preoperative logarithm of the minimum angle of resolution visual acuity for fovea-on, fovea-splitting, and fovea-off groups was  $0.16 \pm 0.21$ ,  $0.70 \pm 0.56$ , and  $1.67 \pm 0.87$ , respectively ( $P < 0.001$ ). Mean postoperative logarithm of the minimum angle of resolution visual acuity for fovea-on, fovea-splitting, and fovea-off groups were  $0.07 \pm 0.13$ ,  $0.10 \pm 0.15$ , and  $0.20 \pm 0.22$ , respectively ( $P < 0.001$ ). A statistically significant difference in mean postoperative logMAR visual acuity was found between fovea-off and fovea-on groups ( $P = 0.003$ ) and between fovea-off and fovea-splitting groups ( $P = 0.013$ ), however not between fovea-on and fovea-splitting groups ( $P = 0.827$ ). Visual acuity improved when repair was performed earlier after presentation for fovea-on ( $R = 0.378$ ,  $P = 0.002$ ) and fovea-off groups ( $R = 0.277$ ,  $P = 0.022$ ), but not for the fovea-splitting group ( $R = 0.089$ ,  $P = 0.481$ ). **Conclusion:** We described the favorable visual outcomes of surgery for fovea-splitting rhegmatogenous retinal detachment and correlated these with the timing of surgical repair, which may help guide the management of this urgent, vision-threatening condition.

Lee Y, Ahn Y and **Cucullo L** (2022). "Impact of physical activity and medication adherence on the seizure frequency and quality of life of epileptic patients: A population study in west Texas." BioMed Research International 4193664: 1-14.

[Full Text](#)

*Department of Foundational Medical Studies (OU)*

Epilepsy is a neurological disease that affects 1-3% of the population. People with epilepsy (PWE) have poor physical and psychological health and a lower quality of life (QOL) than people without epilepsy. Moreover, PWE has more comorbid conditions (obesity, depression) than general populations. Physical activity (PA) has been reported to have various positive physical and psychological effects in PWE. Meanwhile, poor medication adherence is one of the main precipitating factors for seizure triggers. This study assessed the impact of PA and medication adherence on the seizure frequency and QOL for PWE at the Epilepsy Foundation, West Texas (EFWT). Our results indicate that PA is positively associated with the quality of life and negatively associated with the seizure frequency for PWE at EFWT, which suggests that physically active PWE tend to have fewer seizures and better QOL. Medication adherence did not affect the seizure frequency or QOL in our study. Yet, it is still crucial to encourage medication adherence for PWE since nonadherence is a known seizure promoter. Findings from this study highlight the continuous need to utilize available resources and implement programs to promote physical activity and medication adherence for better seizure control and QOL in PWE at EFWT.

Li S, Nowlen M, Batino R, Owen R and **Timmis S** (2022). "Bi-atrial thrombus in association with pacemaker lead thrombus." Journal of the American College of Cardiology 79(9): 2799.

[Full Text](#)

*Department of Internal Medicine/Cardiovascular Disease*

**Background:** Thrombus-in-transit through a patent foramen ovale (PFO) is a rare, potentially fatal event. It has been documented in few case reports and intervention can be difficult and precarious. **Case:** A 69-year-old man, with CAD with bypass, stenting, and implantable

cardioverter defibrillator (ICD), presented with multiple ICD discharges and chest pain. Device interrogation showed shocks after episodes of atrial fibrillation. He underwent a cardiac catheterization with subsequent left circumflex stenting. Transesophageal echocardiography showed the presence of a mobile left atrial thrombus (Figure 1A) that crosses a PFO (Figure 1B) and originates from the right atrial pacemaker lead (Figure 1C). A CT angiogram revealed bilateral PE with clot in the intrahepatic IVC and thrombus attached to the right ventricular ICD lead. The patient is awaiting surgery. Decision-Making: This is a complex case of intra-cardiac thrombus and PE that likely originated as a deep vein thrombus. Much of the clot was caught by the ICD lead and became ensnared in the PFO. There is significant clot in the atria; this may have led to a reduced pulmonary clot burden. Definitive treatment involves open-heart surgery; however, the patient must remain on dual antiplatelet therapy due to recent coronary stenting. Clopidogrel was converted to cangrelor. Conclusion: Thrombi in transit across a PFO can be difficult to treat, especially in patients with concurrent coronary artery disease with stenting requiring antiplatelet therapy.

Lim S, Bazydlo M, Macki M, Haider S, Schultz L, Nerenz D, Fadel H, Pawloski J, Yeh HH, Park P, Aleem I, **Khalil J, Easton R**, Schwalb JM, Abdulhak M and Chang V (2022). "A matched cohort analysis of drain usage in elective anterior cervical discectomy and fusion: A Michigan Spine Surgery Improvement Collaborative (MSSIC) Study." *Spine* 47(3): 220-226.

[Full Text](#)

*Department of Orthopaedic Surgery*

Study Design: This is a retrospective, cohort analysis of multi-institutional database. Objective: This study was designed to analyze the impact of drain use following elective anterior cervical discectomy and fusion (ACDF) surgeries. Summary of Background Data: After ACDF, a drain is often placed to prevent postoperative hematoma. However, there has been no high quality evidence to support its use with ACDF despite the theoretical benefits and risks of drain placement. Methods: The Michigan Spine Surgery Improvement Collaborative database was queried to identify all patients undergoing elective ACDF between February 2014 and October 2019. Cases were divided into two cohorts based on drain use. Propensity-score matching was utilized to adjust for inherent differences between the two cohorts. Measured outcomes included surgical site hematoma, length of stay, surgical site infection, dysphagia, home discharge, readmission within 30 days, and unplanned reoperation. Results: We identified 7943 patients during the study period. Propensity-score matching yielded 3206 pairs. On univariate analysis of matched cohorts, there were no differences in rate of postoperative hematoma requiring either return to OR or readmission. We noted patients with drains had a higher rate of dysphagia (4.6% vs. 6.3%;  $P = 0.003$ ) and had longer hospital stay ( $P < 0.001$ ). On multivariate analysis, drain use was associated with significantly increased length of stay (relative risk 1.23, 95% confidence interval [CI] 1.13-1.34;  $P < 0.001$ ). There were no significant differences in other outcomes measured. Conclusion: Our analysis demonstrated that drain use is associated with significant longer hospital stay.

Lupher V, Lynch A and **Zalesin KC** (2022). "Health, weight loss, and surgery beliefs: Why patients choose to undergo bariatric surgery and what influences their choice of surgery procedure." *Bariatric Surgical Practice & Patient Care* 17(1): 2-8.

[Request Form](#)

*Department of Internal Medicine/Nutrition and Preventative Medicine*

Introduction: The purpose of this study was to determine what factors influence an individual's decision to have bariatric surgery, including why they choose a particular surgery type.

Methods: Thirty bariatric surgery patients (11 gastric bypass [GB] and 19 sleeve gastrectomy [SG]) participated in qualitative interviews pre- and postsurgery. Interviews questioned why patients chose bariatric surgery, their specific procedure choice, timing, and expectations for surgery. Verbatim transcripts were coded using a constant comparative method and a grounded theory approach. Analysis focused on surgery motivations, personal influences, and choice of procedure. Results: Five themes emerged regarding the decision to have bariatric surgery: Health, Activity and Lifestyle Interference, Frustration with Weight, Social Influences, and Body Image. Most participants selected GB surgery based on beliefs about weight loss outcomes. Rationales for choosing a SG centered on surgery effects, including perceptions that the sleeve was less invasive or allowed for less restrictive eating habits postsurgery. Surgery veterans emerged as an important influence on the choice of surgery procedure. Conclusion: Patients consider multiple factors in their decision to undergo bariatric surgery. Health care professionals should take these factors into account to help patients make informed decisions and to clarify existing misconceptions.

Macki M, Anand SK, Hamilton T, Lim S, Mansour T, Bazydlo M, Schultz L, Abdulhak MM, **Khalil JG**, Park P, Aleem I, **Easton R**, Schwalb JM, Nerenz D and Chang VC (2022). "Analysis of factors associated with return-to-work after lumbar surgery up to 2-years follow-up: A Michigan Spine Surgery Improvement Collaborative (MSSIC) study." *Spine* 47(1): 49-58.

[Full Text](#)

*Department of Orthopaedic Surgery*

Study Design: Michigan Spine Surgery Improvement Collaborative (MSSIC) prospectively collects data on all patients undergoing operations for degenerative and/or deformity indications. Objective. We aimed to identify which factors are significantly associated with return-to-work after lumbar surgery at long-term follow-up. Summary of Background Data: Prior publications have created a clinically relevant predictive model for return-to-work, wherein education, gender, race, comorbidities, and preoperative symptoms increased likelihood of return-to-work at 3 months after lumbar surgery. We sought to determine if these trends 1) persisted at 1 year and 2 years postoperatively; or 2) differed among preoperatively employed versus unemployed patients. Methods: MSSIC was queried for all patients undergoing lumbar operations (2014-2019). All patients intended to return-to-work postoperatively. Patients were followed for up to 2 years postoperatively. Measures of association were calculated with multivariable generalized estimating equations. Results: Return-to-work increased from 63% (3542/5591) at 90 days postoperatively to 75% (3143/4147) at 1 year and 74% (2133/2866) at 2 years postoperatively. Following generalized estimating equations, neither clinical nor surgical variables predicted return-to-work at all three time intervals: 90 days, 1 year, and 2 years postoperatively. Only socioeconomic factors reached statistical significance at all follow-up points. Preoperative employment followed by insurance status had the greatest associations with return-to-work. In a subanalysis of patients who were preoperatively employed, insurance was the only factor with significant associations with return-to-work at all three follow-up intervals. The return-to-work rates among unemployed patients at baseline increased from 29% (455/1100) at 90 days, 44% (495/608) at 1 year, and 46% (366/426) at 2 years postoperatively. The only two significant factors associated with return-to-work at all three follow-up intervals were Medicaid, as compared with private insurance, and male gender. Conclusion: In patients inquiring about long-term return-to-work after lumbar surgery, insurance status represents the important determinant of employment status.

Madanat L, Seeley E, Shah K, **Haines DE** and **Mehta N** (2022). "Changes in baseline EKG and cardiac

implantable electronic device parameters following transcatheter aortic valve replacement." Journal of the American College of Cardiology 79(9): 224-224.

[Full Text](#)

*Department of Internal Medicine/Cardiovascular Disease*

Madanat L, Seeley E, Shah K, **Haines DE** and **Mehta N** (2022). "Effect of amiodarone use in patients with pre-existing cardiac implantable electronic devices undergoing transcatheter aortic valve replacement." Journal of the American College of Cardiology 79(9): 208-208.

[Full Text](#)

*Department of Internal Medicine/Cardiovascular Disease*

Madanat L, Shah K, Seeley E, **Haines DE** and **Mehta N** (2022). "The impact of device type and valve type on mortality in patients with pre-existing cardiac implantable electronic device undergoing transcatheter aortic valve replacement." Journal of the American College of Cardiology 79(9): 923-923.

[Full Text](#)

*Department of Internal Medicine/Cardiovascular Disease*

**Maine GN**, Krishnan SM, Walewski K, Trueman J, Sykes E and **Sun Q** (2022). "Clinical and analytical evaluation of the Abbott AdviseDx quantitative SARS-CoV-2 IgG assay and comparison with two other serological tests." Journal of Immunological Methods. ePub Ahead of Print.

[Full Text](#)

*Department of Pathology*

Introduction: Serological testing is an important tool to assist with assessing the immune response to SARS-CoV-2 infections, the causative agent of COVID-19. A quantitative assay was recently developed by Abbott Laboratories to measure antibodies against the receptor binding domain of the spike protein. In addition to assessing disease prevalence, this assay is useful towards determining the scale and duration of the humoral response to infection and vaccination. Here we evaluated the clinical and analytical performance of the quantitative Abbott AdviseDx SARS-CoV-2 IgG II assay and characterized the longitudinal dynamics of the IgG response against SARS-CoV-2 in 402 infected individuals up to 322 days post-symptom onset. Methods: To assess test sensitivity, 1257 serum specimens derived from 402 patients positive for SARS-CoV-2 by RT-PCR were analyzed on the Abbott Alinity platform. To evaluate test specificity, 394 specimens were tested from patients who were symptomatic but PCR negative for SARS-CoV-2, as well as 305 archived pre-pandemic samples. To further characterize test performance metrics, we evaluated assay precision and linearity. Results: The Abbott AdviseDx SARS-CoV-2 IgG II assay exhibited diagnostic specificity of 99.02% using 305 pre- COVID-19 serum specimens and 98.73% using 394 PCR negative specimens. Using 1257 sequential serum samples collected from PCR-confirmed individuals, clinical test sensitivity of the assay was 39.7% at 3–7 days, 75.9% at 8–14 days, 95.6% at 15–21 days, and 98.7% at 4–5 weeks post-symptom onset. The assay is linear across the analytical measurement range claimed by the manufacturer (22–25,000 AU/mL) and exhibited good analytical precision. The median concentration of IgG increased steadily from <22 AU/mL at 3–7 days post-symptom onset, to a peak of 14,421 AU/mL at 6–7 weeks. Although antibody concentration started to decline at 8–9 weeks following symptom onset, all patients remained seropositive during the observation period. When the positivity rate of this assay was compared with the Abbott anti-NP IgG and EUROIMMUN anti-S1 IgG tests, clinical sensitivity of the Abbott AdviseDx SARS-CoV-2 IgG II assay was the highest at all time points with the exception of 4–5 weeks after symptom onset. Conclusion: The Abbott AdviseDx SARS-CoV-2 IgG II assay offers high test specificity and sensitivity across a broad

reportable range. We anticipate this assay will be a useful towards quantitatively assessing the humoral immune response to COVID-19 infection and vaccination.

Major M, **Long GW**, Eden CL, Studzinski DM, Callahan RE and **Brown OW** (2022). "Long-term outcomes and interventions of postoperative type 1a endoleak following elective endovascular aortic aneurysm repair." Journal of Vascular Surgery 75(1): 136-143.e131.

[Full Text](#)

*Department of Surgery*

Objective: This study evaluated the incidence and long-term outcomes of postoperative type 1a endoleak (PT1a) following endovascular aortic aneurysm repair (EVAR). Methods: A retrospective review of consecutive aortoiliac EVARs performed at a single institution from June 2006 to June 2012 was conducted. Patients with PT1a were identified by postoperative imaging and compared with those who did not develop a PT1a. Late outcomes were also studied of a subset of patients with PT1a who had persistent intraoperative type 1a endoleak (iT1a) on completion angiogram during EVAR that had resolved on initial follow-up imaging. Results: Three hundred eighty-nine patients underwent EVAR with median follow-up of 87 months (interquartile range, 64-111 months). The incidence of PT1a was 8.2% (n = 32) with a median follow-up of 74 months (interquartile range, 52-138 months). Compared with the total cohort, those who developed PT1a were statistically more likely to be female (32% vs 17%; P =.03) and have a higher all-cause mortality (71% vs 40%; P <.01) and aneurysm-related mortality (15.6% vs 1.7%; P <.01). Median time to presentation was 52 months. Of the 32 patients with PT1a, five (15.6%) presented with aortic rupture, of which three underwent extension cuff placement, one had open graft explant, and one declined intervention. Six patients in total (18.7%) declined intervention; five of these died of nonaneurysmal causes and one remains alive. Of the 26 patients with PT1a who had intervention, 21 (80.7%) showed resolution of PT1a, and five (19.2%) had recurrence. For patients with recurrent PT1a, two had resulting aneurysm-related mortality, two endoleaks resolved after relining with an endograft, and one patient declined intervention but remains alive. Patients with PT1a who had intervention with resolution showed no significant difference in median survival estimates (140.0 months) compared with the remaining EVAR cohort (120.0 months; P =.80). Within the PT1a cohort, 6 (18.7%) had also experienced iT1a with a mean time to presentation of the late PT1a of 45 months. iT1a was associated with a significantly increased likelihood of developing a PT1a (P <.01) and decreased median survival (P <.01), but there was no known aneurysm-related mortality. Conclusions: Development of PT1a following elective EVAR is associated with increased all-cause and aneurysm-related mortality and presents an average of 52 months postoperatively. This underscores the importance of long-term surveillance. Patients with PT1a who had a successful intervention showed no significant difference in median survival. Those with iT1a had a higher risk for PT1a compared with the EVAR cohort overall and had decreased median survival, without increased aneurysm-related mortality.

Mando R, **Abbas AE**, Allen O, Renard BM, **Gallagher MJ**, **Shannon FL**, Vivacqua A and **Hanson I** (2022). "The relationship of aortic valve calcium score and glomerular filtration rate in patients with severe aortic stenosis and chronic kidney disease." Journal of the American College of Cardiology 79(9): 690-690.

[Full Text](#)

*Department of Internal Medicine/Cardiovascular Disease*

*Department of Surgery*

Mando R, Madanat L, **Almany SL, Hanson I, Gallagher MJ, Shannon FL**, Renard BM, **Hanzel GS**, Vivacqua A and **Abbas AE** (2022). "Multimodality assessment of low flow low gradient aortic stenosis with low ejection fraction." Journal of the American College of Cardiology 79(9): 739-739.

[Full Text](#)

*Department of Internal Medicine/Cardiovascular Disease*

*Department of Surgery*

Mansfield SA, Morrison Z, Utria AF, Reyes C, Garcia AV and **Stallion A** (2022). "Improving pathways to eliminate underrepresentation in the pediatric surgery workforce: A call to action." Journal of Pediatric Surgery. ePub Ahead of Print.

[Full Text](#)

*Department of Surgery*

Despite progress, diversity and minority representation within the pediatric surgery workforce still does not match the expansive backgrounds of the patients we treat. The problem stems from underrepresentation of minority populations at every step along the pediatric surgery training pathway. Strategies aimed at improving diversity and representation in medical school, general surgery residencies, and ultimately pediatric surgery fellowship are necessary to assemble a more diverse pool of pediatric surgeons. The aim of this paper is to review the current demographic make-up of medical and surgical specialties, highlight the value of diversity, and provide evidence-based strategies for increasing minority representation throughout the pediatric surgery pathway. Future patients will be better served with a more representative pediatric surgery workforce.

Marlow ED, Bakhsh SR, **Reddy DN**, Farley ND, **Williams GA** and **Mahmoud TH** (2022). "Combined epiretinal and internal limiting membrane retracting door flaps for large macular holes associated with epiretinal membranes." Graefes Archive for Clinical and Experimental Ophthalmology. ePub Ahead of Print.

[Full Text](#)

*OUWB Medical Student Author*

*Department of Ophthalmology*

Purpose: To assess the closure rate of large full-thickness macular holes (FTMH) associated with epiretinal membrane (ERM) with a combined epiretinal and internal limiting membrane retracting door flap. Methods: Retrospective chart review of patients treated at a single tertiary retina practice between January 2017 and November 2019. Individuals with FTMH larger than 400  $\mu$  m and co-diagnosis of ERM who underwent surgical repair with an ERM flap were included. Patients underwent pars plana vitrectomy with peeling of ERM that was positioned as a retracting door flap to cover the FTMH. Primary outcome was closure rate at 6 months following surgery. Final surgical success rate and visual acuity were secondary outcomes. Results: Among 7 eyes of 7 patients, 6 eyes achieved primary surgical success and final surgical success rate was achieved in all 7 eyes with a large FTMH repaired with ERM flap. The mean minimum linear diameter of the FTMH was 681  $\mu$  m  $\pm$  295. All patients had follow-up greater than 6 months, with a mean duration of 17 months (range 14-23 months). Visual acuity improved from a mean of 0.9  $\pm$  0.3 logMar (20/160) before surgery to 0.3  $\pm$  0.5 logMar (Snellen 20/40), postoperatively. Conclusion: Large FTMH with concurrent ERM that are managed with an ERM flap have high single-surgery success rate.

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](#). ePub Ahead of Print.

[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.

McCarthy MI, **Hinckel BB**, Arendt EA and Chambers CC (2022). "Putting it all together: Evaluating patellar instability risk factors and revisiting the "Menu"." *Clinics in Sports Medicine* 41(1): 109-121.

[Request Form](#)

*Department of Orthopaedic Surgery*

Management of the patient with multiple risk factors for recurrent patellar instability is complex. Surgeons must possess familiarity with the anatomic risk factors that are associated with first time and recurrent instability events and weigh them in the patient's individualized surgical "menu" options for surgical patellar stabilization. Addressing individual risk factors, pairing imaging findings with physical examination, and thoughts on prioritizing risk factors to determine which should be prioritized for surgical correction are discussed.

Middelberg LK, Leonard JC, Junxin S, Aranda A, Brown JC, Cochran CL, Eastep K, Gonzalez R, Haasz M, Herskovitz S, Hoffmann JA, Koral A, Lamoshi A, Levitte S, Lo YHJ, Montminy T, Novak I, Ng K, **Novotny NM** and Parrado RH (2022). "High-powered magnet exposures in children: A multi-center cohort study." *Pediatrics* 149(3): 1-9.

[Full Text](#)

*Department of Surgery*

Background and Objectives: High-powered magnets were effectively removed from the US market by the Consumer Product Safety Commission (CPSC) in 2012 but returned in 2016 after federal court decisions. The United States Court of Appeals for the 10th Circuit cited imprecise data among other reasons as justification for overturning CPSC protections. Since then, incidence of high-powered magnet exposure has increased markedly, but outcome data are limited. In this study, we aim to describe the epidemiology and outcomes in children seeking

medical care for high-powered magnets after reintroduction to market. Methods: This is a multicenter, retrospective cohort study of patients aged 0 to 21 years with a confirmed high-powered magnet exposure (ie, ingestion or insertion) at 25 children's hospitals in the United States between 2017 and 2019. Results: Of 596 patients with high-powered magnet exposures identified, 362 (60.7%) were male and 566 (95%) were <14 years of age. Nearly all sought care for magnet ingestion (n 5 574, 96.3%), whereas 17 patients (2.9%) presented for management of nasal or aural magnet foreign bodies, 4 (0.7%) for magnets in their genitourinary tract, and 1 patient (0.2%) had magnets in their respiratory tract. A total of 57 children (9.6%) had a life-threatening morbidity; 276 (46.3%) required an endoscopy, surgery, or both; and 332 (55.7%) required hospitalization. There was no reported mortality. Conclusions: Despite being intended for use by those >14 years of age, high-powered magnets frequently cause morbidity and lead to high need for invasive intervention and hospitalization in children of all ages.

**Mielke N, Johnson S and Bahl A** (2022). "Fully vaccinated and boosted patients requiring hospitalization for COVID-19: An observational cohort analysis." [medRxiv](#). ePub Ahead of Print.

[Full Text](#)

*OUWB Medical Student Author*

*Department of Emergency Medicine*

Objective: Real-world data on the effectiveness of boosters against COVID-19, especially as new variants continue to emerge, is limited. It is our objective to assess demographic, clinical, and outcome variables of patients requiring hospitalization for severe SARS-CoV-2 infection comparing fully vaccinated and boosted (FV&B) and unvaccinated (UV) patients. Methods: This multicenter observational cohort analysis compared demographic, clinical, and outcome variables in FV&B and UV adults hospitalized for COVID-19. A sub-analysis of FV&B patients requiring intensive care (ICU) care versus non-ICU care was performed to describe and analyze common symptom presentations, initial vital signs, initial laboratory workup, and pertinent medication use in these two groups. Results: Between August 12th, 2021 and December 6th, 2021, 4,571 patient encounters had a primary diagnosis of COVID-19 and required inpatient treatment at an acute-care hospital system in Southeastern Michigan. Of the 4,571 encounters requiring hospitalization, 65(1.4%) were FV&B and 2,935(64%) were UV. FV&B individuals were older (74 [67, 81] vs 58 [45, 70];  $p < 0.001$ ) with a higher proportion of immunocompromised individuals (32.3% vs 10.4%;  $p < 0.001$ ). Despite a significantly higher baseline risk of in-hospital mortality in the FV&B group compared to the UV (Elixhauser 16 vs 8 ( $p < 0.001$ )), there was a trend toward lower in-hospital mortality (7.7% vs 12.1%;  $p = 0.38$ ) among FV&B patients. Other severe outcomes followed this same trend, with 7.7% of FV&B vs 11.1% UV patients needing mechanical ventilation and 4.6% vs 10.6% of patients needing vasopressors in each group, respectively ( $p = 0.5$  and  $0.17$ ). Conclusions: Fully vaccinated and boosted individuals requiring hospital-level care for breakthrough COVID-19 tended to have less severe outcomes despite appearing to be higher risk at baseline when compared to unvaccinated individuals during the same time period. Specifically, there was a trend that FV&B group had lower rates of mechanical ventilation, use of vasopressors, and in-hospital mortality. As COVID-19 continues to spread, larger expansive trials are needed to further identify risk factors for severe outcomes among the FV&B population.

Min MS, **Kus K**, Wei N, Kassamali B, Faletsky A, Mostaghimi A and Lebwohl MG (2022). "Evaluating the role of histopathology in diagnosing pyoderma gangrenosum using Delphi and PARACELSUS criteria: A multicentre, retrospective cohort study." [British Journal of Dermatology](#). ePub Ahead of Print.

[Full Text](#)

*OUWB Medical Student Author*

Moeller JL and **Galasso L** (2022). "Pelvic region avulsion fractures in adolescent athletes: A series of 242 cases." Clinical Journal of Sport Medicine 32(1): E23-E29.

[Full Text](#)

*OUWB Medical Student Author*

Objective: The objective of this descriptive study was to evaluate pelvic region avulsion fractures in adolescents, including age of injury, location of injury, activity and mechanism at time of injury, treatments used, duration of treatment, and outcomes. Design: This was a retrospective chart review of patients who presented with pelvic region avulsion fracture over a 19-year period. Setting: Private practice, primary care sports medicine clinic. Patients: All patients younger than 20 years of age diagnosed with an acute pelvic region avulsion fracture. Interventions: There was no set intervention protocol. A variety of interventions and combination of interventions were used and determined by the treating physician on a case-by-case basis. Main Outcome Measures: Clearance for return toward sport activities. Results: Of the 242 cases, 162 were male. Soccer was the most common sport at the time of injury, and running/sprinting was the most common mechanism. Males were generally older at presentation and were more likely than females to have anterior inferior iliac spine injuries, whereas females were more likely to have iliac crest avulsions. Conservative treatment was effective in all cases. Males were treated for a shorter duration than females, but this difference was not statistically significant. Conclusions: Pelvic avulsion fractures are a rare injury in adolescent athletes. Males are twice as likely to experience these injuries and are older at presentation compared to females. Conservative management leads to successful outcomes in most cases.

**Moore M**, Afolayan-Oloye O, **Li W**, **Kanaan H** and **Zhang P** (2022). "Proteinuria in Thrombotic Microangiopathy (TMA) can be associated with adaptive partial podocytopathy with focal podocyte hyperplasia." Modern Pathology 35(SUPPL 2): 1178-1179.

[Full Text](#)

*OUWB Medical Student Author*

*Department of Pathology*

Background: TMA associated renal failure is easy to understand, but it has been difficult to explain the significant proteinuria in some cases of TMA. We recently confirmed that 100% of hyperplastic podocytes in collapsing glomerulopathy stained positively for CD133 (a stem cell/progenitor marker) as previously reported. The goal of this study was to determine if there was significant fusion of foot processes (FFP) and CD133-positive hyperplastic podocytes in TMA to correlate with the proteinuria. Design: The study included 12 negative controls (renal parenchyma away from renal cell carcinoma) and 25 TMA cases, either induced by drugs or due to other etiologies (preeclampsia, TTP, atypical HUS, malignant hypertension, etc). The percentage of FFP was estimated and proteinuria levels were obtained for TMA cases. Both groups of cases were stained for CD133 by immunohistochemical methods and the # of glomeruli with CD133-positive hyperplastic podocytes was analyzed. Results: In total, 19 of 25 TMA cases had elevated protein/creatinine ratio more than 2 (Table). The TMA group had significantly higher levels of serum creatinine ( $2.81 \pm 0.40$  mg/dl) than the control group ( $0.95 \pm 0.12$  mg/dl). All controls showed positive CD133 staining only in the parietal epithelial cells (PEC), but none of them revealed positive CD133 staining in podocytes. In addition to positive CD133 staining in the PEC, 19 of 25 (76%) TMA cases showed positive CD133 staining in small clusters of hyperplastic podocytes within Bowman's space (Figure, orange arrows in B and D).

The average percentage of glomeruli with CD133-positive hyperplastic podocytes was 12 % in the TMA group. This was significantly higher than in the control group (0 %) ( $p = 0.0002$ ), although this positivity did not show significant correlation with proteinuria in TMA group ( $r = 0.30$ ,  $p = 0.1537$ ). The percent of FFP ( $56 \pm 4$  %) was significantly correlated with proteinuria (protein/creatinine ratio  $4.4 \pm 0.6$ ) ( $r = 0.46$ ,  $p = 0.0237$ ) in the TMA group. (Figure Presented)  
Conclusions: Our data indicate that the proteinuria in TMA can be associated with significant FFP. Small clusters of CD133- positive hyperplastic podocytes can be seen in the majority of TMA cases of this cohort, which supports an adaptive partial podocytopathy in some TMA cases.

Muradian M, Fox S, **Barish P** and **Todd B** (2022). "Scrotal pain caused by a segmental testicular infarct." *Clinical Practice and Cases in Emergency Medicine* 6(1): 85-87.

[Full Text](#)

*Department of Emergency Medicine*

Case Presentation: A 44-year-old Black male presented to the emergency department with left scrotal pain. His initial workup did not identify an etiology of his symptoms; however, he returned the following day with worsening pain and a radiology-performed ultrasound then revealed a segmental testicular infarct. Discussion: Segmental testicular infarcts are a rare, often idiopathic, source of scrotal pain. Diagnosis is made by ultrasound, and repeat imaging may be required if not apparent on initial evaluation. Management is typically conservative although some require surgical intervention.

**Nandalur KR** (2022). "Hepatic mucinous cystic neoplasm: A step forward towards a meaningful classification system." *Academic Radiology*. ePub Ahead of Print.

[Full Text](#)

*Department of Diagnostic Radiology and Molecular Imaging*

**Naseer S, Hasan S, Bhuiyan J** and **Prasad A** (2022). "Current public trends in the discussion of dry eyes: A cross-sectional analysis of popular content on TikTok." *Cureus* 14(2): e22702.

[Full Text](#)

*OUWB Medical Student Author*

*Department of Ophthalmology*

Introduction: Dry eye disease (DED) is a common ocular pathology with significant impacts on both quality of life and visual function. One platform where individuals are receiving healthcare information is TikTok, the world's fastest-growing social media platform. Though used by more than one billion users, current literature is not established to assess the quality of information on TikTok. The purpose of this study was to assess the quality of DED-related medical information present on TikTok. Methods: We conducted a cross-sectional analysis of DED content on TikTok, utilizing the search term #DryEye to assess the top 150 videos appearing on December 20, 2021. Included videos were analyzed for descriptive statistics, including views, likes, uploader profession, and the number of uploader followers. Videos were assessed utilizing DISCERN, a tool used to appraise consumer health information. The one-way analysis of variance (ANOVA) was used to determine statistical significance groups. Results: A total of 101 videos were included in the final analysis. When comparing content creators, physicians received a significantly greater number of views and higher DISCERN scores ( $p < 0.05$ ) than non-physician medical providers and non-medical individuals. The content of the videos were educational content ( $n=39$ , 38.6%) or treatment information ( $n=37$ , 36.6%), followed by home remedies ( $n=10$ , 9.9%) and personal anecdotes ( $n=8$ , 7.9%). Videos with rich supplementary visuals (multiple images/moving images) had higher DISCERN scores compared to videos with no

supplementary visuals or one supplementary visual ( $p < 0.01$ ). Conclusion: With the growing popularity of TikTok, it is important to provide high-quality information to ensure the dissemination of medically accurate information and reduce the prevalence of disinformation. Our results demonstrate that while TikTok is a powerful platform, the quality of videos can still be vastly improved. Content creators, regardless of profession, can improve their DISCERN through listing sources, comparing treatments, and discussing risks/outcomes of various treatment modalities.

Navin M, **Wasserman JA**, Stahl D and Tomlinson T (2022). "The capacity to designate a surrogate is distinct from decisional capacity: Normative and empirical considerations." Journal of Medical Ethics 48(3): 189-192.

[Full Text](#)

*Department of Foundational Medical Studies (OU)*

The capacity to designate a surrogate (CDS) is not simply another kind of medical decision-making capacity (DMC). A patient with DMC can express a preference, understand information relevant to that choice, appreciate the significance of that information for their clinical condition, and reason about their choice in light of their goals and values. In contrast, a patient can possess the CDS even if they cannot appreciate their condition or reason about the relative risks and benefits of their options. Patients who lack DMC for many or most kinds of medical choices may nonetheless possess the CDS, particularly since the complex means-ends reasoning required by DMC is one of the first capacities to be lost in progressive cognitive diseases (eg, Alzheimer's disease). That is, patients with significant cognitive decline or mental illness may still understand what a surrogate does, express a preference about a potential surrogate, and be able to provide some kind of justification for that selection. Moreover, there are many legitimate and relevant rationales for surrogate selection that are inconsistent with the reasoning criterion of DMC. Unfortunately, many patients are prevented from designating a surrogate if they are judged to lack DMC. When such patients possess the CDS, this practice is ethically wrong, legally dubious and imposes avoidable burdens on healthcare institutions.

Navin MC, Oberleitner LMS, **Lucia VC**, Ozdych M, **Afonso N**, **Kennedy RH**, Keil H, Wu L and **Mathew TA** (2022). "COVID-19 vaccine hesitancy among healthcare personnel who generally accept vaccines." Journal of Community Health. ePub Ahead of Print.

[Full Text](#)

*Department of Foundational Medical Studies (OU)*

*Department of Internal Medicine/Infectious Disease*

To identify psychological antecedents of COVID-19 vaccine hesitancy among healthcare personnel (HCP). We surveyed 4603 HCP to assess psychological antecedents of their vaccination decisions (the '5 Cs') for vaccines in general and for COVID-19 vaccines. Most HCP accept vaccines, but many expressed hesitancy about COVID-19 vaccines for the psychological antecedents of vaccination: confidence (vaccines are effective), complacency (vaccines are unnecessary), constraints (difficult to access), calculation (risks/benefits), collective responsibility (need for vaccination when others vaccinate). HCP who were hesitant only about COVID-19 vaccines differed from HCP who were consistently hesitant: those with lower confidence were more likely to be younger and women, higher constraints were more likely to have clinical positions, higher complacency were more likely to have recently cared for COVID-19 patients, and lesser collective responsibility were more likely to be non-white. These results can inform interventions to encourage uptake of COVID-19 vaccines in HCP.

Olmsted ZT, Petersen EA, Pilitsis JG, Rahimi SY, Chen PR, Savitz SI, Laskowitz DT, Kolls BJ and **Staudt MD** (2022). "Toward generalizable trajectory planning for human intracerebral trials and therapy." Stereotactic and Functional Neurosurgery. ePub Ahead of Print.

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*Department of Neurosurgery*

Introduction: Stereotactic neurosurgical techniques are increasingly used to deliver biologics, such as cells and viruses, although standardized procedures are necessary to ensure consistency and reproducibility. Objective: We provide an instructional guide to help plan for complex image-guided trajectories; this may be of particular benefit to surgeons new to biologic trials and companies planning such trials. Methods: We show how nuclei can be segmented and multiple trajectories with multiple injection points can be created through a single or multiple burr hole(s) based on preoperative images. Screenshots similar to those shown in this article can be used for planning purposes and for quality control in clinical trials. Results: This method enables the precise definition of 3-D target structures, such as the putamen, and efficient planning trajectories for biologic injections. The technique is generalizable and largely independent of procedural format, and thus can be integrated with frame-based or frameless platforms to streamline reproducible therapeutic delivery. Conclusions: We describe an easy-to-use and generalizable protocol for intracerebral trajectory planning for stereotactic delivery of biologics. Although we highlight intracerebral stem cell delivery to the putamen using a frame-based stereotactic delivery system, similar strategies may be employed for different brain nuclei using different platforms. We anticipate this will inform future advanced and fully automated neurosurgical procedures to help unify the field and decrease inherent variability seen with manual trajectory planning.

Omari A, Kally P, **Schimmel O** and **Kahana A** (2022). "Vision loss secondary to COVID-19 associated bilateral cerebral venous sinus thromboses." Ophthalmic Plastic and Reconstructive Surgery. ePub Ahead of Print.

[Full Text](#)

*OUWB Medical Student Author*

*Department of Ophthalmology*

A young, morbidly obese woman with recent SARS-CoV-2 infection requiring hospitalization presented with visual and neurologic complications secondary to bilateral cerebral venous sinus thromboses. With elevated intracranial pressure and severe papilledema, she rapidly progressed to complete bilateral vision loss despite anticoagulation, therapeutic lumbar punctures with lumbar drain, bilateral optic nerve sheath fenestrations, and endovascular thrombectomy. It is possible that obese patients with a SARS-CoV-2 infection may be at greater risk of hypercoagulable cerebrovascular complications. It is impossible to know if an even more rapid response would have led to a different outcome, but we report this case in the hope that publishing this and similar cases may result in improved treatment protocols to preserve vision.

Omari A and **Mahmoud TH** (2022). "Vitrectomy," (ed). StatPearls. Treasure Island (FL): StatPearls Publishing.

[Full Text](#)

*Department of Ophthalmology*

Pars plana vitrectomy (PPV) is a surgical technique originally introduced by Robert Machemer. The pars plana approach to the vitreous cavity allows access to the posterior segment to treat many vitreoretinal diseases. This procedure requires a great deal of technical skill and knowledge to ensure good outcomes. A successful vitrectomy can restore vision and

improve the quality of life in patients suffering from many vitreoretinal diseases. However, the procedure can also be associated with complications. Although the chances are low when performed correctly, these complications can cause severe patient morbidity and blindness. Therefore, it is essential that clinicians have thorough knowledge regarding the topic, understand the procedure, when to use it, how to perform it, and post-operative management.

Omari A and **Shaheen KW** (2022). "Upper eyelid reconstruction," (ed). [StatPearls](#). Treasure Island (FL): StatPearls Publishing.

[Full Text](#)

*Department of Surgery*

Upper eyelid reconstruction is a surgical procedure used to correct lid defects of the upper eyelid that occur from surgical resection of tumors, trauma, or congenital anomalies like a coloboma. Reconstruction of upper eyelids due to surgical resections of neoplasms, such as skin cancers excised by Mohs micrographic surgery, requires additional consideration. Restoration of the upper eyelid is much more complicated than the lower eyelid. Careful deliberation is necessary for the approach to reconstruction since the repair is highly dependent on the location and the extent of the defect. The eyelids serve essential functions to the face. In addition to providing cosmetic appearance, the eyelid mechanically protects the cornea and the globe. Furthermore, meibomian glands in the tarsus produce lipids that, upon contraction of the tarsal orbicularis oculi, stabilize the tear film to prevent dry eye. To serve this function, the upper eyelid must descend to cover the cornea during blinking but must be mobile enough to clear the visual axis upon elevation. Ptosis can significantly impact the visual fields and the cosmetic appearance of the face. An ideal upper eyelid reconstruction should, therefore, address any of these potential functional or aesthetic deficits that can occur from eyelid defects.

Ozcan A, Ahn T, **Akay B** and **Menoch M** (2022). "Imaging for pediatric blunt abdominal trauma with different prediction rules is the outcome the same?" [Pediatric Emergency Care](#) 38(2): E654-E658.

[Full Text](#)

*Department of Emergency Medicine*

Background: Computerized tomography (CT) of the abdomen and pelvis is the standard imaging modality to diagnose intra-abdominal injury (IAI). Clinicians must weigh the risk-benefit of CT compared with the degree of clinical suspicion for an IAI. Pediatric Emergency Care Applied Research Network (PECARN), Streck, and blunt abdominal trauma in children (BATiC) prediction rules have been published to help guide evaluation of these patients. Pediatric Emergency Care Applied Research Network uses history and physical examination findings, whereas Streck and BATiC use examination plus laboratory and imaging findings. At the time of the study, there was not a protocol that was more routinely sited. Our goal was to compare these different prediction rules. Methods: This was a retrospective electronic chart review of all children younger than 18 years presenting for either level 1 or 2 trauma activations at our pediatric emergency department (ED) between June 1, 2015, to June 30, 2017. Charts were manually reviewed for a mechanism concerning for abdominal trauma, and demographic data, history and physical examination findings, laboratory and imaging results per prediction rules, and revisits in 7 days were collected. The prediction rules were applied to all charts that had all data necessary. For study purposes, a score of zero for PECARN and Streck, and score of  $\leq 5$  for modified BATiC (mBATiC) were defined as "low risk." Patients with no CT, negative CT, and no new injury found on revisit were classified as "no IAI identified," and patients with positive CT or revisit with injury found as "IAI identified." The results were compared via Fisher exact test. Results: A total of 249 patients met the inclusion criteria with a median age of 12 years. Of the

low-risk patients, 119 (98.7%) of 121 in PECARN group, 21 (100%) of 21 in Streck, and 48 (85.7%) of 56 in mBATiC group had no IAI identified. None of the low-risk patients required any intra-abdominal intervention. No missed IAI was identified during revisit review. Negative predictive values of all 3 rules were significant for PECARN, Streck, and mBATiC (98.35%, 100%, and 85.71%, respectively). Overall, 27 patients had positive CT results for IAI. Conclusions: The PECARN and Streck rules have high negative predictive values to predict low-risk patients who do not require CT. When laboratory studies are not obtained, PECARN is an effective means of excluding IAI for low-risk patients. When laboratory tests were obtained, the Streck rule performed well. Overall, the results are similar to the past individual studies done on each individual rule. History and physical examination findings are of high importance in pediatric trauma. This study supports limited imaging when no abnormal findings are present in children with blunt torso trauma. This is the only study found in the literature that has compared 3 different prediction rules.

Pancholi P, Relich RF, Chandrasekaran S, Dunn JJ, Granato PA, Harrington AT, Hansen GT, Ledebner NA, Li Q, **Sims MD**, Uphoff TS, Greene W, Young S and Dhiman N (2022). "Multicenter evaluation of the Simplexa VZV direct assay for detection of Varicella-Zoster virus in cerebrospinal fluid and lesion-swab specimens." *Journal of Clinical Microbiology*. ePub Ahead of Print.

[Full Text](#)

*Department of Internal Medicine/Infectious Disease*

Varicella-zoster virus (VZV) is the etiologic agent of varicella (chickenpox) and herpes zoster (shingles) infections commonly involving skin, mucous membranes, and less frequently the central nervous system. Traditional methods for the laboratory diagnosis of these infections are time-consuming, labor-intensive, and often insensitive. As such, these tests are being replaced by more sensitive and rapid molecular methods. This study evaluated the performance of two different molecular assays, the Simplexa VZV Direct and Simplexa VZV Swab Direct, to detect VZV DNA in cerebrospinal fluid (CSF) and lesion-swab specimens, respectively. The Simplexa VZV Direct and Simplexa VZV Swab Direct assays were compared against individual composite reference methods that varied depending on the sample cohort examined. A total of 883 CSF and 452 cutaneous and mucocutaneous prospective, retrospective, and contrived specimens were evaluated in this multicenter study. The results of this study showed that the Simplexa assays demonstrated near perfect agreement ( $k = 0.98$ ) compared to the composite reference methods for the detection of VZV in CSF and lesion swab specimens. A further comparison between the standard of care molecular assays employed at the site of specimen collection and the Simplexa assays demonstrated excellent agreement ( $k = 1.0$ ). The Simplexa assays offer rapid and reliable alternatives for the detection of VZV in certain clinical specimens without the need for nucleic acid extraction.

**Patel NM** and Dewaswala N (2022). "Parasympathomimetic medications," (ed). *StatPearls*. Treasure Island (FL): StatPearls Publishing.

[Full Text](#)

*OUWB Medical Student Author*

Parasympathomimetics are a class of medications that activate the parasympathetic nervous system by mimicking or modifying the effects of acetylcholine. These drugs include muscarinic receptor agonists (direct-acting parasympathomimetics) and acetylcholinesterase inhibitors (indirect-acting parasympathomimetics). This activity reviews the indications, contraindications, activity, adverse events, and other key elements of parasympathomimetic therapy in the clinical setting pertinent to interprofessional team members managing the care of patients receiving

these medications.

Peacock WF, Soto-Ruiz KM, House SL, Cannon CM, Headden G, Tiffany B, Motov S, Merchant-Borna K, Chang AM, Pearson C, Patterson BW, Jones AE, Miller J, Varon J, **Bastani A, Clark C**, Rafique Z, Kea B, Eppensteiner J, Williams JM, Mahler SA, Driver BE, Hendry P, Quackenbush E, Robinson D, Schrock JW, D'Etienne JP, Hogan CJ, Osborne A, Riviello R and Young S (2022). "Utility of COVID-19 antigen testing in the emergency department." Journal of the American College of Emergency Physicians Open 3(1): emp2.12605.

[Full Text](#)

*Department of Emergency Medicine*

Background: The BinaxNOW coronavirus disease 2019 (COVID-19) Ag Card test (Abbott Diagnostics Scarborough, Inc.) is a lateral flow immunochromatographic point-of-care test for the qualitative detection of severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2) nucleocapsid protein antigen. It provides results from nasal swabs in 15 minutes. Our purpose was to determine its sensitivity and specificity for a COVID-19 diagnosis. Methods: Eligible patients had symptoms of COVID-19 or suspected exposure. After consent, 2 nasal swabs were collected; 1 was tested using the Abbott RealTime SARS-CoV-2 (ie, the gold standard polymerase chain reaction test) and the second run on the BinaxNOW point of care platform by emergency department staff. Results: From July 20 to October 28, 2020, 767 patients were enrolled, of which 735 had evaluable samples. Their mean (SD) age was 46.8 (16.6) years, and 422 (57.4%) were women. A total of 623 (84.8%) patients had COVID-19 symptoms, most commonly shortness of breath (n = 404; 55.0%), cough (n = 314; 42.7%), and fever (n = 253; 34.4%). Although 460 (62.6%) had symptoms  $\leq$  7 days, the mean (SD) time since symptom onset was 8.1 (14.0) days. Positive tests occurred in 173 (23.5%) and 141 (19.2%) with the gold standard versus BinaxNOW test, respectively. Those with symptoms  $>$ 2 weeks had a positive test rate roughly half of those with earlier presentations. In patients with symptoms  $\leq$  7 days, the sensitivity, specificity, and negative and positive predictive values for the BinaxNOW test were 84.6%, 98.5%, 94.9%, and 95.2%, respectively. Conclusions: The BinaxNOW point-of-care test has good sensitivity and excellent specificity for the detection of COVID-19. We recommend using the BinaxNOW for patients with symptoms up to 2 weeks.

**Qu ZH, Hysell C, Zhang P and Micale M** (2022). "A soft tissue tumor with EML4-ALK fusion, granular cell changes, metastasis, and response to kinase inhibitor therapy in a young girl." Laboratory Investigation 102(SUPPL 1): 1283-1285.

[Full Text](#)

*Department of Pathology*

**Ragheb A, Vanood A and Fahim DK** (2022). "The addition of radiofrequency tumor ablation to kyphoplasty may reduce the Rate of local recurrence in spinal metastases secondary to breast cancer." World Neurosurgery. ePub Ahead of Print.

[Full Text](#)

*OUWB Medical Student Author*

*Department of Neurosurgery*

Background: Approximately 10% of all cancer patients develop spinal metastases. When a symptomatic compression fracture occurs without associated deformity or neurologic deficit, it can be treated with kyphoplasty with or without radiofrequency ablation (RFA). Treatment with kyphoplasty is well established but does not address the underlying oncologic disease. Methods: Retrospective medical chart analysis of breast cancer patients (n = 23) with metastatic spinal

fractures (n = 50 vertebral levels) who underwent RFA and kyphoplasty was undertaken. Key variables of interest included: fracture location, pain levels, and local recurrence. Local recurrence data were compared to published rates of recurrence in breast cancer–related metastatic spinal fractures treated with vertebroplasty or kyphoplasty alone. Data were analyzed using  $\chi^2$  and t test statistical analyses. Results: The mean preoperative pain level for this cohort was 6.9 on a 10-point visual analogue scale. Significant reductions in pain levels were observed postoperatively, at discharge (3.5;  $P < 0.05$ ), at 1-month follow-up (2.8;  $P < 0.05$ ), at 3-month follow-up (1.1;  $P < 0.05$ ), and at 6-month follow-up (0.7  $P < 0.05$ ). Compared with published data of breast cancer patients with metastatic spinal fractures treated with vertebroplasty or kyphoplasty alone, the addition of RFA resulted in reduced local tumor recurrence (2% vs. 14%;  $P < 0.05$ ). Average length of follow-up was 39 months. Conclusions: The results suggest that the addition of RFA to kyphoplasty may reduce local tumor recurrence while providing similar pain relief benefits. The extrapolation of this added benefit to metastases from other primary cancers should be examined in future studies.

**Ramanathan S**, Ramanathan S, Martinez A, Korman A, Ghilezan M, **Levin M**, Gerndt ZA, Shen N, Wojno K, **Korman H** and **Balaraman S** (2022). "Correlation of the rate of metastasis-free survival with the presence of pathogenic germline genetic mutations in patients with prostate cancer at a community practice." *Journal of Clinical Oncology*. 40(6 SUPPL): 70.

[Full Text](#)

*OUWB Medical Student Author*

*Department of Urology*

*Department of Internal Medicine/Hematology-Oncology*

Background: Loeb et al. recently highlighted that academic physicians were statistically more likely to recommend genetic testing to prostate cancer patients per NCCN guidelines compared to physicians at community practices. Several articles have outlined the rate of pathogenic mutations and metastasis free survival (MFS) for prostate cancer patients treated at academic institutions. However, there is a relative paucity of equivalent data regarding patients treated at community urology clinics. We felt it was important to retrospectively review data from our large community based uro-oncology practice and present our findings in an effort to clarify this topic. Methods: We collected data on 562 prostate cancer patients treated at our multidisciplinary uro-oncology clinic between 2016 and 2018. We found 363 patients that satisfied the inclusion criteria of having germline genetic mutation testing and at least 1 year of follow-up. Patients were stratified into three categories based on the results of their germline genetic test: negative for germline mutations, positive for germline pathogenic mutations, or positive for VUS (variant of uncertain significance) mutations. Analysis of variances (ANOVA) was conducted to assess for any differences in age, Gleason score, metastasis rate, and MFS across the groups. A significance level of .05 was used. Results: All patients were treated according to guideline recommendations as was standard for the practice. There was no statistically significant difference in average age or Gleason score between the groups. There was also no statistically significant difference between the MFS across the three groups. Although the metastasis rate and MFS in the group without any mutations (9.8%, 18.3 months) was clinically significant compared to the groups with pathogenic mutations (7.5%, 16.5 months) and VUS mutations (7%, 16.6 months), the differences were not statistically significant ( $p=.754$  and  $.127$  respectively). Conclusions: In our community based uro-oncology practice, we found no statistically significant difference in MFS between patients with pathogenic germline mutations, patients without germline mutations, and patients with VUS mutations at 1 year of follow-up. This does not exclude the possibility of an impact of germline mutations on MFS as the data

matures to reach 5 or more years of follow-up.

**Randall DJ, Vanood A, Jee Y and Moore DD (2022).** "National and state level opioid-restricting legislation in total joint arthroplasty: A systematic review." Journal of Arthroplasty 37(1): 176-185.

[Full Text](#)

*OUWB Medical Student Author*

*Department of Orthopaedic Surgery*

Background: The opioid epidemic is a health crisis in the United States. Within orthopedic surgery, opioid misuse and incautious prescription remains a concern. In the last several years, there has been a growing interest and public effort toward reducing opioid use in total joint arthroplasty (TJA) in response to the opioid epidemic in the United States. We aim to review opioid-limiting practices, policies, and legislations that are implemented at the state level and nationally that are relevant to TJA, as well as evaluate studies that measure the efficacy of these policies in the management of patients undergoing TJA. Methods: Two independent reviewers conducted a systematic review of national and state level opioid-limiting policies implemented in the United States and their effects on opioid prescription, in accordance with the Preferred Reporting Items for Systematic Reviews and Meta-Analyses statement (PRISMA). Results: We identified 3 national bills and 9 policies set forth by national organizations that imposed limits on opioid prescription. Opioid-reducing legislation was also identified in 24 states, with the majority specifying a 7-day limit on initial opioid prescription for acute pain management. Six research studies evaluating the impact of opioid-restricting policies on postoperative opioid prescription for TJA patients were found. Three studies assessed legislation at the state level while the others were institution-based guidelines. Overall, these studies demonstrated a significant decrease in mean morphine milligram equivalents of initial opioid prescription after implementing the policies. Conclusion: Recent opioid-restricting legislation is effective in decreasing postoperative opioid prescriptions following TJA.

**Rehman R, Ahmed L and Kohen L (2022).** "YouTube as a source of dermatology residency information." International Journal of Dermatology. ePub Ahead of Print.

[Full Text](#)

*OUWB Medical Student Author*

**Rehman R, Azam M, Rehman S, Arora H and Kohen L (2022).** "Gender and ethnic representation of incoming Mohs micrographic surgery fellows in the United States: A look into fellowship diversity." JAAD International 6: 11-12.

[Full Text](#)

*OUWB Medical Student Author*

**Rehman R, Chabaan A, Hamzavi I, Fahs F and Mohammad TF (2022).** "The etiquette of hijab: Recommendations to improve care in dermatology clinics." British Journal of Dermatology 186(1): 176-177.

[Full Text](#)

*OUWB Medical Student Author*

**Rehman R, Hasan S, Akram H and Jahnke M (2022).** "TikTok as a source of dermatologic information on atopic dermatitis." Dermatitis. ePub Ahead of Print.

[Full Text](#)

*OUWB Medical Student Author*

**Rehman R**, Mateen M, Tripathi R, **Fahs F** and Mohammad TF (2022). "Teledermatology etiquette and the hijab: Recommendations for culturally sensitive care." International Journal of Dermatology. ePub Ahead of Print.

[Full Text](#)

*OUWB Medical Student Author*

**Rehman R**, Mateen Z, Osto M and Mehregan D (2022). "Ethnic distribution of populations in the highest and lowest dermatologist-dense areas: Is there more to the story?" Dermatology Online Journal 28(1): doj\_57056.

[Full Text](#)

*OUWB Medical Student Author*

Several studies in the past decade have highlighted the lack of adequate dermatological care in skin of color (SOC) patients. This inquiry has led to further research to identify the sources of this disparity. Previous studies have highlighted the uneven geographic distribution of dermatologists, with a higher density of dermatologists in urban areas compared to other areas. However, the exact ethnic populations served by these dermatologists has remained largely uncharacterized. The purpose of this study was to compare the ethnic distributions in the ten highest and lowest dermatologist-dense areas across the United States to determine if there is equal access to dermatological care for minorities. Stratified by ethnicities, the highest dermatologist-dense areas consisted of 60% White alone (not Hispanic or Latino), 13% Hispanic or Latino, 13% Asian alone, and 12% Black or African American. Conversely, the least dermatologist-dense areas consisted of 45% White alone (not Hispanic or Latino), 28% Black or African American, 21% Hispanic or Latino, and 4% Asian alone. Our analysis highlights the presence of larger proportions of SOC patients in the lowest dermatologist-dense areas and this lack of access to dermatologists may contribute to inferior dermatological care and outcomes in Hispanic or Latino, and Black or African American minorities.

**Rehman R**, Rehman W, **Fahs F** and Daveluy S (2022). "Picture perfect: Instagram as a source of dermatology training information." International Journal of Dermatology. ePub Ahead of Print.

[Full Text](#)

*OUWB Medical Student Author*

**Rehman R**, Shareef SJ, Mohammad TF, Potts G and **Fahs F** (2022). "Comment and controversy edited by Stephen P. Stone, MD applying to dermatology residency without a home program: Advice to medical students in the COVID-19 pandemic and beyond." Clinics in Dermatology. ePub Ahead of Print.

[Full Text](#)

*OUWB Medical Student Author*

Dermatology has historically been one of the most competitive residencies for matching. Successful candidates generally have stellar United States Medical Licensing Examination (USMLE) scores, often with significant amounts of research and excellent letters of recommendation.<sup>1,2</sup> One factor often overlooked is the importance of having mentors in the field, as they have experience guiding successful applicants and can provide great insight for what residency programs are looking. While many mentor-mentee relationships naturally occur due to home affiliations, students who do not have home dermatology programs (NHDPs) may struggle to form these relationships and subsequently obtain proper guidance. Unfortunately, the COVID-19 pandemic has made it even more challenging for NHDPs given limited shadowing and away rotation opportunities. We share advice on how NHDPs can form strong mentor-

mentee relationships during the COVID-19 pandemic and beyond in order to obtain the proper guidance needed to match into dermatology.

**Rehman R, St. Claire K, Fahs F and Potts G (2022).** "Intradermal progesterone testing for autoimmune progesterone dermatitis." International Journal of Dermatology. ePub Ahead of Print.

[Full Text](#)

*OUWB Medical Student Author*

Reilly J, **Faridmoayer E**, Lapkus M, **Pastewski J, Sun F, Elassar H**, Studzinski DM, Callahan RE, **Czako P and Nagar S (2022).** "Vascular invasion predicts advanced tumor characteristics in papillary thyroid carcinoma." American Journal of Surgery 223(3): 487-491.

[Full Text](#)

*OUWB Medical Student Author*

*Department of Surgery*

Background: The clinical impact of vascular invasion in Papillary Thyroid Carcinoma (PTC) is not well understood. Our aim was to determine if there was an association between vascular invasion and other tumor characteristics and patient outcomes in PTC. Methods: A retrospective chart review was performed of 536 patients with PTC between January 2007-December 2011. Patient demographics, comorbidities, tumor characteristics, and outcomes were collected. Results: Vascular invasion was associated with lymphatic invasion, capsular invasion, extrathyroidal extension, and the presence of positive lymph nodes. Logistic regression revealed that tumor size was a predictor of vascular invasion. Vascular invasion in PTC tumors was associated with higher tumor recurrence rates, but there were no differences in mortality. Conclusion: This study indicates that vascular invasion in PTC is associated with other aggressive pathologic features and an increased recurrence rate. For these reasons, vascular invasion should be an important tumor characteristic when determining extent of treatment.

Reynolds WS, Suskind AM, Anger JT, Brucker BM, Cameron AP, Chung DE, Daignault-Newton S, Lane GI, Lucioni A, Mourtzinos AP, **Padmanabhan P**, Reyblat PX, Smith AL, Tenggardjaja CF, Lee UJ and Network SR (2022). "Incomplete bladder emptying and urinary tract infections after botulinum toxin injection for overactive bladder: Multi-institutional collaboration from the SUFU research network." Neurourology and Urodynamics 41(2): 662-671.

[Full Text](#)

*Department of Urology*

Introduction: Onabotulinumtoxin A (BTX-A) is an effective therapy for overactive bladder (OAB), however, adverse events may prevent patients from initiating therapy. The study objective was to report real-world rates of incomplete emptying and urinary tract infection (UTI) in men and women undergoing BTX-A for OAB. Methods: Eleven clinical sites performed a retrospective study of adults undergoing first-time BTX-A injection (100 units) for idiopathic OAB in 2016. Exclusions included: postvoid residual (PVR) > 150 ml, prior BTX-A, pelvic radiation, or need for preprocedure catheterization. Primary outcomes at 6 months were incomplete emptying (clean intermittent catheterization [CIC] or PVR  $\geq$  300 ml without the need for CIC); and UTI (symptoms with either positive culture or urinalysis or empiric treatment). We compared rates of incomplete emptying and UTI within and between sexes, using univariate and multivariable models. Results: 278 patients (48 men and 230 women) met inclusion criteria. Mean age was 65.5 years (range: 24-95). 35% of men and 17% of women had incomplete emptying. Men had 2.4 (95% CI: 1.04-5.49) higher odds of incomplete emptying than women. 17% of men and 23.5% of women had  $\geq$  1 UTI, the majority of which occurred within the first month following

injection. The strongest predictor of UTI was a history of prior UTI (OR: 4.2 [95% CI: 1.7-10.3]). Conclusions: In this multicenter retrospective study, rates of incomplete emptying and UTI were higher than many previously published studies. Men were at particular risk for incomplete emptying. Prior UTI was the primary risk factor for postprocedure UTI.

Roberts LH and **Gilleran JP** (2022). "Botulinum toxin for neurogenic and non-neurogenic bladder pain." Current Bladder Dysfunction Reports 17(1): 38-47.

[Full Text](#)

*Department of Urology*

Purpose of Review: The use of botulinum toxin in managing urinary incontinence has been well established. Given the expanding indications for this agent for several neuromuscular disorders, its role in managing the symptoms associated with interstitial cystitis/bladder pain syndrome (IC/BPS) and chronic pelvic pain syndrome (CPPS) is evolving. In this review article, we examine the current literature on outcomes after botulinum toxin injection in patients with these conditions, as well as recent developments in mechanism of delivery. Recent Findings: The change in pain scores after injection in IC/BPS patients is inconsistent, as it has been used in combination with and without other interventions, such as hydrodistension. Pooled studies favor the use of botulinum toxin, but the findings are not significant to justify its use as a first-line treatment for IC/BPS. The initial hope that botulinum toxin would improve CPPS by addressing hypertonic pelvic floor dysfunction has been tempered by several studies showing no significant reduction in pain scores after injection compared to placebo. Summary: Several studies have shown there to be a therapeutic benefit for pain management in IC/BPS, particularly in those without Hunner's lesions. Meta-analysis suggests that higher dose may further improve pain scores, but side effects of urinary retention may limit its applicability. This effect does not appear to be dependent on how the toxin is injected (trigone vs non-trigone). Future use of intravesical liposomes to deliver botulinum toxin shows promise in administration of the agent in a non-invasive manner.

Rojas E, Morgaenko K, Brown L, Kim S, Mazimba S, Malhotra R, Darby A, Monfredi O, Mason P, Mangrum JM, **Haines DE**, Campbell C, Bilchick K and **Mehta NK** (2022). "Evaluation of a novel mechanical compression device for hematoma prevention and wound cosmesis after CIED implantation." Pacing and Clinical Electrophysiology. ePub Ahead of Print.

[Full Text](#)

*Department of Internal Medicine/Cardiovascular Disease*

Background: An important complication of cardiac implantable electronic devices (CIED) implantation is the development of hematoma and device infection. Objective: We aimed to evaluate a novel mechanical compression device for hematoma prevention and cosmetic outcomes following CIED implantation. Methods: An open, prospective, randomized, single-center clinical trial was performed in patients undergoing CIED implantation. Patients were randomized to receive a novel mechanical compression device (PressRite, PR) or to receive the standard of care post device implantation. Skin pliability was measured with a calibrated durometer; the surgical site was evaluated using the Manchester Scar Scale (MSS) by a blinded plastic surgeon and the Patient and Observer Scar Scale (POSAS). Performance of PR was assessed through pressure measurements, standardized scar scales and tolerability. Results: From the total of 114 patients evaluated for enrollment, 105 patients were eligible for analysis. Fifty-one patients were randomized to management group (PR) and 54 to the control group. No patients required early removal or experienced adverse effects from PR application. There were 11 hematomas (14.8% vs. 5.9% in the control and PR group respectively, p = NS). The control

group had higher post procedure durometer readings in the surgical site when compared with the PR group ( $7.50 \pm 3.45$  vs.  $5.37 \pm 2.78$ ;  $p = <.01$ ). There were lower MSS scores in the PR group after 2 weeks ( $p = .03$ ). Conclusion: We have demonstrated the safety of PR application and removal. In addition, PR appears to improve postoperative skin pliability, which could facilitate wound healing.

Rojas ORG, Weatherhead M, Hicks M, **Dado C** and **Adam A** (2022). "Pneumothorax ex vacuo as initial presentation of endobronchial tuberculosis by mycobacterium bovis." Critical Care Medicine 50(1): 358-358.

[Full Text](#)

*Department of Internal Medicine/Pulmonary and Critical Care Medicine*

Ruiz ES, **Kus KJB**, Smile TD, Murad F, Zhou G, Ilori EO, Schoenfeld JD, Margalit DN, Tishler RB, Vidimos AT, Koyfman SA and Schmults CD (2022). "Adjuvant radiation following clear margin resection of high T-stage cutaneous squamous cell carcinoma halves the risk of local and locoregional recurrence: A dual-center retrospective study." Journal of the American Academy of Dermatology. ePub Ahead of Print.

[Full Text](#)

*OUWB Medical Student Author*

Background: Although adjuvant radiation (ART) following clear margin surgery is recommended for select high-risk cutaneous squamous cell carcinomas, efficacy data are limited. Objective: To evaluate the impact of ART on outcomes following clear margin surgery for high T-stage cutaneous squamous cell carcinomas. Methods: A 20-year retrospective cohort study at 2 academic centers of high T-stage cutaneous squamous cell carcinomas (Brigham and Women's Hospital T2b or T3) with negative histologic margins post resection. Local recurrence (LR) and locoregional recurrence (LRR) were compared by whether tumors received ART or observation. Results: A total of 508 tumors were included, of which 96 underwent ART (ART+). ART+ had a lower 5-year cumulative incidence of LR (ART+, 3.6% [95% CI, 1.6%-7.7%] vs ART-, 8.7% [95% CI, 6.3%-12.0%]) and LRR (ART+, 7.5% [95% CI, 4.4%-11.9%] vs ART-, 15.3% [95% CI, 11.9%-22.1%]). Recurrent tumors  $\geq 6$  cm or Brigham and Women's Hospital T3 tumors were classified as high-risk due to a higher 5-year cumulative incidence of LRR (High-risk, 26.3% [95% CI, 19.0%-35.7%]). High-risk tumors treated with ART had a lower 5-year cumulative incidence of LRR (ART+, 17.2% [95% CI, 11.9%-26.4%] vs ART-, 31.0% [95% CI, 26.1%-40.8%]). Limitations: Retrospective design, heterogeneous population, variations in radiation protocols. Conclusion: ART following clear margin surgery for high T-stage cutaneous squamous cell carcinomas resulted in half the risk of LR and LRR.

Salimnia T, Chawla R, Ghandchi R, Valentine D, **Zhang P**, **Dado C** and **Bozyk P** (2022). "TPN-induced excipient lung disease." Critical Care Medicine 50(1): 571-571.

[Full Text](#)

*OUWB Medical Student Author*

*Department of Internal Medicine/Pulmonary and Critical Care Medicine*

**Sargent T** and **Al-Katib S** (2022). "Computed tomography imaging of iatrogenic esophageal injuries." Journal of Computer Assisted Tomography. ePub Ahead of Print.

[Full Text](#)

*OUWB Medical Student Author*

*Department of Diagnostic Radiology and Molecular Imaging*

Abstract: Knowledge of iatrogenic esophageal injuries is important given the variety of

etiologies, including medical instrumentation (eg, endoscopes), radiotherapy, and anticoagulation. The clinical presentation and imaging findings of esophageal injuries depend on the mechanism and location of the injury. Imaging modalities commonly used for the evaluation of esophageal injuries include esophagram and computed tomography. Esophageal injuries should be considered in patients with acute chest symptoms. Recognizing an unsuspected esophageal injury on imaging can be critical to reaching the correct diagnosis given their nonspecific symptomatology. This review article highlights various iatrogenic esophageal injuries and their appearance on computed tomography imaging.

**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 Pathology*

*Department of Foundational Medical Studies (OU)*

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.

Scoles D and **Mahmoud TH (2022).** "Inaccurate measurements confound the study of myopic macular hole." *Ophthalmology Retina* 6(2): 95-96.

[Request Form](#)

*Department of Ophthalmology*

**Seymour ZA, Chan JW, McDermott MW, Grills I, Ye H, Kano H, Lehocky CA, Jacobs RC, Lunsford LD,**

Chytka T, Liščák R, Lee CC, Yang HC, Ding D, Sheehan JP, Feliciano CE, Rodriguez-Mercado R, Chiang VL, Hess JA, Sommaruga S, McShane B, Lee JYK, Vasas LT, Kaufmann AM and Sneed PK (2022). "Adverse radiation effects in volume-staged radiosurgery for large arteriovenous malformations: A multiinstitutional study." Journal of Neurosurgery 136(2): 503-511.

[Request Form](#)

*Department of Radiation Oncology*

Objective: The optimal treatment paradigm for large arteriovenous malformations (AVMs) is controversial. One approach is volume-staged stereotactic radiosurgery (VS-SRS). The authors previously reported efficacy of VS-SRS for large AVMs in a multiinstitutional cohort; here they focus on risk of symptomatic adverse radiation effects (AREs). Methods: This is a multicentered retrospective review of patients treated with a planned prospective volume staging approach to stereotactically treat the entire nidus of an AVM, with volume stages separated by intervals of 3-6 months. A total of 9 radiosurgical centers treated 257 patients with VS-SRS between 1991 and 2016. The authors evaluated permanent, transient, and total ARE events that were symptomatic. Results: Patients received 2-4 total volume stages. The median age was 33 years at the time of the first SRS volume stage, and the median follow-up was 5.7 years after VS-SRS. The median total AVM nidus volume was 23.25 cm<sup>3</sup> (range 7.7-94.4 cm<sup>3</sup>), with a median margin dose per stage of 17 Gy (range 12-20 Gy). A total of 64 patients (25%) experienced an ARE, of which 19 were permanent. Rather than volume, maximal linear dimension in the Z (craniocaudal) dimension was associated with toxicity; a threshold length of 3.28 cm was associated with an ARE, with a 72.5% sensitivity and a 58.3% specificity. In addition, parietal lobe involvement for superficial lesions and temporal lobe involvement for deep lesions were associated with an ARE. Conclusions: Size remains the dominant predictor of toxicity following SRS, but overall rates of AREs were lower than anticipated based on baseline features, suggesting that dose and size were relatively dissociated through volume staging. Further techniques need to be assessed to optimize outcomes.

Shah K, **Williamson BD**, **Kutinsky IB**, Bhardwaj R, Contractor T, Mandapati R, Lakkireddy DR and Garg J (2022). "Conduction system pacing in patients with prosthetic heart valves." Journal of the American College of Cardiology 79(9): 67-67.

[Full Text](#)

*Department of Internal Medicine/Cardiovascular Disease*

Shah KB, Saado J, Kerwin M, Mazimba S, Kwon Y, Mangrum JM, Salerno M, **Haines DE** and **Mehta NK** (2022). "Meta-analysis of new-onset atrial fibrillation versus no history of atrial fibrillation in patients with noncardiac critical care illness." American Journal of Cardiology 164: 57-63.

[Full Text](#)

*Department of Internal Medicine/Cardiovascular Disease*

The incidence of new-onset secondary atrial fibrillation (NOSAF) is as high as 44% in noncardiac critical illness. A systematic review and meta-analysis were performed to evaluate the impact of NOSAF, compared with history of prior atrial fibrillation (AF) and no history of AF in noncardiac critically ill patients. Patients undergoing cardiothoracic surgery were excluded. NOSAF incidence, intensive care unit (ICU)/hospital length of stay (LOS), and mortality outcomes were analyzed. Of 2,360 studies reviewed, 19 studies met inclusion criteria (n = 306,805 patients). NOSAF compared with no history of AF was associated with increased in-hospital mortality (risk ratio [RR] 2.06, 95% confidence interval [CI] 1.76 to 2.41, p <0.001), longer ICU LOS (standardized difference in means [SMD] 0.66, 95% CI 0.41 to 0.91, p <0.001), longer hospital LOS (SMD 0.31, 95% CI 0.07 to 0.56, p = 0.001) and increased risk of long-term (>1 year)

mortality (RR 1.76, 95% CI 1.29 to 2.40,  $p < 0.001$ ). NOSAF compared with previous AF was also associated with higher in-hospital mortality (RR 1.29, 95% CI 1.12 to 1.49,  $p < 0.001$ ), longer ICU LOS (SMD 0.37, 95% CI 0.03 to 0.70,  $p = 0.03$ ) but no difference in-hospital LOS (SMD  $-0.18$ , 95% CI  $-0.66$  to 0.31,  $p = 0.47$ ). In conclusion, NOSAF, in the setting of noncardiac critical illness is associated with increased in-hospital mortality compared with no history of AF and previous AF. NOSAF (vs no history of AF) is also associated with increased long-term mortality.

**Shammami A and Eraqi H** (2022). "The patient: 58-year-old man: Signs & Symptoms - Bilateral shoulder pain - History of prostate cancer - Limited shoulder range of motion." Journal of Family Practice 71(1): E13-E14.

[Request Form](#)

*Department of Family Medicine and Community Health*

Shareef SJ, **Rehman R**, Seale L, Mohammad TF and **Fahs F** (2022). "Hijab and hair loss: A cross-sectional analysis of information on YouTube." International Journal of Dermatology. ePub Ahead of Print.

[Full Text](#)

*OUWB Medical Student Author*

*Department of Internal Medicine/Dermatology*

Sherman A, Tawney A and **Mehta N** (2022). "Flecainide and propafenone safety in patients with non-ischemic cardiomyopathy." Journal of the American College of Cardiology 79(9): 128-128.

[Full Text](#)

*Department of Internal Medicine/Cardiovascular Disease*

Smile TD, Ruiz ES, **Kus KJB**, Murad F, Wei W, Xiong DD, Vidimos AT, Schmults CD and Koefman SA (2022). "Implications of satellitosis or in-transit metastasis in cutaneous squamous cell carcinoma: A prognostic omission in cancer staging systems." JAMA Dermatology. ePub Ahead of Print.

[Full Text](#)

*OUWB Medical Student Author*

Importance: Unlike Merkel cell carcinoma and melanoma, satellitosis or in-transit metastasis (S-ITM) is not incorporated into the current cutaneous squamous cell carcinoma (CSCC) staging systems. It is important to determine if the clinical outcomes of S-ITM are relevant to prognosis for patients with CSCC. Objectives: To evaluate the association of S-ITM with clinical outcomes in patients with CSCC and to determine its prognostic implications. Design, Settings, and Participants: A dual-institution (Cleveland Clinic and Brigham and Women's Hospital) database was queried for patients who were treated for CSCC in 2010 to 2020. Patients who were node-negative and had S-ITM - the presence of dermal lesions between the primary tumor and first-echelon lymphatic nodal basins at any point in the disease course - were identified. Subcohorts of patients with T3N0 tumors, T4N0 tumors (bone invasive), N1 to 3, and M1 disease were identified for comparison. The American Joint Committee on Cancer staging system was used to define cancer stages. Data were analyzed from January 15 to March 31, 2021. Main Outcomes and Measures: Pairwise comparison of CSCC recurrence and disease-specific survival in patients with and without S-ITM was performed using Cox proportional hazard modeling. Kaplan-Meier and Fine-Gray competing risk methods were used to estimate disease-specific survival and CSCC recurrence, respectively. Results: In a total of 518 patients with CSCC, S-ITM was present in 72 (13.9 %) patients (median age [range], 73.9 [31.6-95.8] years; 59 [82%] men; 69 [96%] White non-Hispanic individuals; 25 [35%] patients with immunosuppression) who were node-negative. The subcohorts were composed of 341 patients with T3N0 cancer, 36 with T4N0, 70 with N1 to

3, and 19 with M1 disease. Pairwise comparisons between disease levels using Cox proportional hazard model demonstrated lower cumulative incidence of CSCC recurrence rates in the T3N0 (HR, 0.21; 95% CI, 0.14-0.30; P <.001) and T4N0 (HR, 0.36; 95% CI, 0.19-0.68; P =.001) cohorts compared with the S-ITM cohort. No significant difference was observed between patients who were node-positive and those with S-ITM (HR, 0.74; 95% CI, 0.48-1.14; P =.16). The 5-year disease-specific survival rates were 76% for T3N0, 64% for T4N0, 41% for S-ITM, and 39% for N1 to 3. Compared with the S-ITM cohort, DSS was significantly higher in the T3N0 (HR, 0.23; 95% CI, 0.15-0.35; P <.0001) and T4N0 (HR, 0.37; 95% CI, 0.19-0.76; P =.01) cohorts, and not significantly different in the node-positive (HR, 0.77; 95% CI, 0.84-3.93; P =.30) and metastatic cohorts (HR, 1.81; 95% CI, 0.84-3.93; P =.13). Conclusions and Relevance: This multi-institutional cohort study found that patients with CSCC and S-ITM appear to have clinical outcomes comparable to those of patients who are node-positive, and an increased risk of recurrence and worse survival compared with patients who have T3 and T4 disease. These outcomes are similar to those observed for Merkel cell carcinoma and melanoma. Given that S-ITM may be a powerful prognostic factor, it should be incorporated into clinical staging systems.

Spratt DE, Huang HC, Michalski JM, Davicioni E, Berlin A, Simko J, Efstathiou JA, Tran PT, Thompson D, Parliament M, Dayes IS, Correa R, **Robertson JM**, Gore E, Doncals DE, Vigneault E, Souhami L, Karrison T and Feng FY (2022). "Validation of the performance of the Decipher biopsy genomic classifier in intermediate-risk prostate cancer on the phase III randomized trial NRG Oncology/RTOG 0126." Journal of Clinical Oncology 40(6): 269.

[Full Text](#)

*Department of Radiation Oncology*

Stephens JR and **Peters KM** (2022). "A novel approach to vulvodynia using targeted neuromodulation." Canadian Journal of Urology 29(1): 11032-11035.

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*Department of Urology*

Vulvodynia is a debilitating disorder which can prove extremely difficult to treat. Neuromodulation is increasingly becoming a frontline therapy in various chronic pain syndromes. We present a relatively simple surgical technique utilizing targeted neuromodulation leading to the successful treatment of vulvodynia.

**Tantisattamo E**, Eguchi N, Polpichai N, Leelaviwat N, Udomkittivorakul N, Seo H, Songtanin B, Lopimpisuth C, Saowapa S, Vutthikraivit P and Spanuchart I (2022). "Increased biopsy-related complications during post-kidney transplant period." Journal of Vascular Access 23(1): NP8-NP9.

[Request Form](#)

*Department of Internal Medicine/Nephrology*

Background: Although a transplant kidney biopsy is generally associated with fewer complications compared to a native kidney biopsy, specific risk factors may be different from a native kidney biopsy. We aim to examine potential risk factors associated with complications after transplant kidney biopsy. Material and Method: A single-center retrospective cohort study including kidney and liver-kidney transplant recipients undergoing transplant kidney biopsy during a 34-month study period was performed. Outcomes of interest were biopsy-associated complications including significant gross hematuria, post-procedure hospitalization, blood transfusion, intervention to stop bleeding, and persistently abnormal radiological findings. Associations of pre-procedure factors with the outcomes were examined by Chi-square or t-test as appropriated. Results: Of all 70 patients, 24 underwent a transplant kidney biopsy at least

once (range 1 - 4). The majority of these 24 recipients were male (58%) and mean ( $\pm$ SD) age was  $51\pm 11$  years with the range of 31 to 67 years. Four recipients experienced biopsy-related complications with an incidence rate of 0.04 person-months. Transplant kidney biopsy was performed  $\geq 2$  times in 15% of patients with complications, and up to 20% of patients without complication (p 0.055). The median time to undergo the most recent biopsy in patients with and without complications were 9.3 and 1.5 months, respectively (p 0.016). Compared to patients without the complications, those with the complications had slightly lower body mass index, systolic and diastolic blood pressures (BMI  $28.3\pm 4.8$  vs  $26.1\pm 4.9$ , p 0.399; SBP  $133\pm 16$  vs  $124\pm 15$ , p 0.274; DBP  $77\pm 13$  vs  $76\pm 12$ , p 0.882). Hemoglobin, platelet counts, and INR were lower in patients with the complications compared to those without but no statistical significance. Stage of chronic kidney disease and estimated glomerular filtration rate were not significantly different between the 2 groups. However, blood urea nitrogen (BUN) was significantly higher in patients with the complications ( $44\pm 12$  vs  $20\pm 14$  mg/dL; p 0.034). Conclusions: Although the known risk factors of the complications after native kidney biopsy was not associated with an increased complication risk of post-transplant kidney biopsy, biopsy at late post-transplant and higher BUN were associated with post-transplant kidney biopsy complications. Whether immunological and/or non-immunological factors in the late post-transplant period increase the complications after biopsy need further studies.

**Tantisattamo E**, Hamiduzzaman A, Sohn P, Ahdoot R and Hanna RM (2022). "Reconciling systolic blood pressure intervention trial with eighth Joint National Commission: A nuanced view of optimal hypertension control in the chronic kidney disease population." Current Opinion in Nephrology and Hypertension 31(1): 57-62.

[Full Text](#)

*Department of Internal Medicine/Nephrology*

Purpose of Review: Universally lowering blood pressure (BP) may adversely affect some populations especially in the older population. Recent landmark trials revealed cardiovascular benefits of tight controlling systolic BP (SBP) more than several recent BP targets. Implementing the evidence from the studies and guidelines in some populations is reviewed. Recent Findings: Eighth Joint National Commission (JNC-8) on hypertension issued conservative guidelines that provided an evolutionary change to BP control in the elderly. However, intensive BP control with SBP < 120 mmHg in Systolic Blood Pressure Intervention Trial (SPRINT) focuses on the improvement of cardiovascular and cerebrovascular outcomes. Although increasingly guidelines are trending toward the SPRINT results, it is noteworthy that not all populations show a favorable outcome with intensive BP control given hypotensive risks to memory, kidney function, orthostasis, and morbidity risks. Summary: Some populations may benefit from implementing the more intensive SBP target, whereas others such as elderly hypertensive patients may benefit from a more liberal SBP target. In the spirit of 'Primum non Nocere', we call for and suggest that a marriage of both SPRINT and JNC-8 recommendations be undertaken to champion the most cardiovascular protections for the greatest number of patients possible whereas preventing complications in vulnerable populations such as the elderly. Among the chronic kidney disease (CKD) population, SBP < 120 mmHg may not necessarily lead to favorable CKD outcomes.

**Tantisattamo E**, Hanna RM and Kalantar-Zadeh K (2022). "Novel therapeutic approaches in chronic kidney disease and kidney transplantation: The draw of evolving integrated multimodal approaches in the targeted therapy era." Current Opinion in Nephrology and Hypertension 31(1): 1-5.

[Full Text](#)

*Department of Internal Medicine/Nephrology*

**Tantisattamo E, Kalantar-Zadeh K and Molnar MZ (2022).** "Nutritional and dietary interventions to prolong renal allograft survival after kidney transplantation." [Current Opinion in Nephrology and Hypertension](#) 31(1): 6-17.

[Full Text](#)

*Department of Internal Medicine/Nephrology*

Purpose of Review: Diet plays an important role in slowing progression of chronic kidney disease in native and transplanted kidneys. There is limited evidence on the association on dietary intake with renal allograft function. Mechanisms of major nutrients and dietary patterns with focusing on a plant-based diet related to kidney transplant health and longevity are reviewed. Recent Findings: High dietary protein intake may adversely affect renal allograft. Low protein plant-focused diets such as Dietary Approaches to Stop Hypertension, plant-dominant low-protein diet and Mediterranean diets appear associated with favorable outcomes in slowing renal allograft function decline. The mechanism may be related to a change in renal hemodynamic by decreasing glomerular hyperfiltration from low dietary protein intake and plant-based ingredients. Recent observational studies of association between dietary protein intake and kidney allograft outcomes are conflicting. Although strong evidence is still lacking, a low protein diet of 0.6-0.8g/kg/day with at least 50% of the protein source from plant-based components in kidney transplant recipients with stable kidney allograft function should be considered as the dietary target. Summary: Dietary intervention with low-protein plant-focused meals may improve outcomes in kidney transplant recipients, but the evidence remains limited and further studies are warranted.

**Tantisattamo E and Maggiore U (2022).** "Returning to dialysis after kidney allograft loss: Conflicting survival benefit beyond transplant-naïve maintenance dialysis patients." [Journal of Nephrology](#) 35(1): 91-94.

[Request Form](#)

*Department of Internal Medicine/Nephrology*

**Tantisattamo E, Reddy UG, Ichii H, Ferrey AJ, Dafoe DC, Ioannou N, Xie J, Pitman TR, Hendricks E, Eguchi N and Kalantar-Zadeh K (2022).** "Is it time to utilize genetic testing for living kidney donor evaluation?" [Nephron](#) 146(2): 220-226.

[Full Text](#)

*Department of Internal Medicine/Nephrology*

Living donor kidney transplantation is an effective strategy to mitigate the challenges of solid organ shortage. However, being a living kidney donor is not without risk, as donors may encounter short- and long-term complications including the risk of developing chronic kidney disease, end-stage kidney disease, hypertension, and possible pregnancy-related complications. Although the evaluation of potential living donors is a thorough and meticulous process with the intention of decreasing the chance of complications, particularly in donors who have lifetime risk projection, risk factors for kidney disease including genetic predispositions may be missed because they are not routinely investigated. This type of testing may not be offered to patients due to variability and decreased penetrance of symptoms and lack of availability of appropriate genetic testing and genetic specialists. We report a case of a middle-aged woman with a history of gestational diabetes and preeclampsia who underwent an uneventful living kidney donation. She developed postdonation nonnephrotic range proteinuria and microscopic hematuria. Given the risk of biopsy with a solitary kidney, genetic testing was performed and revealed autosomal

dominant Alport syndrome. Our case underscores the utility of genetic testing. Hopefully, future research will examine the incorporation of predonation genetic testing into living kidney donor evaluation.

Toma C, Bunte MC, Cho KH, Jaber WA, Chambers J, Stegman B, Gondi S, Leung DA, **Savin M**, Khandhar S, Kado H, Koenig G, Weinberg M, Beasley RE, Roberts J, Angel W, Sarosi MG, Qaqi O, Veerina K, Brown MA and Pollak JS (2022). "Percutaneous mechanical thrombectomy in a real-world pulmonary embolism population: Interim results of the FLASH registry." Catheterization and Cardiovascular Interventions 99(4): 1345-1355.

[Full Text](#)

*Department of Diagnostic Radiology and Molecular Imaging*

Objectives: The FlowTrieve All-Comer Registry for Patient Safety and Hemodynamics (FLASH) is a prospective multi-center registry evaluating the safety and effectiveness of percutaneous mechanical thrombectomy for treatment of pulmonary embolism (PE) in a real-world patient population (NCT03761173). This interim analysis reports outcomes for the first 250 patients enrolled in FLASH. Background: High- and intermediate-risk PEs are characterized by high mortality rates, frequent readmissions, and long-term sequelae. Mechanical thrombectomy is emerging as a front-line therapy for PE that enables immediate thrombus reduction while avoiding the bleeding risks inherent with thrombolytics. Methods: The primary endpoint is a composite of major adverse events (MAE) including device-related death, major bleeding, and intraprocedural device- or procedure-related adverse events at 48 h. Secondary endpoints include on-table changes in hemodynamics and longer-term measures including dyspnea, heart rate, and cardiac function. Results: Patients were predominantly intermediate-risk per ESC guidelines (6.8% high-risk, 93.2% intermediate-risk). There were three MAEs (1.2%), all of which were major bleeds that resolved without sequelae, with no device-related injuries, clinical deteriorations, or deaths at 48 h. All-cause mortality was 0.4% at 30 days, with a single death that was unrelated to PE. Significant on-table improvements in hemodynamics were noted, including an average reduction in mean pulmonary artery pressure of 7.1 mmHg (22.2%,  $p < 0.001$ ). Patient symptoms and cardiac function improved through follow-up. Conclusions: These interim results provide preliminary evidence of excellent safety in a real-world PE population. Reported outcomes suggest that mechanical thrombectomy can result in immediate hemodynamic improvements, symptom reduction, and cardiac function recovery.

**Trang A and Khandhar PB** (2022). "Physiology, acetylcholinesterase," (ed). StatPearls. Treasure Island (FL): StatPearls Publishing

[Full Text](#)

*Department of Pediatrics*

*OUIWB Medical Student Author*

Acetylcholinesterase (AChE) is a cholinergic enzyme primarily found at postsynaptic neuromuscular junctions, especially in muscles and nerves. It immediately breaks down or hydrolyzes acetylcholine (ACh), a naturally occurring neurotransmitter, into acetic acid and choline. The primary role of AChE is to terminate neuronal transmission and signaling between synapses to prevent ACh dispersal and activation of nearby receptors. AChE is inhibited by organophosphates and is an important component of pesticides and nerve agents.

Trinidad CNB, Hanna MG, Ramesh S, **Topf JM** and Hiremath S (2022). "Lanthanum in dialysis, the LANDMARK Trial: A #NephJC Editorial." Kidney Medicine 4(2): 100402.

[Full Text](#)

*Department of Internal Medicine/Nephrology*

Tsuno NSG, Tsuno MY, Neto CAFC, **Noujaim SE**, Decnop M, Pacheco FT, Souza SA, Fonseca APA and Garcia MRT (2022). "Imaging the external ear: Practical approach to normal and pathologic conditions." RadioGraphics 42(2): 522-540.

[Request Form](#)

*Department of Diagnostic Radiology and Molecular Imaging*

The external ear (EE) is an osseous-cartilaginous structure that extends from the auricle to the tympanic membrane. It is divided into two parts: the auricle (or pinna) and the external auditory canal (EAC). Given the ease of access to the EE, imaging studies are not always needed to make a diagnosis. However, when lesions block visual access to areas deep to the EE abnormality, complications are suspected, or there is lack of response to treatment, imaging becomes essential. A basic understanding of the embryologic development and knowledge of the anatomy of the auricle and EAC are useful for accurate diagnosis of EE lesions. Congenital, traumatic, inflammatory, neoplastic, and vascular conditions can affect the EE. An overview of the anatomy and embryologic development of the EE is presented, with discussion and illustrations of common and uncommon conditions that affect EE structures and a focus on the CT and MRI features that are of interest to radiologists. CT is usually the first diagnostic modality used to evaluate the EAC and is the superior method for demonstrating bone changes. MRI provides excellent tissue characterization and enables one to better define lesion extension and perineural tumor spread. In addition, a flowchart to facilitate the differential diagnosis of EE abnormalities is provided.

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

[Full Text](#)

*Department of Obstetrics and 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.

Turkoglu O, **Alhousseini A**, Sajja S, Idler J, Stuart S, Ashrafi N, **Yilmaz A**, **Wharton K**, **Graham S** and **Bahado-Singh R** (2022). "Fetal effects of COVID-19 infection: Targeted metabolomic profiling of cord blood." American Journal of Obstetrics & Gynecology 226(1): S36-S37.

[Full Text](#)

*Department of Obstetrics and Gynecology*

Turkoglu O, Quinn R, **Graham SF** and **Bahado-Singh R** (2022). "Untargeted metabolomic identification of diagnostic biomarkers in ectopic pregnancy." Reproductive Sciences 29(SUPPL 1): 85-86.

[Full Text](#)

*Department of Obstetrics and Gynecology*

van Rosendael AR, Bax AM, van den Hoogen IJ, Smit JM, Al'Aref SJ, Achenbach S, Al-Mallah MH, Andreini D, Berman DS, Budoff MJ, Cademartiri F, Callister TQ, Chang HJ, **Chinnaiyan K**, Chow BJW, Cury RC, DeLago A, Feuchtner G, Hadamitzky M, Hausleiter J, Kaufmann PA, Kim YJ, Leipsic JA, Maffei E, Marques H, Goncalves PD, Pontone G, Raff GL, Rubinshtein R, Villines TC, Gransar H, Lu Y, Pena JM, Lin FY, Shaw LJ, Narula J, Min JK and Bax JJ (2022). "Associations between dyspnoea, coronary atherosclerosis, and cardiovascular outcomes: Results from the long-term follow-up CONFIRM registry." European Heart Journal-Cardiovascular Imaging 23(2): 266-274.

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*Department of Internal Medicine/Cardiovascular Disease*

**Aims:** The relationship between dyspnoea, coronary artery disease (CAD), and major cardiovascular events (MACE) is poorly understood. This study evaluated (i) the association of dyspnoea with the severity of anatomical CAD by coronary computed tomography angiography (CCTA) and (ii) to which extent CAD explains MACE in patients with dyspnoea. **Methods and Results** From the International COronary CT Angiography EvaluatioN for Clinical Outcomes: An InteRnational Multicenter (CONFIRM) registry, 4425 patients (750 with dyspnoea) with suspected but without known CAD were included and prospectively followed for  $\geq 5$  years. First, the association of dyspnoea with CAD severity was assessed using logistic regression analysis. Second, the prognostic value of dyspnoea for MACE (myocardial infarction and death), and specifically, the interaction between dyspnoea and CAD severity was investigated using Cox proportional-hazard analysis. Mean patient age was 60.3  $\pm$  11.9 years, 63% of patients were male and 592 MACE events occurred during a median follow-up duration of 5.4 (IQR 5.1-6.0) years. On uni- and multivariable analysis (adjusting for age, sex, body mass index, chest pain typicality, and risk factors), dyspnoea was associated with two- and three-vessel/left main (LM) obstructive CAD. The presence of dyspnoea increased the risk for MACE [hazard ratio (HR) 1.57, 95% confidence interval (CI): 1.29-1.90], which was modified after adjusting for clinical predictors and CAD severity (HR 1.26, 95% CI: 1.02-1.55). Conversely, when stratified by CAD severity, dyspnoea did not provide incremental prognostic value in one-, two-, or three-vessel/LM obstructive CAD, but dyspnoea did provide incremental prognostic value in non-obstructive CAD. **Conclusion:** In patients with suspected CAD, dyspnoea was independently associated with severe obstructive CAD on CCTA. The severity of obstructive CAD explained the elevated MACE rates in patients presenting with dyspnoea, but in patients with non-obstructive CAD, dyspnoea portended additional risk.

Vinogradskiy Y, Castillo R, **Castillo E**, Schubert L, Jones BL, Faught A, Gaspar LE, Kwak J, Bowles DW, Waxweiler T, Dougherty JM, Gao DX, Stevens C, Miften M, Kavanagh B, Grills I, Rusthoven CG and Guerrero T (2022). "Results of a multi-institutional phase 2 clinical trial for 4DCT-ventilation functional avoidance thoracic radiation therapy." International Journal of Radiation Oncology Biology Physics 112(4): 986-995.

[Full Text](#)

*Department of Radiation Oncology*

**Purpose:** Radiation pneumonitis remains a major limitation in the radiation therapy treatment of patients with lung cancer. Functional avoidance radiation therapy uses functional imaging to reduce pulmonary toxic effects by designing radiation therapy plans that reduce doses to functional regions of the lung. Lung functional imaging has been developed that uses 4-dimensional computed tomography (4DCT) imaging to calculate 4DCT-based lung ventilation

(4DCT-ventilation). A phase 2 multicenter study was initiated to evaluate 4DCT-ventilation functional avoidance radiation therapy. The study hypothesis was that functional avoidance radiation therapy could reduce the rate of grade  $\geq 2$  radiation pneumonitis to 12% compared with a 25% historical rate, with the trial being positive if  $\leq 16.4\%$  of patients experienced grade  $\geq 2$  pneumonitis. Methods and Materials: Lung cancer patients receiving curative-intent radiation therapy (prescription doses of 45-75 Gy) and chemotherapy were accrued. Patient 4DCT scans were used to generate 4DCT-ventilation images. The 4DCT-ventilation images were used to generate functional avoidance plans that reduced doses to functional portions of the lung while delivering the prescribed tumor dose. Pneumonitis was evaluated by a clinician at 3, 6, and 12 months after radiation therapy. Results: Sixty-seven evaluable patients were accrued between April 2015 and December 2019. The median prescription dose was 60 Gy (range, 45-66 Gy) delivered in 30 fractions (range, 15-33 fractions). The average reduction in the functional volume of lung receiving  $\geq 20$  Gy with functional avoidance was 3.5% (range, 0%-12.8%). The median follow-up was 312 days. The rate of grade  $\geq 2$  radiation pneumonitis was 10 of 67 patients (14.9%; 95% upper CI, 24.0%), meeting the phase 2 criteria. Conclusions: 4DCT-ventilation offers an imaging modality that is convenient and provides functional imaging without an extra procedure necessary. This first report of a multicenter study of 4DCT-ventilation functional avoidance radiation therapy provided data showing that the trial met phase 2 criteria and that evaluation in a phase 3 study is warranted. (C) 2021 Elsevier Inc. All rights reserved.

Vira A, **Mehta N** and **Safian RD** (2022). "Spontaneous ST elevation caused by coronary vasospasm: Exercise testing and ambulatory ECG." Journal of the American College of Cardiology 79(9): 2958-2958.

[Full Text](#)

*Department of Internal Medicine/Cardiovascular Disease*

Vishweswaraiah S, Akyol S, **Yilmaz A**, Ugur Z, Gordevicius J, Oh KJ, Brundin P, Radhakrishna U, Labrie V and **Graham SF** (2022). "Methylated cytochrome P450 and the solute carrier family of genes correlate with perturbations in bile acid metabolism in Parkinson's Disease." Frontiers in Neuroscience 16: 804261.

[Full Text](#)

*Department of Obstetrics and Gynecology*

Parkinson's disease (PD) is second most prevalent neurodegenerative disorder following Alzheimer's disease. Parkinson's disease is hypothesized to be caused by a multifaceted interplay between genetic and environmental factors. Herein, and for the first time, we describe the integration of metabolomics and epigenetics (genome-wide DNA methylation; epimetabolomics) to profile the frontal lobe from people who died from PD and compared them with age-, and sex-matched controls. We identified 48 metabolites to be at significantly different concentrations (FDR  $q < 0.05$ ), 4,313 differentially methylated sites [5'-C-phosphate-G-3' (CpGs)] (FDR  $q < 0.05$ ) and increased DNA methylation age in the primary motor cortex of people who died from PD. We identified Primary bile acid biosynthesis as the major biochemical pathway to be perturbed in the frontal lobe of PD sufferers, and the metabolite taurine (p-value =  $5.91E-06$ ) as being positively correlated with CpG cg14286187 (SLC25A27; CYP39A1) (FDR  $q = 0.002$ ), highlighting previously unreported biochemical changes associated with PD pathogenesis. In this novel multi-omics study, we identify regulatory mechanisms which we believe warrant future translational investigation and central biomarkers of PD which require further validation in more accessible biomatrices.

Vitale DS, Wang K, **Jamil LH**, Park KH and Liu QY (2022). "Endoscopic mucosal resection in children." Journal of Pediatric Gastroenterology & Nutrition 74(1): 20-24.

[Full Text](#)

*Department of Internal Medicine/Gastroenterology*

**Objectives:** Endoscopic mucosal resection (EMR) for removal of large polyps is well established in adults. EMR technique in the pediatric population is less utilized due to lower incidence of large intestinal polyps in pediatric patients and limited EMR training for pediatric gastroenterologists. The aim of this study is to retrospectively review safety and efficacy of pediatric EMR cases at two large, tertiary referral centers with adult and pediatric EMR expertise. **Methods:** A retrospective chart review was conducted at Cedars-Sinai Medical Center and Cincinnati Children's Hospital Medical Center from January 2012 to May 2021. Demographic, clinical, technical and follow up data were collected for patients <18 years of age who underwent EMR during the study period. **Results:** Fifteen pediatric EMR procedures were identified in 11 patients (five male, six female) during the study period. Indication was most frequently rectal bleeding. Polyp size removed ranged from 9 to 60 mm and pathology was consistent with juvenile inflammatory polyps in six patients. Technical success was achieved in 14 of 15 (93%) of EMRs with clinical success (desired clinical outcome) in all 13 procedures with clinical follow-up. There were no adverse events. **Conclusions:** This study identifies a case series of pediatric patients who underwent EMR at two tertiary care centers. This series demonstrates successful EMR in children and shows a high technical and clinical success rate with a low complication rate. More investigation into EMR in pediatric patients is necessary, and its use should be isolated to centers with endoscopists with specific experience in EMR techniques.

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." Female Pelvic Medicine and Reconstructive Surgery 28(1): E1-E5.

[Full Text](#)

*OUWB Medical Student Author*

*Department of Urology*

**Objectives:** The objective of this study was to evaluate our experience using cyclosporine A (CyA) in the treatment of Hunner lesion interstitial cystitis (HLIC). **Methods:** Retrospective chart review was performed on patients with HLIC treated with CyA from August 2012 to September 2019. Demographic and clinical variables, number of interstitial cystitis therapies, frequency, nocturia, and bladder pain visual analog scores before and after CyA treatment were collected, as well as the Global Response Assessment (GRA) and the Interstitial Cystitis Symptom Index and Interstitial Cystitis Problem Index. CyA responders were defined as those with moderately or markedly improved GRA scores. **Results:** A total of 51 patients with HLIC treated with CyA were identified. Mean follow-up was 3 years (0.36-6.8 years). Seventy-six percent (28 of 37) were female; mean age was 68 years (51-84 years). Before CyA treatment, an average of 8 previous therapies were tried and patients reported an average of 8 of 10 bladder pain. Daytime frequency was 11-20 times per day, and nocturia was 7 times per night. Per the GRA, 84% (31 of 37) were considered CyA responders. Posttherapy Interstitial Cystitis Symptom Index and Interstitial Cystitis Problem Index scores were lower in responders compared with nonresponders ( $8.9 \pm 5.7$  vs  $21.3 \pm 7.0$ ,  $P = 0.001$ ). Bladder pain, number of hydrodistentions/fulgurations, nocturia, and daytime frequency improved significantly after CyA treatment. **Conclusions:** The cyclosporine A response rate was 84%, with most of these patients reporting marked improvement. Bladder pain, daytime frequency, and nocturia were significantly improved after CyA treatment, and the number of interventions after CyA

treatment decreased. Cyclosporine A should be considered earlier than fifth-line therapy in HLIC.

Ward EP, Bartolone SN, **Sharma P, Chancellor MB and Lamb LE** (2022). "Using social media to crowdsource collection of urine samples during a national pandemic." International Urology and Nephrology 54(3): 493-498.

[Full Text](#)

*OUWB Medical Student Author*

*Department of Urology*

The COVID-19 pandemic and subsequent lockdown had a substantial impact on normal research operations. Researchers needed to adapt their methods to engage at-home participants. One method is crowdsourcing, in which researchers use social media to recruit participants, gather data, and collect samples. We utilized this method to develop a diagnostic test for Interstitial Cystitis/Bladder Pain Syndrome (IC/BPS). Participants were recruited via posts on popular social-media platforms, and enrolled via a website. Participants received and returned a mail kit containing bladder symptom surveys and a urine sample cup containing room-temperature preservative. Using this method, we collected 1254 IC/BPS and control samples in 3 months from all 50 United States. Our data demonstrate that crowdsourcing is a viable alternative to traditional research, with the ability to reach a broad patient population rapidly. Crowdsourcing is a powerful tool for at-home participation in research, particularly during the lockdown caused by the COVID-19 pandemic.

**Wasserman JA, Navin MC, Drzyzga V and Gibb TS** (2022). "Practising what we preach: Clinical ethicists' professional perspectives and personal use of advance directives." Journal of Medical Ethics 48(2): 144-149.

[Full Text](#)

*Department of Foundational Medical Studies (OU)*

The field of clinical bioethics strongly advocates for the use of advance directives to promote patient autonomy, particularly at the end of life. This paper reports a study of clinical bioethicists' perceptions of the professional consensus about advance directives, as well as their personal advance care planning practices. We find that clinical bioethicists are often sceptical about the value of advance directives, and their personal choices about advance directives often deviate from what clinical ethicists acknowledge to be their profession's recommendations. Moreover, our respondents identified a pluralistic set of justifications for completing treatment directives and designating surrogates, even while the consensus view focuses on patient autonomy. Our results suggest important revisions to academic discussion and public-facing advocacy about advance care planning.

Watchko JF and **Maisels MJ** (2022). "Exchange transfusion in Rh haemolytic disease." Vox Sang 117(1): 146.

[Full Text](#)

*Department of Pediatrics*

Watchko JF and **Maisels MJ** (2022). "Management of severe hyperbilirubinemia in the cholestatic neonate: A review and an approach." Journal of Perinatology. ePub Ahead of Print.

[Full Text](#)

*Department of Pediatrics*

A review of the literature demonstrates that severe total hyperbilirubinemia (total serum

bilirubin  $\geq 20$  mg/dL [340  $\mu$ mol/L]) in some cholestatic term ( $\geq 37$  weeks) and late-preterm ( $\geq 34(0/7)$ - $36(6/7)$  weeks) gestation neonates poses a risk for bilirubin-induced brain damage. When the direct bilirubin fraction is  $<50\%$  of the total serum bilirubin this risk is associated with the total serum bilirubin alone and treatment decisions should be based on the total serum bilirubin. On the other hand, there are limited data on the risk of bilirubin-induced brain damage in the neonate with severe total hyperbilirubinemia and a direct bilirubin fraction that is equal to or exceeds  $50\%$  of the total serum bilirubin. When this rare combination occurs, efforts to keep the indirect bilirubin fraction from reaching severe levels might, nevertheless, be prudent.

Weber DJ, Al-Tawfiq JA, Babcock HM, Bryant K, Drees M, Elshaboury R, Essick K, Fakh M, Henderson DK, Javaid W, Juffras D, Jump RLP, Lee F, Malani AN, **Mathew TA**, Murthy RK, Nace D, O'Shea T, Pettigrew E, Pettis AM, Schaffzin JK, Shenoy ES, Vaishampayan J, Wiley Z, Wright SB, Yokoe D and Young H (2022). "Multisociety statement on coronavirus disease 2019 (COVID-19) vaccination as a condition of employment for healthcare personnel." *Infection Control and Hospital Epidemiology* 43(1): 3-11.

[Full Text](#)

*Department of Internal Medicine/Infectious Disease*

This consensus statement by the Society for Healthcare Epidemiology of America (SHEA) and the Society for Post-Acute and Long-Term Care Medicine (AMDA), the Association for Professionals in Epidemiology and Infection Control (APIC), the HIV Medicine Association (HIVMA), the Infectious Diseases Society of America (IDSA), the Pediatric Infectious Diseases Society (PIDS), and the Society of Infectious Diseases Pharmacists (SIDP) recommends that coronavirus disease 2019 (COVID-19) vaccination should be a condition of employment for all healthcare personnel in facilities in the United States. Exemptions from this policy apply to those with medical contraindications to all COVID-19 vaccines available in the United States and other exemptions as specified by federal or state law. The consensus statement also supports COVID-19 vaccination of nonemployees functioning at a healthcare facility (eg, students, contract workers, volunteers, etc).

Willows J, Rydzewska-Rosolowska A, **Topf JM** and Hiremath S (2022). "CONFIRMing hepatorenal syndrome management: #NephJC editorial." *Kidney Medicine* 4(1): 322.

[Full Text](#)

*Department of Internal Medicine/Nephrology*

**Xiao AY, Kanaan HD, Lai Z, Li W and Zhang PL** (2022). "Role of progenitor cell marker CD133 in supporting diagnosis of collapsing glomerulopathy." *International Urology and Nephrology*. ePub Ahead of Print.

[Full Text](#)

*OUWB Medical Student Author*

*Department of Pathology*

Purpose: A previous immunofluorescent study suggests that, in collapsing glomerulopathy, most hyperplastic podocytes that stained positively for a progenitor cell marker CD133 are derived from CD133 + parietal epithelial cells. In pathology practice, not all renal biopsies with collapsing glomerulopathy show the typical morphologic features for this entity, which include florid podocyte hyperplasia, collapsing glomerular capillary loops, and cystic tubular dilation. This study was made to determine if CD133 staining using an immunohistochemical method can be used to confirm hyperplastic podocytes and identify extensive acute tubular injury in collapsing glomerulopathy. Methods: Twenty-one collapsing glomerulopathy biopsies were stained for CD133 and compared with 15 biopsies with focal segmental glomerulosclerosis, not otherwise

specified (FSGS). Results: All patients with collapsing glomerulopathy were of African American descent with prominent renal failure and nephrotic range proteinuria. In contrast, the FSGS group consisted of patients from a variety of ethnic backgrounds with nephrotic range proteinuria but relatively low serum creatinine. The striking finding was that all collapsing glomerulopathy cases showed positive CD133 staining in the clusters of hyperplastic podocytes. There was significantly higher CD133-positive staining rate for hyperplastic podocytes (38%) in the glomeruli of the collapsing glomerulopathy group when compared to small clusters of hyperplastic podocytes in the FSGS group (8%). In addition, when compared to the relatively weak CD133 staining in the proximal tubules of the FSGS group, the proximal tubules of the collapsing glomerulopathy group all showed diffuse and strong CD133 staining as a feature of severe acute tubular injury, which corresponded to the high serum creatinine levels in these patients. Conclusion: Our data indicate that the combination of the distinctive mosaic CD133 staining in hyperplastic podocytes and the diffuse tubular CD133 staining is helpful in supporting a diagnosis of collapsing glomerulopathy.

Yadav SK, Silwal S, Yadav S, Krishnamoorthy G and **Chisti MM** (2022). "A systematic comparison of overall survival between men and women with triple negative breast cancer." Clinical Breast Cancer 22(2): 161-169.

[Full Text](#)

*Department of Internal Medicine/Hematology-Oncology*

Triple-negative breast cancer (TNBC) in men is very rare. The clinical characteristics, prognostic factors and overall survival of men with TNBC have not been characterized. In this study of national cancer database, men with stage I-III triple negative breast cancer were found to have poorer overall survival compared to women despite adjusting for usual prognostic factors. Introduction: Triple-negative breast cancer (TNBC) in men is very rare. The clinical characteristics, prognostic factors, and overall survival of men with TNBC have not been characterized. Methods: The study population consisted of men and women with a diagnosis of stage I-III TNBC between 2010 and 2016 in the National Cancer Database. Baseline demographic and tumor characteristics between men and women were compared using Pearson's Chi-Square test for categorical variables and Mann-Whitney U test for continuous variables. Kaplan-Meier and multivariate Cox proportional hazards regression model was used to compare survival and identify prognostic factors. Results: A total of 311 men and 95,406 women with TNBC were included in the final analysis. The 3-year and 5-year overall survival was 74.8% and 68.8% in men, while it was 83.2% and 74.8% in women, respectively. In multivariate analysis, men were found to have a significantly worse overall survival compared to women (HR, 1.49, 95% CI, 1.19-1.86, P=.01). Older age at diagnosis, higher TNM stage, undergoing mastectomy and not undergoing chemotherapy or radiation were identified as independent negative prognostic factors in men with TNBC. Conclusion: In one of the largest studies of men with TNBC, men were noted to have a poorer overall survival compared to women, despite adjusting for usual prognostic factors. Further research into differences in tumor biology, treatment patterns and compliance with therapy between men and women are needed to understand the underlying etiologies for the survival difference in TNBC. (C) 2021 Elsevier Inc. All rights reserved.

Zakem SJ, Jones B, Castillo R, **Castillo E**, Miften M, Goodman KA, Scheffter T, Olsen J and Vinogradskiy Y (2022). "Cardiac metabolic changes on F-18-positron emission tomography after thoracic radiotherapy predict for overall survival in esophageal cancer patients." Journal of Applied Clinical Medical Physics. ePub Ahead of Print.

[Full Text](#)

#### *Department of Radiation Oncology*

Purpose: Heart doses have been shown to be predictive of cardiac toxicity and overall survival (OS) for esophageal cancer patients. There is potential for functional imaging to provide valuable cardiac information. The purpose of this study was to evaluate the cardiac metabolic dose-response using F-18-deoxyglucose (FDG)-PET and to assess whether standard uptake value (SUV) changes in the heart were predictive of OS. Methods: Fifty-one patients with esophageal cancer treated with radiation who underwent pre- and post-treatment FDG-PET scans were retrospectively evaluated. Pre- and post-treatment PET-scans were rigidly registered to the planning CT for each patient. Pre-treatment to post-treatment absolute mean SUV (SUVmean) changes in the heart were calculated to assess dose-response. A dose-response curve was generated by binning each voxel in the heart into 10 Gy dose-bins and analyzing the SUVmean changes in each dose-bin. Multivariate cox proportional hazard models were used to assess whether pre-to-post treatment cardiac SUVmean changes predicted for OS. Results: The cardiac dose-response curve demonstrated a trend of increasing cardiac SUV changes as a function of dose with an average increase of 0.044 SUV for every 10 Gy dose bin. In multivariate analysis, disease stage and SUVmean change in the heart were predictive ( $p < 0.05$ ) for OS. Conclusions: Changes in pre- to post-treatment cardiac SUV were predictive of OS with patients having a higher pre- to post-treatment cardiac SUV change surviving longer.

Zakko P, Whaley JD, Preston G and **Park DK** (2022). "Expandable vs static interbody devices for lateral lumbar interbody fusion." International Journal of Spine Surgery 16: S53-S60.

[Request Form](#)

#### *Department of Orthopaedic Surgery*

Lateral lumbar interbody fusion (LLIF) has paved a way for minimally invasive surgical treatment of a wide variety of spine pathologies. Interbody devices are used to stabilize painful disc levels, provide indirect decompression of neural elements, correct deformity, restore lordosis, and provide a sound durable fusion. Through the years, new static and expandable interbody devices have been developed in an attempt to improve radiographic and clinical outcomes in lumbar spine surgery. The purpose of this article is to explore the advantages and disadvantages between static and expandable interbody devices when used in LLIF. Specifically, this article addresses the differences in subsidence, indirect decompression, restoration of lumbar lordosis, complications, patient-reported outcomes, and cost between static and expandable interbody devices.

**Zhang PL** and **Macknis JK** (2022). "Immunohistochemical panels to evaluate important immunophenotypes of human mesonephros." Fetal and Pediatric Pathology. ePub Ahead of Print.

[Request Form](#)

#### *Department of Pathology*

Background: The immunophenotypes and potential excretory function of human mesonephros are not well studied. Methods: Five mesonephros specimens of human embryos from the 6(th) to 10(th) weeks of gestation were stained with immunohistochemical markers. Results: PAX8 was universally expressed in all renal tubules, while alpha-methyl-CoA racemase (AMACAR) was positive in proximal tubules and GATA3 was positive in distal tubular mesonephric structures. At the 8th weeks of gestation, the mesonephric glomeruli were characterized by opened glomerular capillary loops with Periodic Acid Schiff (PAS)-positive glomerular basement membranes and GATA3-positive mesangial-like cells. By the 8(th) week, proximal tubules showed PAS-positive brush borders, indicating reabsorption capacity, and the proximal tubules also demonstrated positivity with kidney injury molecule-1 (KIM-1), representing tubular

response to injury. Conclusion: Our overall findings show detailed phenotypes of the glomerular and tubular structures of the mesonephros and indicate that at the 8(th) week of gestation, the mesonephros may carry out temporary excretory function before metanephros becomes fully functional.

Zhao LW, Liu G, **Zheng WL**, Shen JJ, Lee A, **Yan D**, **Deraniyagala R**, **Stevens C**, **Li XQ**, Tang SK and **Ding XF** (2022). "Building a precise machine-specific time structure of the spot and energy delivery model for a cyclotron-based proton therapy system." Physics in Medicine and Biology 67(1): 01NT01.

[Full Text](#)

*Department of Radiation Oncology*

Objective: We proposed an experimental approach to build a precise machine-specific beam delivery time (BDT) prediction and delivery sequence model for standard, volumetric, and layer repainting delivery based on a cyclotron accelerator system. Approach: Test fields and clinical treatment plans' log files were used to experimentally derive three main beam delivery parameters that impacted BDT: energy layer switching time (ELST), spot switching time, and spot drill time. This derived machine-specific model includes standard, volumetric, and layer repainting delivery sequences. A total of 103 clinical treatment fields were used to validate the model. Main Results: The study found that ELST is not stochastic in this specific machine. Instead, it is actually the data transmission time or energy selection time, whichever takes longer. The validation showed that the accuracy of each component of the BDT matches well between machine log files and the model's prediction. The average total BDT was about (-0.74 +/- 3.33)% difference compared to the actual treatment log files, which is improved from the current commercial proton therapy system's prediction (67.22% +/- 26.19%). Significance: An accurate BDT prediction and delivery sequence model was established for an cyclotron-based proton therapy system IBA ProteusPLUS(R). Most institutions could adopt this method to build a machine-specific model for their own proton system.

**Ziegler MA**, Bauman JC, **Welsh RJ** and **Wasvary HJ** (2022). "Can the American College of Surgeons National Surgical Quality Improvement Program Risk Calculator predict outcomes for urgent colectomies?" American Surgeon 88(1): 65-69.

[Request Form](#)

*Department of Surgery*

Background: The American College of Surgeons National Surgical Quality Improvement Program (ACS NSQIP) Risk Calculator (RC) predicts postoperative outcomes using 19 risk factors, including operative acuity. Acuity is defined by the calculator as emergent or elective only. The objective of this study is to evaluate the RC's accuracy in urgent (nonelective/nonemergent) cases. Methods: This is a retrospective review of the NSQIP data for patients who underwent urgent colectomies at a single tertiary care center over a 4-year period. Each urgent case was entered into the RC as both elective and emergent, and predicted outcomes were compared to actual postoperative outcomes. Receiver operating characteristic (ROC) curves were used when sufficient statistical power was present and the area under the curve (AUC) was calculated. Results: A total of 301 urgent colectomy patients were evaluated, representing 19% of all colectomies performed at our institution during the study period. Of the 15 possible postoperative outcomes, the RC showed high predictive value only for mortality (AUC elective .8467; emergent .8451) and discharge to a nursing/rehabilitation facility (AUC elective .8089; emergent .8105). The RC showed no predictive value for 6 outcomes and the remainder lacked statistical power to draw conclusions. Discussion: While the calculator predicted mortality and discharge to a nursing/rehabilitation facility, it did not accurately predict complications for

urgent colectomies. Future versions of the calculator should focus on improving the predictive value by including urgent cases as a separate category.

**Zwaans BMM**, Grobbel M, Carabulea AL, **Lamb LE** and Roccabianca S (2022). "Increased extracellular matrix stiffness accompanies compromised bladder function in a murine model of radiation cystitis." Acta Biomaterialia. ePub Ahead of Print.

[Full Text](#)

*Department of Urology*

Radiation cystitis, a long-term bladder defect due to pelvic radiation therapy, results in lower urinary tract symptoms, such as urinary frequency and nocturia, suggestive of compromised bladder compliance. The goal of this study was to identify alterations to the mechanical behavior of the urinary bladder extracellular matrix of a murine model of radiation cystitis, at 3 and 6 months after radiation exposure. The results of this study demonstrated that the extracellular matrix of irradiated bladders was significantly less distensible when compared to age matching controls. These findings coincided with functional bladder changes, including increased number of voids and decreased voided volume. Both mechanical and functional changes were apparent at 3 months post-irradiation and were statistically significant at 6 months, demonstrating the progressive nature of radiation cystitis. Overall, the results of this study indicate that irradiation exposure changes both the mechanical and physiological properties of the bladder. Statement of significance: In humans, radiation cystitis results in lower urinary tract symptoms, such as urinary frequency and nocturia, suggestive of compromised bladder compliance. This pathology can significantly affect recovery and quality of life for cancer survivors. Gaining knowledge about how alterations to the mechanical behavior of the urinary bladder extracellular matrix can affect urinary function will have a significant impact on this population. The results of this study demonstrated that the extracellular matrix of irradiated bladders was significantly less distensible when compared to age matching controls, in a mouse model of radiation cystitis. These findings were accompanied by functional voiding changes, including increased number of voids and decreased voided volume. The results of this study uncovered that irradiation exposure changes the mechanical and physiological properties of the bladder.