

OAKLAND UNIVERSITY WILLIAM BEAUMONT SCHOOL OF MEDICINE
PUBLICATION LIST
July - September 2021

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

Abbas AE, Mando R, Kadri A, Khalili H, Hanzel G, **Shannon F**, Al-Azizi K, Waggoner T, Kassas S, Pilgrim T, Okuno T, Camacho A, Selberg A, Elmariah S, Bavry A, Ternacle J, Christensen J, Gheewala N, Pibarot P and Mack M (2021). "Comparison of transvalvular aortic mean gradients obtained by intraprocedural echocardiography and invasive measurement in balloon and self-expanding transcatheter valves." *Journal of the American Heart Association* 10(19): e021014.

[Full Text](#)

Department of Internal Medicine

Department of Surgery

Background: Concerns about discordance between echocardiographic and invasive mean gradients after transcatheter aortic valve replacement (TAVR) with balloon-expandable valves (BEVs) versus self-expanding valves (SEVs) exist. Methods and Results: In a multicenter study, direct-invasive and echocardiography-derived transvalvular mean gradients obtained before and after TAVR were compared as well as post-TAVR and discharge echocardiographic mean gradients in BEVs versus SEVs in 808 patients. Pre-TAVR, there was good correlation ($R=0.614$; $P<0.0001$) between direct-invasive and echocardiography-derived mean gradients and weak correlation ($R=0.138$; $P<0.0001$) post-TAVR. Compared with post-TAVR echocardiographic mean gradients, both valves exhibit lower invasive and higher discharge echocardiographic mean gradients. Despite similar invasive mean gradients, a small BEV exhibits higher post-TAVR and discharge echocardiographic mean gradients than a large BEV, whereas small and large SEVs exhibit similar post-TAVR and discharge mean gradients. An ejection fraction $<50\%$ ($P=0.028$) and higher Society of Thoracic Surgeons predicted risk of mortality score ($P=0.007$), but not invasive or echocardiographic mean gradient ≥ 10 mm Hg ($P=0.378$ and $P=0.341$, respectively), nor discharge echocardiographic mean gradient ≥ 20 mm Hg ($P=0.393$), were associated with increased 2-year mortality. Conclusions: Invasively measured and echocardiography-derived transvalvular mean gradients correlate well in aortic stenosis but weakly post-TAVR. Post-TAVR, echocardiography overestimates transvalvular mean gradients compared with invasive measurements, and poor correlation suggests these modalities cannot be used interchangeably.

Moreover, echocardiographic mean gradients are higher on discharge than post-TAVR in all valves. Despite similar invasive mean gradients, a small BEV exhibits higher post-TAVR and discharge echocardiographic mean gradients than a large BEV, whereas small and large SEVs exhibit similar post-TAVR and discharge mean gradients. Immediately post-TAVR, elevated echocardiographic-derived mean gradients should be assessed with caution and compared with direct-invasive mean gradients. A low ejection fraction and higher Society of Thoracic Surgeons score, but not elevated mean gradients, are associated with increased 2-year mortality.

Afghahi A, Marsh S, Winchester A, Gao D, Parris H, Axell L, Ellisen LW, Hofstatter EW, Kurian AW, Wood M, **Zakalik D**, Mullin CA, Caswell-Jin JL, Borges VF and Tung NM (2021). "Twenty-one-gene recurrence score (rs) in germline (g)chk2mutation-associated versus sporadic breast cancers (bc): A multi-site case-control study." Journal of Clinical Oncology 39(15 SUPPL): 10531.

[Full Text](#)

Department of Internal Medicine

Background: Genomic assays, such as RS, are used to determine chemotherapy benefit in earlystage, estrogen receptor (ER)- and/or progesterone receptor (PR)-positive, HER2 negative BC patients (pts). Currently, guidelines to use pts' germline genetic testing results to guide adjuvant therapy are lacking. Several reports have indicated worse outcomes for BC pts with gCHEK2 pathogenic variants (PV). We investigated whether PV in CHEK2 were associated with increased RS. Methods: Patientlevel clinical data and RS were derived from electronic medical records of seven medical centers between years 2013-17. Confirmation of RS using the Genomic Health provider portal was performed. 38 pts with germline PV in CHEK2 (15 pts/39.5% with c.1100delC mutation) and RS score (cases) were matched with BC pts whose genetic testing did not identify PV (controls) using a 1:2 matching schema. Pts were matched based on age at diagnosis and lymph node (LN) status. LN negative pts were further matched based on Tstage. A multivariate random intercept linear mixed model of CHEK2 mutation status on RS was performed, adjusting for PR. A secondary ordinal univariate analysis was conducted that categorized RS into low, intermediate and high risk (< 18, 18- 30, and > 30, respectively). P-values were reported based on a null hypothesis of no effect against a two-sided alternative. Results: The median RS for cases was 19.5 (interquartile range [IQR]: 15 to 25) and the median RS for controls was 18 (IQR: 12 to 22). A greater proportion of cases were categorized as high risk (10.5%) compared to controls (5.6%), and a smaller proportion of cases were categorized as low risk (36.8%) compared to controls (49.3%). Cases had higher grade and increased proportion of PR-negative BC as compared with controls (grade 1: 12.1% of cases versus 32.4% of controls; PR-negative: 7.9% of cases versus 5.6% of controls). The variables used to match cases and controls (age, lymph node status, and T-stage) had similar summary statistics. The RS was 1.97-point higher in pts with gCHEK2 PV compared to controls, after adjusting for PR (95% confidence interval [CI]: 1.02-point lower to 4.96-point higher; p = 0.194). The secondary analysis of CHEK2 mutation status on an ordinal RS risk group yielded comparable results; on average, the odds of being high risk compared to the combined intermediate/low risk groups was 1.72 times higher in cases compared to controls (95% CI: 0.77 to 3.80; p = 0.181), but these differences were not significant. Conclusions: Our case-control study did not show a statistically higher RS for BC that develops in pts with gCHEK2 PV. Further studies are warranted to evaluate the association between type of CHEK2 PV (frameshift versus missense) and other modifying genetic variables and RS.

Ahmed Shaheen A, **Hader I** and Aqel Z (2021). "Novel presentation of terminal ileitis associated with secukinumab therapy." Case Reports in Gastrointestinal Medicine 2021: 5213876.

[Full Text](#)

Department of Internal Medicine

Inflammatory bowel disease (IBD) and psoriasis are chronic inflammatory immune-mediated diseases. The interleukin-23- (IL23-) T helper (Th)17 pathway has been implicated in their pathogenesis, with multiple biologic therapies targeting this pathway. IL-17, the main proinflammatory cytokine produced by (TH)17, has been targeted by antibodies and IL-17 receptor blockers with favorable outcomes in treating psoriasis and psoriatic arthritis. However, their role in IBD is unpredictable as studies reported worsening of IBD with agents targeting IL-17 and rare case reports with new-onset IBD. We present a case of Crohn's-like severe terminal ileitis and worsening diverticulitis complicated by intestinal perforation requiring total parenteral nutrition shortly after being started on secukinumab.

Akyol S, Ugur Z, **Yilmaz A**, Ustun I, Gorti SKK, Oh K, McGuinness B, Passmore P, Kehoe PG, Maddens ME, Green BD and **Graham SF** (2021). "Lipid profiling of Alzheimer's disease brain highlights enrichment in glycerol(phospho)lipid, and sphingolipid metabolism." *Cells* 10(10): 2591.

[Full Text](#)

Department of Obstetrics & Gynecology

Alzheimer's disease (AD) is reported to be closely linked with abnormal lipid metabolism. To gain a more comprehensive understanding of what causes AD and its subsequent development, we profiled the lipidome of postmortem (PM) human brains (neocortex) of people with a range of AD pathology (Braak 0-6). Using high-resolution mass spectrometry, we employed a semi-targeted, fully quantitative lipidomics profiling method (Lipidyzer) to compare the biochemical profiles of brain tissues from persons with mild AD (n = 15) and severe AD (AD; n = 16), and compared them with age-matched, cognitively normal controls (n = 16). Univariate analysis revealed that the concentrations of 420 lipid metabolites significantly ($p < 0.05$; $q < 0.05$) differed between AD and controls. A total of 49 lipid metabolites differed between mild AD and controls, and 439 differed between severe AD and mild AD. Interestingly, 13 different subclasses of lipids were significantly perturbed, including neutral lipids, glycerolipids, glycerophospholipids, and sphingolipids. Diacylglycerol (DAG) (14:0/14:0), triacylglycerol (TAG) (58:10/FA20:5), and TAG (48:4/FA18:3) were the most notably altered lipids when AD and control brains were compared ($p < 0.05$). When we compare mild AD and control brains, phosphatidylethanolamine (PE) (p-18:0/18:1), phosphatidylserine (PS) (18:1/18:2), and PS (14:0/22:6) differed the most ($p < 0.05$). PE (p-18:0/18:1), DAG (14:0/14:0), and PS (18:1/20:4) were identified as the most significantly perturbed lipids when AD and mild AD brains were compared ($p < 0.05$). Our analysis provides the most extensive lipid profiling yet undertaken in AD brain tissue and reveals the cumulative perturbation of several lipid pathways with progressive disease pathology. Lipidomics has considerable potential for studying AD etiology and identifying early diagnostic biomarkers.

Alkhouri S, Afify O, **Alkhouri F**, Boalbanat H and Patel P (2021). "Merkel cell carcinoma in the setting of chronic lymphocytic leukemia and diffuse large b-cell lymphoma." *Cureus* 13(8): e17204.

[Full Text](#)

OUWB Medical Student Author

Axelson K, Osto M, **Rehman R**, **Fakih M** and Jones T (2021). "Longest survival of expectantly managed twin gestation complicated by previable preterm premature rupture of membranes at 13 weeks' gestation." *Cureus* 13(7): e16464.

[Full Text](#)

OUWB Medical Student Author
Department of Obstetrics & Gynecology

Bahado-Singh RO, Vishweswaraiah S, Aydas B and **Radhakrishna U** (2021). "Artificial intelligence and placental DNA methylation: Newborn prediction and molecular mechanisms of autism in preterm children." Journal of Maternal-Fetal & Neonatal Medicine. ePub Ahead of Print.

[Request Form](#)

Department of Obstetrics & Gynecology

Background: Autism Spectrum Disorder (ASD) represents a heterogeneous group of disorders with a complex genetic and epigenomic etiology. DNA methylation is the most extensively studied epigenomic mechanism and correlates with altered gene expression. Artificial intelligence (AI) is a powerful tool for group segregation and for handling the large volume of data generated in omics experiments. Methods: We performed genome-wide methylation analysis for differential methylation of cytosine nucleotide (CpG) was performed in 20 postpartum placental tissue samples from preterm births. Ten newborns went on to develop autism (Autistic Disorder subtype) and there were 10 unaffected controls. AI including Deep Learning (AI-DL) platforms were used to identify and rank cytosine methylation markers for ASD detection. Ingenuity Pathway Analysis (IPA) to identify genes and molecular pathways that were dysregulated in autism. Results: We identified 4870 CpG loci comprising 2868 genes that were significantly differentially methylated in ASD compared to controls. Of these 431 CpGs met the stringent EWAS threshold ($p\text{-value} < 5 \times 10^{-8}$) along with $\geq 10\%$ methylation difference between CpGs in cases and controls. DL accurately predicted autism with an AUC (95% CI) of 1.00 (1-1) and sensitivity and specificity of 100% using a combination of 5 CpGs [cg13858611 (NRN1), cg09228833 (ZNF217), cg06179765 (GPNMB), cg08814105 (NKX2-5), cg27092191 (ZNF267)] CpG markers. IPA identified five prenatally dysregulated molecular pathways linked to ASD. Conclusions: The present study provides substantial evidence that epigenetic differences in placental tissue are associated with autism development and raises the prospect of early and accurate detection of the disorder.

Bahl A, Johnson S, **Maine G**, Garcia MH, Nimmagadda S, **Qu L** and Chen NW (2021). "Vaccination reduces need for emergency care in breakthrough COVID-19 infections: A multicenter cohort study." Lancet Regional Health, Americas. ePub Ahead of Print.

[Full Text](#)

Department of Emergency Medicine

Department of Pathology

Department of Foundational Medical Studies (BH)

Background: While recent literature has shown the efficacy of the SARS-CoV-2 vaccine in preventing infection, its impact on need for emergency care/hospitalization in breakthrough infections remain unclear, particularly in regions with a high rate of variant viral strains. We aimed to determine if vaccination reduces hospital visits in breakthrough COVID-19. Methods: This observational cohort analysis compared unvaccinated (UV), partially vaccinated (PV), and fully vaccinated (FV) adult patients with SARS-CoV-2 infection requiring emergency care (EC)/hospitalization within an eight-hospital system in Michigan. Demographic and clinical variables were obtained from the electronic record. Vaccination data was obtained from the Michigan Care Improvement Registry and Centers for Disease Control vaccine tracker. Primary endpoint was rate of emergency care/hospitalization encounters among patients diagnosed with COVID-19. Secondary outcome was severe disease-composite outcome (ICU, mechanical ventilation, or in-hospital death). Findings: Between December 15, 2020 and April 30, 2021,

11,834 EC encounters were included:10,880 (91.9%) UV, 825 (7%) PV, 129 (1.1%) FV. Average age was 53.0 ± 18.2 and 52.8% were female. Accounting for the SARS-CoV-2 vaccination population groups in Michigan, the ED encounters/hospitalizations rate relevant to COVID-19 was 96% lower in FV versus UV (multiplicative effect:0.04, 95% CI 0.03 to 0.06, $p < 0.001$) in negative binomial regression. COVID-19 EC visits rate peaked at 22.61, 12.88, and 1.29 visits per 100000 for the UV, PV, and FV groups, respectively. In the propensity-score matching weights analysis, FV had a lower risk of composite disease compared to UV but statistically insignificant (HR 0.84, 95% CI 0.52 to 1.38). Interpretation: The need for emergency care/hospitalization due to breakthrough COVID-19 is an exceedingly rare event in fully vaccinated patients. As vaccination has increased regionally, EC visits amongst fully vaccinated individuals have remained low and occur much less frequently than unvaccinated individuals. If hospital-based treatment is required, elderly patients with significant comorbidities are at high-risk for severe outcomes regardless of vaccination status.

Balanescu DV, **Kado HS**, Mertens A, Chand R, **Savin M**, McNally V and **Bowers TR** (2021). "Mechanical thrombectomy in pulmonary embolism associated with COVID-19: A "clotography" gallery." Vascular and Endovascular Surgery 55(8): 903-906.

[Full Text](#)

Department of Internal Medicine

Department of Diagnostic Radiology and Molecular Imaging

Basu RK, Bjornstad EC, Gist KM, Starr M, **Khandhar P**, Chanchlani R, Krallman KA, Zappitelli M, Askenazi D, Goldstein SL and Investigators S (2021). "Acute kidney injury in critically ill children and young adults with suspected SARS-CoV2 infection." Pediatric Research. ePub Ahead of Print.

[Full Text](#)

Department of Pediatrics

Baunoch D, Luke N, Wang D, Vollstedt A, Zhao X, Ko DSC, Huang S, Cacdac P and **Sirls LT** (2021). "Concordance between antibiotic resistance genes and susceptibility in symptomatic urinary tract infections." Infection and Drug Resistance 14: 3275-3286.

[Full Text](#)

Department of Urology

Purpose: Studies have shown that multiple genes influence antibiotic susceptibility, but the relationship between genotypic and phenotypic antibiotic susceptibility is unclear. We sought to analyze the concordance between the presence of antibiotic resistance (ABR) genes and antibiotic susceptibility results in urine samples collected from patients with symptomatic urinary tract infection (UTI). Patients and Methods: Urine samples were collected from patients presenting to 37 geographically disparate urology clinics across the United States from July 2018 to February 2019. Multiplex polymerase chain reaction was used to detect 27 ABR genes. In samples containing at least one culturable organism at a concentration of $\geq 10^4$ cells per mL, pooled antibiotic susceptibility testing (P-AST), which involves simultaneously growing all detected bacteria together in the presence of antibiotic and then measure susceptibility, was performed against 14 antibiotics. The concordance rate between the ABR genes and the P-AST results was generated for the overall group. The concordance rates for each antibiotic between monomicrobial and polymicrobial infection were compared using chi-square test. Results: Results from ABR gene detection and P-AST of urine samples from 1155 patients were included in the concordance analysis. Overall, there was a 60% concordance between the presence or absence of ABR genes and corresponding antimicrobial susceptibility with a range of 49-78%

across antibiotic classes. Vancomycin, meropenem, and piperacillin/tazobactam showed significantly lower concordance rates in polymicrobial infections than in monomicrobial infections. Conclusion: Given the 40% discordance rate, the detection of ABR genes alone may not provide reliable data to make informed clinical decisions in UTI management. However, when used in conjunction with susceptibility testing, ABR gene data can offer valuable clinical information for antibiotic stewardship.

Bazos E, **Attardi SM**, Baytor J and Wilson TD (2021). "Clinical anatomy and unexpected careers: Is there curriculum for that?" Anatomical Sciences Education 14(4): 460-470.

[Full Text](#)

Department of Foundational Medical Studies (OU)

Reduction in faculty positions in higher education and increased graduate matriculation rates represent a higher education conundrum. Planned happenstance theory (PHT) is a career development model focusing on positive outcomes resulting from unpredictable precareer events. This mixed methods study explores how PHT applies to the career paths of a clinical anatomy (CA) postgraduate cohort. It provides insight into educational practices designed to equip students for labor markets inside and outside academia. Alumni of CA (n = 12; 2014-2018) were interviewed about career-related events transpiring from graduate studies to present, allowing exploration on how PHT contextualizes their shared experiences. Planned happenstance career inventory (PHCI) enumerated planned happenstance skill (PHS) scores. Total PHS was referenced 527 times across 12 interviews. Of the PHS references, curiosity established highest incidence (154 references, 29%), optimism (132 references, 25%), flexibility (101 references, 19%), risk-taking (85 references, 16%), and persistence (55 references, 10%) and 43 distinct happenstance events were documented. In addition, social networking (52 references) arose as an emergent code and was divided into internal networking (28 references, 54%) and external networking (24 references, 46%). Application of the five-point PHCI scale revealed: curiosity (4.4 ± 0.3 ; mean \pm SD), flexibility (3.6 ± 0.7), persistence (4.4 ± 0.3), optimism (4.3 ± 0.4), and risk-taking (4.1 ± 0.5). Curiosity had the strongest association with happenstance event incidence. Social networking was a key substituent of PHT not yet described in the literature. Educational practices incorporating PHT concepts, with emphasis on curiosity, may provide graduates novel metacognitive skills needed to develop novel career paths.

Belovich AN, Bahner I, Bonaminio G, Brenneman A, Brooks WS, Chinn C, El-Sawi N, Haight M, Haudek SB, Ikonne U, **McAuley RJ**, McKell D, Rowe R, **Taylor TAH** and Vari RC (2021). "USMLE step-1 is going to pass/fail, now what do we do?" Medical Science Educator 31(4): 1551-1556.

[Full Text](#)

Department of Foundational Medical Studies (OU)

The Winter 2021 Webinar Audio Series (WAS) of the International Association of Medical Science Educators (IAMSE), titled, "USMLE Step-1 is Going to Pass/Fail, Now what do we do?" was broadcast live to audiences at academic institutions worldwide in five weekly webinars from January 7, 2021, to February 4, 2021. Recognized experts from various stakeholder groups discussed the impact of the decision to score the United States Medical Licensing Examination (USMLE) Step 1 exam Pass/Fail (P/F). The speakers identified challenges to their respective programs and explored creative ways to address potential consequences. Sessions included the perspectives of allopathic and osteopathic residency program directors, basic science faculty, undergraduate medical education curriculum designers, clinical educators, and programs for international medical students matriculating to the United States. On February 25, 2021, a bonus session provided cutting-edge updates from a co-chair of the Coalition for Physician

Accountability Undergraduate Medical Education (UME) to Graduate Medical Education (GME) Review Committee (UGRC).

Blatt NB, Kumar T, Wickman LT, Kanaan HD, Chang A and Zhang PL (2021). "Myeloperoxidase immunohistochemical staining can identify glomerular endothelial cell injury in dense deposit disease." *Pediatric Nephrology* 36: 4003–4007.

[Full Text](#)

Department of Pediatrics

Department of Pathology

Background: Previous studies have demonstrated residual complement-mediated deposits in repeat kidney biopsies of C3 glomerulopathies (C3G) (dense deposit disease (DDD) and C3 glomerulonephritis) following eculizumab treatment, despite some clinical improvement. With residual complement deposition, it is difficult to determine whether there is a reduced complement-mediated endothelial cell injury. We validated that myeloperoxidase (MPO) immunohistochemical staining identified glomerular endothelial cell injury in crescentic glomerulonephritis and C3G. Case (Diagnosis/Treatment): We report that MPO staining in the glomerular endothelium of the post-treatment kidney biopsy was significantly reduced after 3 years of eculizumab treatment and clinical improvement in a 5-year-old boy with initial DDD and secondary crescent formation. Conclusion: We find that immunostaining for MPO is a useful method to compare glomerular endothelial injury in C3G following eculizumab treatment. This finding also supports the notion that eculizumab, a C5 blocker, may not mainly block C3 deposits in the glomeruli but significantly blocks final activation of the complement cascade, thus reducing glomerular endothelial cell injury.

Bojrab li DI, Fritz CG, Lin KF, Schutt CA, Hong RS, Babu SC, Chen PY, Maitz A and Bojrab DI (2021). "Pre-existing vestibular symptoms are associated with acute vestibular symptoms after gamma knife therapy for vestibular schwannoma." *Otology & Neurotology* 42(6): 912-917.

[Full Text](#)

Department of Surgery

OUWB Medical Student Author

Department of Radiation Oncology

Objective: To identify pretreatment variables associated with the development of acute vestibular symptoms after Gamma Knife (GK) treatment for Vestibular Schwannoma (VS). Study Design: Retrospective case series. Setting: Tertiary neurotology referral center. Patients: Patients treated with GK radiosurgery for VS between March 2007 and March 2017 were considered for this study. Patients with neurofibromatosis type II, previous VS surgery, follow-up less than 6 months, or the lack of T2 magnetic resonance imaging (MRI) sequences from the day of treatment were excluded. Main Outcome Measures: The presence of acute vestibular symptoms arising within 6 months after GK was the main outcome variable. Tumor, patient, and treatment characteristics were gathered from the medical record. Results: In total, 98 patients met inclusion criteria. The incidence of acute vestibular symptoms occurring within 6 months after GK treatment was 46.9%. Post-GK vestibular symptoms were reported at a significantly higher frequency among subjects who had reported vestibular symptoms before their treatment ($p=0.001$). Tumor size was not associated with a propensity to develop acute vestibular symptoms ($p=0.397$). The likelihood of receiving a referral to vestibular rehabilitation services was not significantly different among patients with larger versus smaller tumor size, as defined by 1.6 cm and 1.4 cm thresholds ($p=0.896$, $p=0.654$). Conclusions: Inquiries aimed at revealing a history of vestibular complaints may prove useful in counseling patients on the likelihood of

experiencing acute vestibular symptoms after treatment of Vestibular Schwannoma with Gamma Knife therapy.

Boudiab E, Kawak S, Tom A, Studzinski D, **Novotny N**, **Brahmamdam P** and **Akay B** (2021). "Prospective evaluation of an evidence-based decision tool to assess pediatric blunt abdominal trauma (bat)." Pediatric Surgery International. ePub Ahead of Print.

[Full Text](#)

Department of Surgery

Purpose: Computed tomography (CT) is currently the standard for evaluation of intra-abdominal injury (IAI) after BAT. Pediatric patients receiving CT scans based on adult clinical protocols are potentially exposed to unnecessary radiation. The purpose of this study is to determine the rate of CT scans before and after implementation of a pediatric BAT decision tool. Methods: We adapted and implemented an evidence-based decision tool for pediatric BAT based on five clinical variables. We reviewed patient charts 18 months pre- and post-implementation. Demographics and outcomes were compared using Chi-square and Fisher's exact test, accordingly. Results: The pre and post-implementation groups were uniform when comparing age, sex, mechanism, and Injury Severity Score. The decision tool was utilized in 85% of patients post-implementation. Fewer CT scans were obtained in the post-implementation group (28 vs. 21%, $p = 0.215$) with no missed injuries or late diagnoses. Conclusion: Implementation of a pediatric BAT decision tool decreased CT usage and radiation exposure without an obvious compromise to patient care. This experience supports the utilization of these tools for the assessment of IAI after BAT and have resulted in more selective use of CT during pediatric BAT in our program.

Brown C, McKee C, Halassy S, **Kojan S**, Feinstein DL and Chaudhry GR (2021). "Neural stem cells derived from primitive mesenchymal stem cells reversed disease symptoms and promoted neurogenesis in an experimental autoimmune encephalomyelitis mouse model of multiple sclerosis." Stem Cell Research & Therapy 12(1): 499.

[Full Text](#)

Department of Neurology

Background: Multiple sclerosis (MS) is an autoimmune inflammatory disease of the central nervous system (CNS). MS affects millions of people and causes a great economic and societal burden. There is no cure for MS. We used a novel approach to investigate the therapeutic potential of neural stem cells (NSCs) derived from human primitive mesenchymal stem cells (MSCs) in an experimental autoimmune encephalomyelitis (EAE) mouse model of MS. Methods: MSCs were differentiated into NSCs, labeled with PKH26, and injected into the tail vein of EAE mice. Neurobehavioral changes in the mice assessed the effect of transplanted cells on the disease process. The animals were sacrificed two weeks following cell transplantation to collect blood, lymphatic, and CNS tissues for analysis. Transplanted cells were tracked in various tissues by flow cytometry. Immune infiltrates were determined and characterized by H&E and immunohistochemical staining, respectively. Levels of immune regulatory cells, Treg and Th17, were analyzed by flow cytometry. Myelination was determined by Luxol fast blue staining and immunostaining. In vivo fate of transplanted cells and expression of inflammation, astrogliosis, myelination, neural, neuroprotection, and neurogenesis markers were investigated by using immunohistochemical and qRT-PCR analysis. Results: MSC-derived NSCs expressed specific neural markers, NESTIN, TUJ1, VIMENTIN, and PAX6. NSCs improved EAE symptoms more than MSCs when transplanted in EAE mice. Post-transplantation analyses also showed homing of MSCs and NSCs into the CNS with concomitant induction of an anti-inflammatory response,

resulting in reducing immune infiltrates. NSCs also modulated Treg and Th17 cell levels in EAE mice comparable to healthy controls. Luxol fast blue staining showed significant improvement in myelination in treated mice. Further analysis showed that NSCs upregulated genes involved in myelination and neuroprotection but downregulated inflammatory and astrogliosis genes more significantly than MSCs. Importantly, NSCs differentiated into neural derivatives and promoted neurogenesis, possibly by modulating BDNF and FGF signaling pathways. Conclusions: NSC transplantation reversed the disease process by inducing an anti-inflammatory response and promoting myelination, neuroprotection, and neurogenesis in EAE disease animals. These promising results provide a basis for clinical studies to treat MS using NSCs derived from primitive MSCs.

Brummett AL and James EJ (2021). "Non-Roman Catholic physicians should be permitted to write prescriptions for birth control in Roman Catholic institutions." [Journal of Clinical Ethics](#) 32(3): 265-270.
[Request Form](#)

Department of Foundational Medical Studies (OU)

OUWB Medical Student Author

The legal and ethical asymmetry between honoring positive claims of conscience versus negative claims of conscience was recently analyzed by several articles in this journal. The first author of this article (ALB) identified unique but defeasible reasons against honoring positive claims of conscience, such as the greater threat they post to institutional values and institutional resources than negative claims of conscience. However, ALB wrote, when these reasons can be overcome, positive claims of conscience should enjoy the same ethical and legal respect as negative claims of conscience. This article argues that the prescription of birth control by non-Roman Catholic physicians in Roman Catholic institutions is an example of a positive claim of conscience that can overcome concerns of institutional values and resources, and therefore ought to receive the same ethical respect and legal protection as negative claims of conscience. In making this argument, this article also responds to several of the thoughtful comments raised by Alberto Giubilini and Dominic Wilkinson.

Buxbaum JL, Buitrago C, Lee A, Elmunzer BJ, Riaz A, Ceppa EP, Al-Haddad M, Amateau SK, Calderwood AH, Fishman DS, Fujii-Lau LL, **Jamil LH**, Jue TL, Kwon RS, Law JK, Lee JK, Naveed M, Pawa S, Sawhney MS and Schilperoort H (2021). "ASGE guideline on the management of cholangitis." [Gastrointestinal Endoscopy](#) 94(2): 207-207.

[Full Text](#)

Department of Internal Medicine

Cholangitis is a GI emergency requiring prompt recognition and treatment. The purpose of this document from the American Society for Gastrointestinal Endoscopy's (ASGE) Standards of Practice Committee is to provide an evidence-based approach for management of cholangitis. This document addresses the modality of drainage (endoscopic vs percutaneous), timing of intervention (<48 hours vs >48 hours), and extent of initial intervention (comprehensive therapy vs decompression alone). Grading of Recommendations, Assessment, Development, and Evaluation methodology was used to formulate recommendations on these topics. The ASGE suggests endoscopic rather than percutaneous drainage and biliary decompression within 48 hours. Additionally, the panel suggests that sphincterotomy and stone removal be combined with drainage rather than decompression alone, unless patients are too unstable to tolerate more extensive endoscopic treatment.

Cakmak AS, Alday EAP, Da Poian G, Rad AB, Metzler TJ, Neylan TC, House SL, Beaudoin FL, An XM,

Stevens JS, Zeng DL, Linnstaedt SD, Jovanovic T, Germine LT, Bollen KA, Rauch SL, Lewandowski CA, Hendry PL, Sheikh S, Storrow AB, Musey PI, Haran JP, Jones CW, Panches BE, **Swor RA**, Gentile NT, McGrath ME, Seamon MJ, Mohiuddin K, Chang AM, Pearson C, Domeier RM, Bruce SE, O'Neil BJ, Rathlev NK, Sanchez LD, Pietrzak RH, Joormann J, Barch DM, Pizzagalli DA, Harte SE, Elliott JM, Kessler RC, Koenen KC, Ressler KJ, McLean SA, Li Q and Clifford GD (2021). "Classification and prediction of post-trauma outcomes related to PTSD using circadian rhythm changes measured via wrist-worn research watch in a large longitudinal cohort." IEEE Journal of Biomedical and Health Informatics 25(8): 2866-2876.

[Full Text](#)

Department of Emergency Medicine

Carr EJ, Kronbichler A, Graham-Brown M, Abra G, Argyropoulos C, Harper L, Lerma EV, Suri RS, **Topf J**, Willicombe M and Hiremath S (2021). "Review of early immune response to SARS-CoV-2 vaccination among patients with CKD." Kidney International Reports 6(9): 2292-2304.

[Full Text](#)

Department of Internal Medicine

Cash RE, **Swor RA**, Samuels-Kalow M, **Eisenbrey D**, Kaimal AJ, Camargo Jr CA and Camargo CA, Jr. (2021). "Frequency and severity of prehospital obstetric events encountered by emergency medical services in the United States." BMC Pregnancy & Childbirth 21(1): 1-8.

[Full Text](#)

Department of Emergency Medicine

OUWB Medical Student Author

Background: Prehospital obstetric events encountered by emergency medical services (EMS) can be high-risk patient presentations for which suboptimal care can cause substantial morbidity and mortality. The frequency of prehospital obstetric events is unclear because existing descriptions have reported obstetric and gynecological conditions together, without delineating specific patient presentations. Our objective was to identify the types, frequency, and acuity of prehospital obstetric events treated by EMS personnel in the US. Methods: We conducted a cross-sectional analysis of EMS patient care records in the 2018 National EMS Information System dataset (n=22,532,890). We focused on EMS activations (i.e., calls for service) for an emergency scene response for patients aged 12-50 years with evidence of an obstetric event. Type of obstetric event was determined by examining patient symptoms, the treating EMS provider's impression (i.e., field diagnosis), and procedures performed. High patient acuity was ascertained by EMS documentation of patient status and application of the modified early obstetric warning system (MEOWS) criteria, with concordance assessed using Cohen's kappa. Descriptive statistics were calculated to describe the primary symptoms, impressions, and frequency of each type of obstetric event among these activations. Results: A total of 107,771 (0.6%) of EMS emergency activations were identified as involving an obstetric event. The most common presentation was early or threatened labor (15%). Abdominal complaints, including pain and other digestive/abdomen signs and symptoms, was the most common primary symptom (29%) and primary impression (18%). We identified 3,489 (3%) out-of-hospital deliveries, of which 1,504 were preterm. Overall, EMS providers documented 34% of patients as being high acuity, similar to the MEOWS criteria (35%); however, there were high rates of missing data for EMS documented acuity (19%), poor concordance between the two measures (Cohen's kappa=0.12), and acuity differences for specific conditions (e.g., high acuity of non-cephalic presentations, 77% in EMS documentation versus 53% identified by MEOWS). Conclusion: Prehospital obstetric events were infrequently encountered by EMS personnel, and

about one-third were high acuity. Additional work to understand the epidemiology and clinical care of these patients by EMS would help to optimize prehospital care and outcomes.

Cavinatto L, Khatib O, Martusiewicz A, Koueiter DM, Wiater BP and Wiater JM (2021). "Radiographic evaluation of humeral head reconstruction with stemmed and stemless spherical implants compared with stemless elliptical head implants." JSES International 5(5): 889-893.

[Full Text](#)

Department of Orthopaedic Surgery

Background: The purpose of this study was to compare the accuracy of anatomic reconstruction of three different humeral head designs after anatomic total shoulder arthroplasty. Methods: Postoperative radiographs of 117 patients who underwent anatomic total shoulder arthroplasty with three different implant designs (stemmed spherical, stemless spherical, and stemless elliptical) were analyzed for landmarks that represented the prearthritic state and final implant position. We assessed the change in center of rotation and humeral head height on the anteroposterior view and the percentage of prosthesis overhang on the axillary lateral view. A modified anatomic reconstruction index, a compound score that rated each of the 3 parameters from 0 to 2, was created to determine the overall accuracy of the reconstruction. Results: Excellent modified anatomic reconstruction index scores (5 or 6 points) were achieved by 68.1% of the cases in the stemless elliptical group compared with 33.3% of the cases in the stemless spherical group and by 28.3% of the cases in the stemmed spherical group ($P = .001$). The mean difference in restoration of humeral head height ($P < .001$) and percentage of prosthesis overhang ($P < .001$) was superior for the stemless elliptical group compared with the two other spherical head groups. There was no difference between groups for the shift in center of rotation ($P = .060$). Conclusions: In this radiographic investigation comparing three different humeral head designs with respect to anatomic restoration parameters, the stemless elliptical implant more closely restored the geometry of the prearthritic humeral head as assessed by humeral head height, prosthesis overhang, and a compound reconstruction score.

Chancellor M (2021). "Editorial comment from Dr Chancellor to decreased urothelial cytoskeleton and cell proliferation protein expression suggest interstitial cystitis/bladder pain syndrome patients with hunner's lesion and grade 3 glomerulation might be different from other types of patients." International Journal of Urology 28(8): 832-833.

[Full Text](#)

Department of Urology

Christopher C, **Faia L**, Gregg K and **Rao R** (2021). "Coronavirus-19-associated retinopathy." Ocular Immunology & Inflammation 29: 675-676.

[Request Form](#)

Department of Ophthalmology

Colvin R, Walker D, **Hafron J, Seifman B, Nandalur S**, Gangwish D and **Nandalur KR** (2021). "Which measurement method should be used for prostate volume for pi-rads? A comparison of ellipsoid and segmentation methods." Clinical Imaging 80: 454-458.

[Full Text](#)

Department of Urology

Department of Radiation Oncology

Department of Diagnostic Radiology and Molecular Imaging

Purpose: Prostate volume and PSA density (PSAd) are important in the risk stratification of

suspected prostate cancer (Pca). PI-RADS v2.1 allows for determining volume via segmentation or ellipsoid calculation. The purpose of our study was to compare ellipsoid and segmentation volume calculation methods and evaluate if PSAd diagnostic performance is altered. Methods: We retrospectively assessed 397 patients (mean age/standard deviation: 63.7/7.4 years) who underwent MRI and prostate biopsy or prostatectomy, with Pca classified by Gleason $\geq 3 + 4$ and $\geq 4 + 4$ disease. Prostate total volumes were determined with ellipsoid calculations (Tve) and with semi-automated segmentation (TVs), along with inter-rater reliability with intraclass correlation coefficient (ICC). PSAd was calculated for Tve and TVs and ROC curves were created to compare performance for Gleason $\geq 3 + 4$ and $\geq 4 + 4$ disease. Results: Tve was significantly higher than TVs ($p < 0.0001$), with mean Tve = 55.4 mL and TVs = 51.0 mL. ROC area under the curve for PSAd derived with Tve (0.63, 95%CI:0.59-0.68) and TVs (0.64, 95%CI:0.59-0.68) showed no significant difference for Gleason $\geq 3 + 4$ disease ($p = 0.45$), but PSAd derived with TVs (0.63, 95%CI: 0.58-0.68) significantly outperformed Tve (0.61, 95%CI: 0.57-0.67) for Gleason $\geq 4 + 4$ disease ($p = 0.02$). Both methods demonstrated excellent inter-rater reliability with Tve with ICC of 0.93(95%CI: 0.92-0.94) and TVs with ICC of 0.98(95%CI: 0.98-0.99). Conclusion: Traditional ellipsoid measurements tend to overestimate total prostate volume compared to segmentation, but both methods demonstrate similar diagnostic performance of derived PSA density for PI-RADS clinically significant disease. For higher grade disease, PSAd derived from segmentation volumes demonstrates statistically significant superior performance. Both methods are viable, but segmentation volume is potentially better.

Daram NR, Berry L, **Fakih M** and **Alhousseini A** (2021). "Successful use of myosure in the management of cesarean scar ectopic pregnancy." *Cureus* 13(8): e17500.

[Full Text](#)

OUWB Medical Student Author

Department of Obstetrics & Gynecology

Dekhou A, Oska N, **Partiali B**, Johnson J, Chung MCT and **Folbe A** (2021). "E-cigarette burns and explosions: What are the patterns of oromaxillofacial injury?" *Journal of Oral and Maxillofacial Surgery* 79(8): 1723-1730.

[Full Text](#)

OUWB Medical Student Author

Department of Surgery

Dekhou A, **Rehman R**, Parzen JS, Quinn TJ, **Zhang PL**, **Rontal M**, **Noujaim S**, Tapia M and **Deraniyagala R** (2021). "Primary parotid tumor thrombosis: Immunohistologic features and awareness of metastatic potential." *Cureus* 13(7): e16174.

[Full Text](#)

OUWB Medical Student Author

Department of Pathology

Department of Surgery

Department of Diagnostic Radiology and Molecular Imaging

Department of Radiation Oncology

Dmochowski R, Goldman H, Lee U, Carr L, **Peters K**, Benson K, Thomas S, Tu L, Bennett J, Heit M, Quiroz L, Chermansky C, Kennelly M, Sokol E, Antosh D, Wolter C, Jankowski R, Carlson C, Cardello K, **Chancellor M** and Kaufman M (2021). "Safety, efficacy, and quality of life improvement in women with prior stress incontinence surgery treated with autologous muscle derived cells: Experience from two double-blind,

randomized, placebo-controlled trials." Neurourology and Urodynamics 40: S105-S106.

[Request Form](#)

Department of Urology

Ellis DA, Rhind J, Carcone AI, Evans M, Weissberg-Benchell J, Buggs-Saxton C, Boucher-Berry C, Miller JL, Al Wazeer M, Drossos T and **Dekelbab B** (2021). "Optimizing recruitment of black adolescents into behavioral research: A multi-center study." Journal of Pediatric Psychology 46(6): 611-620.

[Full Text](#)

Department of Pediatrics

Erol B, Danacioglu YO and **Peters KM** (2021). "Current advances in neuromodulation techniques in urology practices: A review of literature." Turkish Journal of Urology 47(5): 375-385.

[Full Text](#)

Department of Urology

Ezeokoli EU, Polat MU, Ogundipe O and **Szela J** (2021). "A case of pseudomonas mendocina bacteremia in an elderly man with bilateral leg lesions." Cureus 13(9): e17777.

[Full Text](#)

OUWB Medical Student Author

Department of Internal Medicine

Fiani B, Nanney JM, Villait A, **Sekhon M** and Doan T (2021). "Investigational research: Timeline, trials, and future directions of spinal disc arthroplasty." Cureus 13(7): e16739.

[Full Text](#)

OUWB Medical Student Author

Fidler JL, Guglielmo FF, Brook OR, Strate LL, Bruining DH, Gupta A, Allen BC, Anderson MA, Wells ML, Ramalingam V, Gunn ML, Grand DJ, Gee MS, Huete A, Khandalwal A, **Sokhandon F**, Park SH, Yoo DC and Soto JA (2021). "Management of gastrointestinal bleeding: Society of Abdominal Radiology (SAR) institutional survey." Abdominal Radiology. ePub Ahead of Print.

[Full Text](#)

Department of Diagnostic Radiology and Molecular Imaging

Despite guidelines developed to standardize the diagnosis and management of gastrointestinal (GI) bleeding, significant variability remains in recommendations and practice. The purpose of this survey was to obtain information on practice patterns for the evaluation of overt lower GI bleeding (LGIB) and suspected small bowel bleeding. A 34-question electronic survey was sent to all Society of Abdominal Radiology (SAR) members. Responses were received from 52 unique institutions (40 from the United States). Only 26 (50%) utilize LGIB management guidelines. 32 (62%) use CT angiography (CTA) for initial evaluation in unstable patients. In stable patients with suspected LGIB, CTA is the preferred initial exam at 21 (40%) versus colonoscopy at 24 (46%) institutions. CTA use increases after hours for both unstable (n = 32 vs. 35, 62% vs. 67%) and stable patients (n = 21 vs. 27, 40% vs 52%). CTA is required before conventional angiography for stable (n = 36, 69%) and unstable (n = 15, 29%) patients. 38 (73%) institutions obtain two post-contrast phases for CTA. 49 (94%) institutions perform CT enterography (CTE) for occult small bowel bleeding with capsule endoscopy (n = 26, 50%) and CTE (n = 21, 40%) being the initial test performed. 35 (67%) institutions perform multiphase CTE for occult small bowel bleeding. In summary, stable and unstable patients with overt lower GI are frequently imaged with CTA, while CTE is frequently performed for suspected occult small bowel bleeding.

Fischgrund JS (2021). "Editorial." Journal of the American Academy of Orthopaedic Surgeons Global Research and Reviews 5(7): e21.00133.

[Request Form](#)

Department of Orthopaedic Surgery

Foote DC, Donkersloot JN, Sandhu G, **Ziegler K** and Lau J (2021). "Identifying institutional factors in general surgery resident wellness and burnout." American Journal of Surgery. ePub Ahead of Print.

[Full Text](#)

Department of Surgery

Background: Effects of the institutional macrocosm on general surgery resident wellbeing have not been well studied. We sought to identify organizational factors that impact resident wellness and burnout. Methods: Using a modified Delphi technique, an open-ended survey and two subsequent iterations were distributed to wellness stakeholders at two institutions to identify and stratify institutional factors in six burnout domains. Results: Response rates for each survey round were 29/106 (27%), 30/46 (65%) and 21/30 (70%). Top factors identified in each domain were: Conclusion: A modified Delphi technique prioritized institutional wellness and burnout factors. Top factors identified were compensation, vacation time, and autonomy. These results can direct future scholarship of barriers/facilitators of resident wellbeing.

Gannon J, Pollock A, Allen D and Kling P (2021). "Breastfeeding as a modifiable factor impacting child obesity in the 5th year." Hormone Research in Paediatrics 94(SUPPL 2): 96-96.

[Request Form](#)

OUWB Medical Student Author

Ginsburg KB, Johnson K, Moldovan T, Peabody H, Qi J, Dunn RL, Rogers C, Weizer A, **Kaul S**, Johnson A, Traver M and Lane BR (2021). "A statewide quality improvement collaborative's adherence to the 2017 American Urological Association guidelines regarding initial evaluation of patients with clinical t1 renal masses." Urology. ePub Ahead of Print.

[Full Text](#)

Department of Urology

Objective: To evaluate MUSIC-KIDNEY's adherence to the American Urological Association (AUA) guidelines regarding the initial evaluation of patient's with clinical T1 (cT1) renal masses. Methods: We reviewed MUSIC-KIDNEY registry data for patients with newly diagnosed cT1 renal masses to assess for adherence with the 2017 AUA guideline statements regarding recommendations to obtain (1) CMP, (2) CBC, (3) UA, (4) abdominal cross-sectional imaging, and (5) chest imaging. An evaluation consisting of all 5 guideline measures was considered "complete compliance." Variation with guideline adherence was assessed by contributing practice, management strategy, and renal mass size. Results: We identified 1808 patients with cT1 renal masses in the MUSIC-KIDNEY registry, of which 30% met the definition of complete compliance. Most patients received care that was compliant with recommendations to obtain laboratory testing with 1448 (80%), 1545 (85%), and 1472 (81%) patients obtaining a CMP, CBC, and UA respectively. Only 862 (48%) patients underwent chest imaging. Significant variation exists in complete guideline compliance for contributing practices, ranging from 0% to 45% as well as for patients which underwent immediate intervention compared with initial observation (37% vs 23%) and patients with cT1b masses compared with cT1a masses (36% vs 28%). Conclusion: Complete guideline compliance in the initial evaluation of patients with cT1 renal masses is poor, which is mainly driven by omission of chest imaging. Significant variation in

guideline adherence is seen across practices, as well as patients undergoing an intervention vs observation, and cT1a vs cT1b masses. There are ample quality improvement opportunities to increase adherence and decrease variability with guideline recommendations.

Goldstein JA (2021). "Hemodynamic complications of right ventricular infarction: Role of the right atrium." JACC: Case Reports 3(9): 1174-1176.

[Full Text](#)

Department of Internal Medicine

Grace ZT, Magdich AR, Barinsky GL, Chen T, Karim M, Benson B, **Folbe AJ** and Svider PF (2021). "Assessing the academic influence of otolaryngologists on sinus and allergy research." International Forum of Allergy & Rhinology 11(8): 1256-1259.

[Full Text](#)

Department of Surgery

Gudeman AS, **Hinckel BB**, Oladeji L, Ray TE, Gersoff W, Farr J and Sherman SL (2021). "Evaluation of commercially available knee cartilage restoration techniques stratified by FDA approval pathway." American Journal of Sports Medicine. ePub Ahead of Print.

[Full Text](#)

Department of Orthopaedic Surgery

Guina J, Audu AK, Cameron J, Lemmen A, Mamidipaka A and Kletzka N (2021). "Prevalence of traumas and PTSD among individuals adjudicated not guilty by reason of insanity." Journal of the American Academy of Psychiatry and the Law 49(2): 194-201.

[Full Text](#)

Department of Psychiatry

Trauma and posttraumatic stress disorder (PTSD) are common among psychiatric and criminal populations, yet there have been few studies among forensic psychiatric populations and no known studies have specifically examined insanity acquittees. This study aimed to identify the prevalence of trauma and to assess recognition of PTSD in forensic settings. Using a cross-sectional self-report survey methodology, we examined traumas, adverse childhood experiences (ACEs), and PTSD in insanity acquittees (n = 107). Most insanity acquittees experienced trauma (86%, averaging 11 events) and ACEs (76%, averaging 3 types). The most commonly experienced traumas were sudden death of a loved one, witnessed death or serious injury, adult physical assault, and motor vehicle accident. Women were significantly more likely to experience any ACE (especially witnessing domestic violence, household members with mental illness, emotional abuse, and emotional neglect) and adult sexual assault. PTSD prevalence was 25 percent, with 97 percent of cases being previously undiagnosed. Sexual traumas and younger age were significantly associated with PTSD. These results suggest that insanity acquittees have high levels of trauma, ACEs, and PTSD. While PTSD was about seven times more common than in previous findings in the general population, it frequently goes undiagnosed in forensic settings. Potential explanations and implications of our findings are discussed.

Gupta R, Madanat L, Jindal V and **Gaikazian S** (2021). "Celiac plexus block complications: A case report and review of the literature." Journal of Palliative Medicine 24(9): 1409-1412.

[Request Form](#)

Department of Internal Medicine

Celiac plexus block (CPB) has been widely used as a treatment option for chronic intractable

abdominal pain resulting from intra-abdominal malignancies as well as benign conditions. Complications resulting from CPB have been long reported and include diarrhea, back pain, paraplegia, postural hypotension, pneumothorax, and local anesthesia toxicity. Diarrhea and postural hypotension are two most common complications with studies reporting incidences occurring in 44% to 60% and 10% to 52% of patients, respectively. Diarrhea is most often transient, resolving within 48 hours; however, literature reports cases in which diarrhea was chronic, debilitating, and in some instances life threatening. Persistent diarrhea proves difficult to treat. We report a case of a 76-year-old male with unresectable pancreatic adenocarcinoma who underwent computed tomography-guided CBP complicated by persistent diarrhea and fecal incontinence. After conventional antidiarrheal failed to improve the symptoms, octreotide proved to be beneficial and the patient reported significant improvement in symptoms.

Gupta R, Smalley M, Anusim N, Jindal V, Singh Rahi M, Gupta S, Gupta S and **Jaiyesimi I** (2021). "Paradigm shift in the management of metastatic nonsmall cell lung cancer." International Journal of Clinical Practice 75(11): e14533.

[Full Text](#)

Department of Internal Medicine

Background: Lung cancer is one of the leading causes of cancer mortality in the United States. The use of precision medicine in the past 10 years has significantly changed the therapeutic landscape of lung cancer. Management of advanced nonsmall cell lung cancer (NSCLC) has transitioned from a chemotherapeutic approach to targeted treatments and immunotherapeutic agents. Several tyrosine kinase inhibitors (TKIs) have been approved for patients with targeted mutations and patients who do not have driver mutations; immunotherapy has been recently approved as frontline therapy, which has resulted in marked improvement in overall survival and added a new tool in our armamentarium. AIMS: The purpose of this review is to highlight recent advancements in diagnostic approach and management strategies in patients with metastatic NSCLC. Materials and Methods: A literature search was conducted on Medline (via PubMed) and National Comprehensive Cancer Network Guidelines using the keywords "precision diagnosis," "advanced non-small cell lung cancer," "target therapies," and "immunotherapy." Conclusion: The use of next-generation sequencing has significantly changed our understanding of molecular oncogenic mechanisms of lung cancer. These advancements have created a paradigm shift in the treatment strategies of metastatic lung cancer from primarily chemotherapeutic approach to increasing use of targeted therapies and immune checkpoint inhibitors (ICI) leading to better survival rates and lesser toxicity.

Haight MA, Bahner I, Belovich AN, Bonaminio G, Brenneman A, Brooks WS, Chinn C, El-Sawi N, Haudek SB, Ikonne U, **McAuley RJ**, McKell D, Rowe R, Slivkoff M, **Taylor TAH** and Vari RC (2021). "Strategies for promoting inclusivity in health sciences education." Medical Science Educator. ePub Ahead of Print.

[Full Text](#)

Department of Foundational Medical Studies (OU)

Halalau A, Sonmez M, Uddin A, Karabon P, **Scherzer Z** and Keeney S (2021). "Efficacy of a pharmacist-managed diabetes clinic in high-risk diabetes patients, a randomized controlled trial - "Pharm-MD"." Journal of General Internal Medicine 36(SUPPL 1): S19-S19.

[Request Form](#)

Department of Internal Medicine

OUWB Medical Student Author

Halloran BP, **Jamil LH**, Lo SK, Reeson M, Vasiliauskas EA, Targan S, Ippoliti A, Mann NK and Melmed GY (2021). "Double-balloon endoscopy in Crohn disease: A tertiary referral center experience." Inflammatory Bowel Diseases 27(8): 1248-1255.

[Full Text](#)

Department of Foundational Medical Studies (BH)

Hamam MS, Klausner HA, France J, Tang A, **Swor RA**, Paxton JH, O'Neil BJ, Brent C, Neumar RW, Dunne RB, Reddi S and Miller JB (2021). "Prehospital tibial intraosseous drug administration is associated with reduced survival following out of hospital cardiac arrest: A study for the cares surveillance group." Resuscitation 167: 261-266.

[Full Text](#)

Department of Emergency Medicine

Background: Recent reports have questioned the efficacy of intraosseous (IO) drug administration for out-of-hospital cardiac arrest (OHCA) resuscitation. Our aim was to determine whether prehospital administration of resuscitative medications via the IO route was associated with lower rates of return of spontaneous circulation (ROSC) and survival to hospital discharge than peripheral intravenous (IV) infusion in the setting of OHCA. Methods: We obtained data on all OHCA patients receiving prehospital IV or IO drug administration from the three most populous counties in Michigan over three years. Data was from the Michigan Cardiac Arrest Registry to Enhance Survival (CARES) database. The association between route of drug administration and outcomes was tested using a matched propensity score analysis. Results: From a total of 10,626 OHCA patients, 6869 received parenteral drugs during their prehospital resuscitation (37.8% by IO) and were included in analysis. Unadjusted outcomes were lower in patients with IO vs. IV access: 18.3% vs. 23.8% for ROSC ($p < 0.001$), 3.2% vs. 7.6% for survival to hospital discharge ($p < 0.001$), and 2.0% vs. 5.8% for favorable neurological function ($p < 0.001$). After adjustment, IO route remained associated with lower odds of sustained ROSC (OR 0.72, 95% CI 0.63-0.81, $p < 0.001$), hospital survival (OR 0.48, 95% CI 0.37-0.62, $p < 0.001$), and favorable neurological outcomes (OR 0.42, 95% CI 0.30-0.57, $p < 0.001$). Conclusion: In this cohort of OHCA patients, the use of prehospital IO drug administration was associated with unfavorable clinical outcomes.

Harvey R, Hermez M, Schanz L, Karabon P, Wunderlich-Barillas T and **Halalau A** (2021). "Healthcare disparities correlated with in-hospital mortality in COVID-19 patients." International Journal of General Medicine 14: 5593-5596.

[Full Text](#)

OUWB Medical Student Author

Department of Internal Medicine

Introduction: Increasing age, male gender, African American race, and medical comorbidities have been reported as risk factors for COVID-19 mortality. We aimed to identify health-care disparities associated with increased mortality in COVID-19 patients. Methods: We performed an observational study of all hospitalized patients with SARS-CoV2 infection from within the largest multicenter healthcare system in Southeast Michigan, from February to December, 2020. Results: From 11,304 hospitalized patients, 1295 died, representing an in-hospital mortality rate of 11.5%. The mean age of hospitalized patients was 63.77 years-old, with 49.96% being males. Older age (AOR = 1.05, $p < 0.0001$), male gender (AOR = 1.43, $p < 0.0001$), divorced status (AOR = 1.25, $p = 0.0256$), disabled status (AOR = 1.42, $p = 0.0091$), and homemakers (AOR = 1.96, $p = 0.0216$) were significantly associated with in-hospital mortality. Conclusion: Older age, male

gender, divorced and disabled status and homemakers were significantly associated with in-hospital mortality if they developed COVID-19. Further research should aim to identify the underlying factors driving these disparities in COVID-19 in-hospital mortality.

Hasnie A and **Haines D** (2021). "The shocking truth: A case of persistent atrial fibrillation cardioversion with domestic electric shock." Journal of General Internal Medicine 36(SUPPL 1): S358-S358.

[Request Form](#)

Department of Internal Medicine

Heiner SM, Keihani S, McCormick BJ, Fang E, Hagedorn JC, Voelzke B, Nocera AP, Selph JP, Arya CS, Sensenig RL, Rezaee ME, Moses RA, Dodgion CM, Higgins MM, Gupta S, Mukherjee K, Majercik S, Smith BP, Glavin K, Broghammer JA, Schwartz I, Elliott SP, Breyer BN, Becerra CMC, Baradaran N, DeSoucy E, Zakaluzny S, Erickson BA, Miller BD, Santucci RA, Askari R, Carrick MM, **Burks FN**, Norwood S, Nirula R and Myers JB (2021). "Nephrectomy after high-grade renal trauma is associated with higher mortality: Results from the multi-institutional genitourinary trauma study (MiGUTS)." Urology.

[Request Form](#)

Department of Urology

Objective: To test the hypothesis that undergoing nephrectomy after high-grade renal trauma is associated with higher mortality rates. **Methods:** We gathered data from 21 Level-1 trauma centers through the Multi-institutional Genito-Urinary Trauma Study. Patients with high-grade renal trauma were included. We assessed the association between nephrectomy and mortality in all patients and in subgroups of patients after excluding those who died within 24 hours of hospital arrival and those with GCS \leq 8. We controlled for age, injury severity score (ISS), shock (systolic blood pressure <90 mmHg), and Glasgow Coma Scale (GCS). **Results:** A total of 1181 high-grade renal trauma patients were included. Median age was 31 and trauma mechanism was blunt in 78%. Injuries were graded as III, IV, and V in 55%, 34%, and 11%, respectively. There were 96 (8%) mortalities and 129 (11%) nephrectomies. Mortality was higher in the nephrectomy group (21.7% vs 6.5%, P <.001). Those who died were older, had higher ISS, lower GCS, and higher rates of shock. After adjusting for patient and injury characteristics nephrectomy was still associated with higher risk of death (RR: 2.12, 95% CI: 1.26-2.55). **Conclusion:** Nephrectomy was associated with higher mortality in the acute trauma setting even when controlling for shock, overall injury severity, and head injury. These results may have implications in decision making in acute trauma management for patients not in extremis from renal hemorrhage.

Hite A, Karabon P, Mando R, Hanzel G, **Shannon F** and **Abbas AE** (2021). "The impact of energy loss index and body mass index on prosthesis patient mismatch." Structural Heart: The Journal of the Heart Team 5(4): 376-381.

[Request Form](#)

OUWB Medical Student Author

Department of Surgery

Department of Internal Medicine

Hoang Roberts L, Vollstedt A, **Volin J**, McCartney T and **Peters KM** (2021). "Initial experience using a novel nerve stimulator for the management of pudendal neuralgia." Neurourology and Urodynamics 40(6): 1670-1677.

[Full Text](#)

OUWB Medical Student Author

Department of Urology

Aims: In patients with pudendal neuralgia, prior studies have shown efficacy in chronic stimulation with Interstim® (Medtronic, Inc.). This feasibility study reports on the initial experience of using a wireless system to power an implanted lead at the pudendal nerve, StimWave®, to treat pudendal neuralgia. **Methods:** Retrospective chart review identified patients with a lead placed at the pudendal nerve for neuralgia and powered wirelessly. Clinical outcomes were assessed at Postoperative visits and phone calls. Administered non-validated follow-up questionnaire evaluated the Global Response Assessment, percentage of pain improvement, satisfaction with device, and initial and current settings of the device (h/day of stimulation). **Results:** Thirteen patients had the StimWave® lead placed at the pudendal nerve, 12 (92%) female and 1 (7.6%) male. Mean age was 50 years (range: 20–58). Failed prior therapies include medical therapy (100%), pelvic floor physical therapy (92%), pudendal nerve blocks (85%), pelvic floor muscle trigger point injections (69%), neuromodulation (30.7%), or surgeries for urogenital pain (23.1%). After the trial period, 10/13 (76.9%) had >50% improvement in pain with 6/13 (46.1%) reporting 100% pain improvement. Nine underwent permanent lead placement. At last postoperative visit (range, 6–83 days), 5/9 patients reported >50% pain improvement. Seven patients reached for phone calls (22–759 days) reported symptoms to be “markedly improved” (n = 2), “moderately improved” (n = 4), or “slightly improved” (n = 1). At follow up, complications included lead migration (n = 2), broken wire (n = 1), or nonfunctioning antenna (n = 2). **Conclusion:** Complex patients with pudendal neuralgia may benefit from pudendal nerve stimulation via StimWave®.

Huynh KA, Billig JI, Lalonde DH and Chung KC (2021). "An assessment tool for hand surgical education needs and capacity in resource-limited settings." Plastic and Reconstructive Surgery 148(1): 42E-50E.
[Request Form](#)

OUWB Medical Student Author

Huynh KA, Cho HE, Yue M, Wang L, Chung KC and Waljee JF (2021). "Patterns of upper extremity reconstruction for patients with tetraplegia across the United States: A retrospective study." Journal of Hand Surgery. ePub Ahead of Print.

[Request Form](#)

OUWB Medical Student Author

Purpose: The rates of upper extremity reconstruction for patients with tetraplegia remain low. We performed a retrospective study to assess recent reconstruction rates and delineate factors associated with the occurrence of reconstruction. **Methods:** We examined the National Inpatient Sample database (2012-2017) for the rate of reconstruction for patients with tetraplegia. The details of provider distribution characteristics and neighborhood attributes were obtained from the American Medical Association Physician Masterfile and based on the area deprivation index, respectively. We calculated the mean reconstruction rate per year and generated multivariable logistic regression models to examine the influence of patient factors, hospital characteristics, and provider distribution on the odds of undergoing functional reconstruction for tetraplegia patients. **Results:** Among 404,660 encounters with patients with tetraplegia, only 1,430 (0.4%) patients underwent upper extremity reconstruction from 2012 to 2017, with a mean rate of 238 procedures per year. We identified 5,450 hand surgeons, 12,751 physiatrists, and 444 spinal cord injury specialists, with variation in their national distribution. A greater number of surgeons near SCIS was associated with increased probability of reconstruction (odds ratio [OR] 1.07, 95% confidence interval [CI] 1.03-1.12). The odds of surgery were greater for patients receiving care at urban teaching (OR 5.00, 95% CI 3.35-7.47) or

urban nonteaching (OR 1.71, 95% CI 1.11-2.63) hospitals, whereas those at private nonprofit (OR 0.67, 95% CI 0.58-0.78) or investor-owned (OR 0.65, 95% CI 0.52-0.82) hospitals had lower odds. Although most patients had insurance coverage, patients with a higher income or those who received subsidized care had greater odds of undergoing reconstruction. Conclusions: Reconstruction rates remain low and are correlated with the environment of care, financial factors, and provider availability. Policies that focus on reducing these factors in addition to increasing interspecialty collaboration could improve access to surgery for patients with tetraplegia.

Huynh KA, Jayaram M, Wang C, Lane M, Wang L, Momoh AO and Chung KVC (2021). "Factors associated with state-specific Medicaid expansion and receipt of autologous breast reconstruction among patients undergoing mastectomy." *JAMA Network Open* 4(8): e2119141.

[Full Text](#)

OUWB Medical Student Author

Hwang D, Kim HJ, Lee SP, Lim S, Koo BK, Kim YJ, Kook W, Andreini D, Al-Mallah MH, Budoff MJ, Cademartiri F, **Chinnaiyan K**, Choi JH, Conte E, Marques H, Goncalves PD, Gottlieb I, Hadamitzky M, Leipsic JA, Maffei E, Pontone G, **Raff GL**, Shin S, Lee BK, Chun EJ, Sung JM, Lee SE, Berman DS, Lin FY, Virmani R, Samady H, Stone PH, Narula J, Bax JJ, Shaw LJ, Min JK and Chang HJ (2021). "Topological data analysis of coronary plaques demonstrates the natural history of coronary atherosclerosis." *JACC - Cardiovascular Imaging* 14(7): 1410-1421.

[Full Text](#)

Department of Internal Medicine

Iftikhar H, **Nair GB** and Kumar A (2021). "Update on diagnosis and treatment of adult pulmonary alveolar proteinosis." *Therapeutics and Clinical Risk Management* 17: 701-710.

[Full Text](#)

Department of Internal Medicine

Pulmonary alveolar proteinosis (PAP) is a rare pulmonary surfactant homeostasis disorder resulting in buildup of lipo-proteinaceous material within the alveoli. PAP is classified as primary (autoimmune and hereditary), secondary, congenital and unclassifiable type based on the underlying pathogenesis. PAP has an insidious onset and can, in some cases, progress to severe respiratory failure. Diagnosis is often secured with bronchoalveolar lavage in the setting of classic imaging findings. Recent insights into genetic alterations and autoimmune mechanisms have provided newer diagnostics and treatment options. In this review, we discuss the etiopathogenesis, diagnosis and treatment options available and emerging for PAP.

Ip KI, **McCrohan M**, Morelen D, Fitzgerald K, Muzik M and Rosenblum K (2021). "Maternal emotion regulation difficulties and the intergenerational transmission of risk." *Journal of Child and Family Studies* 30(10): 2367-2378.

[Full Text](#)

OUWB Medical Student Author

James E, Evans M and **Mi M** (2021). "Correction to: Leadership training and undergraduate medical education: A scoping review." *Medical Science Educator* 31(4): 1557.

[Full Text](#)

OUWB Medical Student Author

Department of Foundational Medical Studies (OU)

Medical Library

James E, Evans M and Mi M (2021). "Leadership training and undergraduate medical education: A scoping review." Medical Science Educator 31(4): 1501-1509.

[Full Text](#)

OUWB Medical Student Author

Department of Foundational Medical Studies (OU)

Medical Library

The purpose of this scoping review is to fill the gap in understanding the current status of intervention-based studies regarding leadership training in undergraduate medical education. As of late, there is an increased focus on the role of physicians as leaders in their fields, and communities. In order to evaluate these studies, both the PubMed and ERIC databases were searched, and an ultimate total of 35 articles methodologies were evaluated for their general methodology, curricular content, specific teaching methods, and evaluation methodologies. There were a number of trends identified, as well as remaining gaps.

Jeong YS and **Menoch M** (2021). "I am blue: A toddler's Raynaud's phenomenon." BMJ Case Reports 14(7): e243848.

[Full Text](#)

Department of Emergency Medicine

Johnson J, Misch E, Chung MT, Hotaling J, **Folbe A**, Svider PF, Cabrera-Muffly C and Johnson AP (2021). "Flipping the classroom: An evaluation of teaching and learning strategies in the operating room." Annals of Otolaryngology, Rhinology, and Laryngology: 34894211036859.

[Full Text](#)

Department of Surgery

Objectives: With increasing restraints on resident's experiences in the operating room, with causes ranging from decreased time available to increasing operating room costs, focus has been placed on how to improve resident's education. The objectives of our study are to (1) determine barriers in education in the operating room, (2) identify effective learning and teaching strategies for residents in the operating room with a focus on the tonsillectomy procedure. Methods: An online survey was sent to all otolaryngology residents and residency programs for which contact information was available from January 2016 to March 2016 with 139 respondents. The 12-question survey focused on information regarding limitations to learning how to perform tonsillectomies as well as difficulties with teaching the same procedure. Resident responses were separated based on PGY level, and analysis was performed using t-tests and Chi squared analysis. Results: Common themes emerged from responses for both teaching and learning how to perform tonsillectomies. A significant limitation in learning the procedure was lack of visualization during the surgery (57% learning vs 60% teaching). For both learners and teachers, the monopolar cautery instrument was found to be the most preferred instrument to use during tonsillectomy (80% each). The majority of resident respondents (93%) felt that an instructional video would be beneficial for both learning and teaching the procedure. Conclusions: Significant limitations for learning and teaching in the operating room were identified for performing tonsillectomies. Future endeavors will focus on resolving these limitations to improve surgical education.

Kapila V and **Topf J** (2021). "Sodium-glucose co-transporter 2 inhibitor-associated euglycemic diabetic ketoacidosis after bariatric surgery: A case and literature review." Cureus 13(8): e17093.

[Full Text](#)

Department of Internal Medicine

Kassamali B, **Kus KJB**, Mazori DR, Maher J, Lopez CG, Kassamali AA, Vleugels RA and LaChance AH (2021). "Race and gender differences in systemic sclerosis: A retrospective multicenter cohort." International Journal of Dermatology. ePub Ahead of Print.

[Request Form](#)

OUWB Medical Student Author

Kassamali B, **Kus KJB**, Min MS, Cobos GA, LaChance AH and Mazori DR (2021). "Importance of nose wires in face masks: A reply to "diagnostic and management considerations for "maskne" in the era of COVID-19"." Journal of the American Academy of Dermatology 85: e151-e152.

[Full Text](#)

OUWB Medical Student Author

Kelekar A, Afonso N, Lucia V and Mascarenhas AK (2021). "COVID-19 vaccine hesitancy among medical and dental students." Journal of General Internal Medicine 36(SUPPL 1): S104-S105.

[Full Text](#)

Department of Foundational Medical Studies (OU)

Department of Internal Medicine

Kelekar AK, Lucia VC, Afonso NM and Mascarenhas AK (2021). "COVID-19 vaccine acceptance and hesitancy among dental and medical students." Journal of the American Dental Association 152(8): 596-603.

[Full Text](#)

OUWB Medical Student Author

Department of Internal Medicine

Khanna AK, Jungquist CR, Buhre W, **Soto R**, Di Piazza F and Saager L (2021). "Modeling the cost savings of continuous pulse oximetry and capnography monitoring of United States general care floor patients receiving opioids based on the prodigy trial." Advances in Therapy 38(7): 3745-3759.

[Full Text](#)

Department of Anesthesiology

Introduction: Despite the high incidence of respiratory depression on the general care floor and evidence that continuous monitoring improves patient outcomes, the cost-benefit of continuous pulse oximetry and capnography monitoring of general care floor patients remains unknown. This study modeled the cost and length of stay savings, investment break-even point, and likelihood of cost savings for continuous pulse oximetry and capnography monitoring of general care floor patients at risk for respiratory depression. Methods: A decision tree model was created to compare intermittent pulse oximetry versus continuous pulse oximetry and capnography monitoring. The model utilized costs and outcomes from the PRediction of Opioid-induced respiratory Depression In patients monitored by capnoGraphY (PRODIGY) trial, and was applied to a modeled cohort of 2447 patients receiving opioids per median-sized United States general care floor annually. Results: Continuous pulse oximetry and capnography monitoring of high-risk patients is projected to reduce annual hospital cost by \$535,531 and cumulative patient length of stay by 103 days. A 1.5% reduction in respiratory depression would achieve a break-even investment point and justify the investment cost. The probability of cost saving is $\geq 80\%$ if respiratory depression is decreased by $\geq 17\%$. Expansion of continuous monitoring to

high- and intermediate-risk patients, or to all patients, is projected to reach a break-even point when respiratory depression is reduced by 2.5% and 3.5%, respectively, with a $\geq 80\%$ probability of cost savings when respiratory depression decreases by $\geq 27\%$ and $\geq 31\%$, respectively. Conclusion: Compared to intermittent pulse oximetry, continuous pulse oximetry and capnography monitoring of general care floor patients receiving opioids has a high chance of being cost-effective.

Kim CM, Silverman BR and Cortes C (2021). "The challenges and opportunities of sustaining academia-sponsored community service programs for latinx youth during the COVID-19 pandemic." Journal of Hispanic Higher Education 20(3): 328-341.

[Full Text](#)

OUWB Medical Student Author

Department of Foundational Medical Studies (OU)

The COVID-19 pandemic has widely affected existing academia-sponsored community service initiatives. Little is known about the strategies to sustain these initiatives during a public health crisis and the potential effects on community well-being and education. In this case study, we describe the impact of the pandemic on service partnerships between our medical school and the Latinx community, discuss the challenges and opportunities of transitioning to a virtual community service model, and offer solutions and considerations.

Kim SK, Vishweswaraiah S, **Macknis J, Yilmaz A**, Lalwani A, Mishra NK, Guda C, Ogunyemi D, **Radhakrishna U and Bahado-Singh RO** (2021). "New-onset postpartum preeclampsia: Epigenetic mechanism and prediction." Journal of Maternal-Fetal & Neonatal Medicine. ePub Ahead of Print.

[Request Form](#)

Department of Pathology

Department of Obstetrics & Gynecology

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

identified novel potential biomarkers for the early post-partum prediction of NOPP.

Kishan AU, Karnes RJ, Romero T, Wong JK, Motterle G, Tosoian JJ, Trock BJ, Klein EA, Stish BJ, Dess RT, Spratt DE, Pilar A, Reddy C, Levin-Epstein R, Wedde TB, Lilleby WA, Fiano R, Merrick GS, Stock RG, Demanes DJ, Moran BJ, Braccioforte M, Huland H, Tran PT, Martin S, Martinez-Monge R, **Krauss DJ**, Abu-Isa EI, Alam R, Schwen Z, Chang AJ, Pisansky TM, Choo R, Song DY, Greco S, Deville C, McNutt T, DeWeese TL, Ross AE, Ciezki JP, Boutros PC, Nickols NG, Bhat P, Shabsovich D, Juarez JE, Chong N, Kupelian PA, D'Amico AV, Rettig MB, Berlin A, Tward JD, Davis BJ, Reiter RE, Steinberg ML, Elashoff D, Horwitz EM, Tendulkar RD and Tilki D (2021). "Comparison of multimodal therapies and outcomes among patients with high-risk prostate cancer with adverse clinicopathologic features." JAMA Network Open 4(7): e2115312.

[Full Text](#)

Department of Radiation Oncology

Knill C, Sandhu R, Halford R, **Snyder M** and **Seymour Z** (2021). "Commissioning cranial single-isocenter multi-target radiosurgery for the Versa HD." Journal of Applied Clinical Medical Physics 22(4): 108-114.

[Full Text](#)

Department of Radiation Oncology

Purpose: Brainlab's Elements Multiple Brain Mets SRS (MBMS) is a dedicated treatment planning system for single-isocenter multi-target (SIMT) cranial stereotactic radiosurgery (SRS) treatments. The purpose of this study is to present the commissioning experience of MBMS on an Elekta Versa HD. Methods: MBMS was commissioned for 6 X, 6 FFF, and 10 FFF. Beam data collected included: output factors, percent depth doses (PDDs), diagonal profiles, collimator transmission, and penumbra. Beam data were processed by Brainlab and resulting parameters were entered into the planning system to generate the beam model. Beam model accuracy was verified for simple fields. MBMS plans were created on previously treated cranial SRS patient data sets. Plans were evaluated using Paddick inverse conformity (ICI), gradient indices (GI), and cumulative volume of brain receiving 12 Gy. Dosimetric accuracy of the MBMS plans was verified using microDiamond, Gafchromic film, and SRS Mapcheck measurements of absolute dose and dose profiles for individual targets. Finally, an end-to-end (E2E) test was performed with a MR-CT compatible phantom to validate the accuracy of the simulation-to-delivery process. Results: For square fields, calculated scatter factors were within 1.0% of measured, PDDs were within 0.5% past d_{max} , and diagonal profiles were within 0.5% for clinically relevant off-axis distances (<10 cm). MBMS produced plans with ICIs < 1.5 and GIs < 5.0 for targets > 10 mm. Average point doses of the MBMS plans, measured by microDiamond, were within 0.31% of calculated (max 2.84%). Average per-field planar pass rates were 98.0% (95.5% minimum) using a 2%/1 mm/10% threshold relative gamma analysis. E2E point dose measurements were within 1.5% of calculated and Gafchromic film pass rates were 99.6% using a 5%/1 mm/10% threshold gamma analysis. Conclusion: The experience presented can be used to aid the commissioning of the Versa HD in the Brainlab MBMS treatment planning system, to produce safe and accurate SIMT cranial SRS treatments.

Kowalchuk RO, Shepard MJ, Sheehan K, Sheehan D, Faramand A, Niranjana A, Kano H, Gurewitz J, Bernstein K, Liscak R, Guseynova K, **Grills IS**, Parzen JS, Cifarelli CP, Rehman AA, Atik A, Bakhsheshian J, Zada G, Chang E, Giannotta S, Speckter H, Wu HM, Kondziolka D, Mathieu D, Lee CC, Warnick RE, Lunsford LD, Trifiletti DM and Sheehan JP (2021). "Treatment of WHO grade 2 meningiomas with stereotactic radiosurgery: Identification of an optimal group for SRS using RPA." International Journal of Radiation Oncology Biology Physics 110(3): 804-814.

[Request Form](#)

Department of Radiation Oncology

Kumar M, **Long G**, Studzinski D, Callahan R and **Brown OW** (2021). "Endovascular aortic aneurysm repair is associated with late decline of renal function compared with patients with peripheral arterial disease." Journal of Vascular Surgery 74(3): E126-E127.

[Full Text](#)

Department of Surgery

Kus KJB, Waldman A and Ruiz ES (2021). "Streamlining care for skin cancers in the COVID-19 pandemic." Dermatologic Surgery 47(7): 1011-1012.

[Full Text](#)

OUWB Medical Student Author

Lau WC, Shannon FL, Bolling SF, Romano MA, Sakwa MP, Trescot A, Shi LX, Johnson RL, Starnes VA and Grehan JF (2021). "Intercostal cryo nerve block in minimally invasive cardiac surgery: The prospective randomized frost trial." Pain and Therapy 10:1579–1592.

[Full Text](#)

Department of Anesthesiology

Department of Surgery

Laucis AMB, Hochstedler KA, Boike TP, Movsas B, **Stevens CW**, Kestin LL, Dominello MM, Wilkie J, **Grills IS**, Matuszak M, Hayman J, Paximadis PA, Schipper MJ and Jolly S (2021). "Predictors of early hospice or death in patients with inoperable lung cancer treated with curative intent." Journal of Clinical Oncology 39(15 SUPPL): e20525.

[Full Text](#)

Department of Radiation Oncology

Background: Treatment for inoperable stage III non-small cell lung cancer (NSCLC) involves aggressive chemo-radiotherapy (CRT). While outcomes have improved with immunotherapy, some patients transition to hospice or die early in their treatment course. To help identify these patients, we developed a predictive model for early poor outcomes in NSCLC patients treated with curative intent. Methods: In a statewide consortium involving 27 sites, information was collected prospectively on stage II-III NSCLC patients who received curative CRT from April 2012 to November 2019. We defined an early poor outcome as termination of treatment due to hospice enrollment or death within 5 months of initiating radiation therapy. Potential predictors included clinical characteristics and patient reported outcomes (PROs) from validated questionnaires. Logistic regression models were used to assess potential predictors and build predictive models. Multiple imputation was used to handle missing data. We used Lasso regularized logistic regression to build a predictive model with multiple predictor variables. Results: Of the total of 2267 included patients, 128 patients discontinued treatment early due to hospice enrollment or death. The mean age of the 128 patients was 71 years old (range 48-91) and 59% received concurrent chemotherapy. Significant uni-variable predictors of early hospice or death were advanced age, worse ECOG performance status, high PTV volume, short distance to normal tissue critical structures, high mean heart dose, uninsured status, lower scores on the Functional and Physical Well-Being scale and the Lung Cancer Symptoms sub-scale of the FACT-L quality of life instrument, as well as higher levels of patient-reported lack of energy, cough, and shortness of breath. The best predictive model included age, ECOG performance status, PTV volume, mean heart dose, patient insurance status, and patient-reported lack of energy and

cough. The pooled estimate of area under the curve (AUC) for this multivariable model was 0.71, with a negative predictive value of 95%, specificity of 97%, positive predictive value of 23%, and sensitivity of 16% at a predicted risk threshold of 20%. Conclusions: Our models identified a combination of clinical variables and PROs that may help identify individuals with inoperable NSCLC undergoing curative intent chemoradiotherapy who are at a high risk of early hospice enrollment or death. These preliminary results are encouraging and warrant further evaluation in a larger cohort of patients.

Lawler PR, Goligher EC, Berger JS, Neal MD, McVerry BJ, Nicolau JC, Gong MN, Carrier M, Rosenson RS, Reynolds HR, Turgeon AF, Escobedo J, Huang DT, Bradbury CA, Houston BL, Kornblith LZ, Kumar A, Kahn SR, Cushman M, McQuilten Z, Slutsky AS, Kim KS, Gordon AC, Kirwan BA, Brooks MM, Higgins AM, Lewis RJ, Lorenzi E, Berry SM, Berry LR, Aday AW, Al-Beidh F, Annane D, Arabi YM, Aryal D, Baumann Kreuziger L, Beane A, Bhimani Z, Bihari S, Billett HH, Bond L, Bonten M, Brunkhorst F, Buxton M, Buzgau A, Castellucci LA, Chekuri S, Chen JT, Cheng AC, Chkhikvadze T, Coiffard B, Costantini TW, de Brouwer S, Derde LPG, Detry MA, Duggal A, Džavík V, Efron MB, Estcourt LJ, Everett BM, Fergusson DA, Fitzgerald M, Fowler RA, Galanaud JP, Galen BT, Gandotra S, García-Madrona S, Girard TD, Godoy LC, Goodman AL, Goossens H, Green C, Greenstein YY, Gross PL, Hamburg NM, Haniffa R, Hanna G, Hanna N, Hegde SM, Hendrickson CM, Hite RD, Hindenburg AA, Hope AA, Horowitz JM, Horvat CM, Hudock K, Hunt BJ, Husain M, Hyzy RC, Iyer VN, Jacobson JR, Jayakumar D, Keller NM, Khan A, Kim Y, Kindzelski AL, King AJ, Knudson MM, Kornblith AE, Krishnan V, Kutcher ME, Laffan MA, Lamontagne F, Le Gal G, Leeper CM, Leifer ES, Lim G, Lima FG, Linstrum K, Litton E, Lopez-Sendon J, Lopez-Sendon Moreno JL, Lother SA, Malhotra S, Marcos M, Saud Marinez A, Marshall JC, Marten N, Matthay MA, McAuley DF, McDonald EG, McGlothlin A, McGuinness SP, Middeldorp S, Montgomery SK, Moore SC, Morillo Guerrero R, Mouncey PR, Murthy S, **Nair GB**, Nair R, Nichol AD, Nunez-Garcia B, Pandey A, Park PK, Parke RL, Parker JC, Parnia S, Paul JD, Pérez González YS, Pompilio M, Prekker ME, Quigley JG, Rost NS, Rowan K, Santos FO, Santos M, Olombrada Santos M, Satterwhite L, Saunders CT, Schutgens REG, Seymour CW, Siegal DM, Silva DG, Jr., Shankar-Hari M, Sheehan JP, Singhal AB, Solvason D, Stanworth SJ, Tritschler T, Turner AM, van Bentum-Puijk W, van de Veerdonk FL, van Diepen S, Vazquez-Grande G, Wahid L, Wareham V, Wells BJ, Widmer RJ, Wilson JG, Yuriditsky E, Zampieri FG, Angus DC, McArthur CJ, Webb SA, Farkouh ME, Hochman JS and Zarychanski R (2021). "Therapeutic anticoagulation with heparin in noncritically ill patients with COVID-19." New England Journal of Medicine 385(9): 790-802.

[Full Text](#)

Department of Internal Medicine

Background: Thrombosis and inflammation may contribute to the risk of death and complications among patients with coronavirus disease 2019 (COVID-19). We hypothesized that therapeutic-dose anticoagulation may improve outcomes in noncritically ill patients who are hospitalized with COVID-19. Methods: In this open-label, adaptive, multiplatform, controlled trial, we randomly assigned patients who were hospitalized with COVID-19 and who were not critically ill (which was defined as an absence of critical care-level organ support at enrollment) to receive pragmatically defined regimens of either therapeutic-dose anticoagulation with heparin or usual-care pharmacologic thromboprophylaxis. The primary outcome was organ support-free days, evaluated on an ordinal scale that combined in-hospital death (assigned a value of -1) and the number of days free of cardiovascular or respiratory organ support up to day 21 among patients who survived to hospital discharge. This outcome was evaluated with the use of a Bayesian statistical model for all patients and according to the baseline d-dimer level. Results: The trial was stopped when prespecified criteria for the superiority of therapeutic-dose anticoagulation were met. Among 2219 patients in the final analysis, the probability that therapeutic-dose anticoagulation increased organ support-free days as compared with usual-

care thromboprophylaxis was 98.6% (adjusted odds ratio, 1.27; 95% credible interval, 1.03 to 1.58). The adjusted absolute between-group difference in survival until hospital discharge without organ support favoring therapeutic-dose anticoagulation was 4.0 percentage points (95% credible interval, 0.5 to 7.2). The final probability of the superiority of therapeutic-dose anticoagulation over usual-care thromboprophylaxis was 97.3% in the high d-dimer cohort, 92.9% in the low d-dimer cohort, and 97.3% in the unknown d-dimer cohort. Major bleeding occurred in 1.9% of the patients receiving therapeutic-dose anticoagulation and in 0.9% of those receiving thromboprophylaxis. Conclusions: In noncritically ill patients with COVID-19, an initial strategy of therapeutic-dose anticoagulation with heparin increased the probability of survival to hospital discharge with reduced use of cardiovascular or respiratory organ support as compared with usual-care thromboprophylaxis. (ATTACC, ACTIV-4a, and REMAP-CAP ClinicalTrials.gov numbers, NCT04372589, NCT04505774, NCT04359277, and NCT02735707.).

Lee PB, Hojjat H, Lucas J, Chung MT, **Spillinger A**, Meleca JB, Svider P, Shkoukani M, Johnson A and **Folbe A** (2021). "Cost-effectiveness of open vs. endoscopic repair of Zenker's diverticulum." Annals of Otolaryngology, Rhinology, and Laryngology: 34894211028507.

[Full Text](#)

OUWB Medical Student Author

Department of Surgery

Objective: To evaluate the cost-effectiveness of open versus endoscopic surgical repair of Zenker's diverticulum. Methods: In this study, an economic decision tree was utilized to compare the cost-effectiveness of open surgery compared to endoscopic surgery. The primary outcome in this analysis was the incremental cost-effectiveness ratio (ICER) that was calculated based on the economic decision tree. The probability of post-operative esophageal perforation complications, revision rates, and effectiveness of each procedure along with associated costs were extracted to construct the decision tree. Univariate sensitivity analysis was then utilized to determine how changes in esophageal perforation rate affect the cost-effectiveness of each surgical approach. Results: The ICER of open surgery for Zenker's diverticulum was \$67 877, above most acceptable willingness to pay (WTP) thresholds. Additionally, if the probability of esophageal perforation with endoscopic surgery is above 5%, then open surgery becomes a more cost-effective option. Probabilistic sensitivity analysis using Monte Carlo simulations also showed that at the WTP thresholds of \$30 000 and \$50 000, endoscopic surgery is the most cost-effective method with 83.9% and 67.6% certainty, respectively. Conclusion: Open surgery and endoscopic surgery are 2 treatment strategies for Zenker's diverticulum that each have their own advantages and disadvantages that can complicate the decision-making process. With no previous cost-effectiveness analysis of open versus endoscopic surgery for Zenker's diverticulum, our results support the endoscopic approach at most common WTP thresholds. Particularly with the current focus on rising healthcare costs, our results can serve as an important adjunct to medical decision-making for patients undergoing treatment for Zenker's diverticulum.

Lee SE, Sung JM, Andreini D, Al-Mallah MH, Budoff MJ, Cademartiri F, **Chinnaiyan K**, Choi JH, Chun EJ, Conte E, Gottlieb I, Hadamitzky M, Kim YJ, Lee BK, Leipsic JA, Maffei E, Marques H, Goncalves PD, Pontone G, Shin S, Stone PH, Samady H, Virmani R, Narula J, Berman DS, Shaw LJ, Bax JJ, Lin FY, Min JK and Chang HJ (2021). "Association between aortic valve calcification progression and coronary atherosclerotic plaque volume progression in the paradigm registry." Radiology 300(1): 79-86.

[Request Form](#)

Department of Internal Medicine

Li XQ, Ding XF, Zheng WL, Liu G, Janssens G, Souris K, Barragan-Montero AMM, Yan D, Stevens C and Kabolizadeh P (2021). "Linear energy transfer incorporated spot-scanning proton arc therapy optimization: A feasibility study." *Frontiers in Oncology* 11: 698537.

[Full Text](#)

Department of Radiation Oncology

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 J, Abdulhak M and Chang V (2021). "A matched cohort analysis of drain usage in elective anterior cervical discectomy and fusion: A Michigan Spine Surgery Improvement Collaborative (MSSIC) study." *Spine*. ePub Ahead of Print.

[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 7,943 patients during the study period. Propensity-score matching yielded 3,206 pairs. On univariate analysis of matched cohorts, there were no differences in rate of post-operative 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 (RR 1.23, 95% 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.

Lin KF, Bojrab DI, Fritz CG, Vandieren A, Babu SC and Bojrab DI, 2nd (2021). "Hearing outcomes after surgical manipulation of the membranous labyrinth during superior semicircular canal dehiscence plugging or posterior semicircular canal occlusion." *Otology & Neurotology* 42(6): 806-814.

[Full Text](#)

Department of Surgery

OUIWB Medical Student Author

Objective: To analyze audiometric data after surgical manipulation of the membranous labyrinth during plugging of superior semicircular canal dehiscence (SSCD) or posterior semicircular canal occlusion (PSCO) for benign paroxysmal positional vertigo. **Study Design:** Retrospective chart review. **Setting:** Tertiary referral center. **Patients:** Patients undergoing plugging of SSCD or PSCO between 2009 and 2019. **Main Outcome Measures:** Pre- and postoperative audiometric data were collected per AAO-HNS guidelines. Hearing outcomes at initial and last follow-up were compared. Subanalyses were performed for surgical approach and age. **Results:** Eighty-seven total procedures in 76 patients including 43 middle cranial fossa for SSCD, 29 transmastoid SSCD, and 15 PSCO. Mean preoperative air-conduction-pure-tone averages was 21.1 ± 14.9 dB

compared with 26.1 ± 19.6 dB at initial follow-up and 24.4 ± 18.6 dB at last follow-up ($p = 0.006$). Mean preoperative bone-conduction-pure-tone average was 14.3 ± 11.9 dB compared with 18.3 ± 15.6 dB at initial follow-up and 18.5 ± 16.9 dB at last follow-up ($p < 0.001$). There were five cases of hearing loss >20 dB including one case of profound sensorineural hearing loss >55 dB. PSCO resulted in the most hearing loss at initial follow-up but largely resolves with time. Transmastoid approaches for SSCD resulted in more hearing loss compared with middle cranial fossa. Hearing outcomes were generally stable for SSCD approaches but showed improvement over time for PSCO. Age >50 was associated with greater hearing loss of 5.2 ± 11.1 dB compared with 1.3 ± 10.5 dB but did not reach statistical significance ($p = 0.110$). Conclusions: Surgical manipulation of the membranous labyrinth results in statistically significant hearing loss in a pooled analysis. Transient hearing loss is observed in PSCO and TM SSCD plugging was associated with postoperative hearing loss. There was a trend toward increased hearing loss in patients >50 years old.

Liu PL, Gao XS, Wang ZS, Li XM, Xi C, Jia CH, Xie M, Lyu F and **Ding XF** (2021). "Investigate the dosimetric and potential clinical benefits utilizing stereotactic body radiation therapy with simultaneous integrated boost technique for locally advanced pancreatic cancer: A comparison between photon and proton beam therapy." *Frontiers in Oncology* 11: 747532.

[Full Text](#)

Department of Radiation Oncology

Macki M, Hamilton T, Lim S, Telemi E, Bazydlo M, Nerenz DR, Zakaria HM, Schultz L, Khalil JG, **Perez-Cruet MJ**, Aleem IS, Park P, Schwalb JM, Abdulhak MM and Chang V (2021). "Disparities in outcomes after spine surgery: A Michigan Spine Surgery Improvement Collaborative study." *Journal of Neurosurgery: Spine* 35(1): 91-99.

[Request Form](#)

Department of Neurosurgery

Objective: Most studies on racial disparities in spine surgery lack data granularity to control for both comorbidities and self-assessment metrics. Analyses from large, multicenter surgical registries can provide an enhanced platform for understanding different factors that influence outcome. In this study, the authors aimed to determine the effects of race on outcomes after lumbar surgery, using patient-reported outcomes (PROs) in 3 areas: The North American Spine Society patient satisfaction index, the minimal clinically important difference (MCID) on the Oswestry Disability Index (ODI) for low-back pain, and return to work. Methods: The Michigan Spine Surgery Improvement Collaborative was queried for all elective lumbar operations. Patient race/ethnicity was categorized as Caucasian, African American, and "other." Measures of association between race and PROs were calculated with generalized estimating equations (GEEs) to report adjusted risk ratios. Results: The African American cohort consisted of a greater proportion of women with the highest comorbidity burden. Among the 7980 and 4222 patients followed up at 1 and 2 years postoperatively, respectively, African American patients experienced the lowest rates of satisfaction, MCID on ODI, and return to work. Following a GEE, African American race decreased the probability of satisfaction at both 1 and 2 years postoperatively. Race did not affect return to work or achieving MCID on the ODI. The variable of greatest association with all 3 PROs at both follow-up times was postoperative depression. Conclusions: While a complex myriad of socioeconomic factors interplay between race and surgical success, the authors identified modifiable risk factors, specifically depression, that may improve PROs among African American patients after elective lumbar spine surgery.

Macor S, Pignatto S, **Capone Jr A**, Piermarocchi S and Lanzetta P (2021). "Lens-sparing vitrectomy for stage 4a retinopathy of prematurity in infants with aggressive-posterior rop: Anatomic and functional results." European Journal of Ophthalmology 31(4): 2020-2026.

[Request Form](#)

Department of Ophthalmology

Aim: To assess long-term anatomic and functional outcomes of early lens-sparing vitrectomy (LSV) for stage 4A retinopathy of prematurity (ROP) in infants with aggressive-posterior ROP (AP-ROP) which progressed to retinal detachment despite laser treatment. Methods: Chart review of infants who underwent early 25-gage LSV for stage 4A ROP. Outcomes were anatomic success, mean visual acuity (VA), development of postoperative complications, and refractive changes. Follow-up examinations were performed at 1, 3, 6, 12, and then every 6 months. Results: Ten eyes of seven preterm infants who underwent LSV were included. Mean follow-up was 36 ± 13.4 months and mean postmenstrual age (PMA) at last follow-up was 37 ± 13.7 months. Mean gestational age (GA) and weight at birth was 26 ± 1.4 weeks and 639 ± 180 g. Two eyes had vitreous hemorrhage 4 and 14 days after surgery, respectively. At last follow-up anatomic success was 100%, mean VA was 20/80 and eight eyes (80%) had high myopic refractive correction (mean spherical equivalent -11.25 D). Conclusion: Early LSV for stage 4A ROP with AP-ROP and progression to retinal detachment is efficacious in terms of anatomic and functional outcomes. Anatomic success is associated with visual improvement despite possible myopic refraction changes during follow-up.

Maerz T, Newton MD, Fleischer M, Hartner SE, Gawronski K, Junginger L and **Baker KC** (2021). "Traumatic joint injury induces acute catabolic bone turnover concurrent with articular cartilage damage in a rat model of posttraumatic osteoarthritis." Journal of Orthopaedic Research 39(9): 1965-1976.

[Full Text](#)

Department of Orthopaedic Surgery

Assess acute alterations in bone turnover, microstructure, and histomorphometry following noninvasive anterior cruciate ligament rupture (ACLR). Twelve female Lewis rats were randomized to receive noninvasive ACLR or Sham loading ($n = 6$ /group). In vivo μ CT was performed at 3, 7, 10, and 14 days postinjury to quantify compartment-dependent subchondral (SCB) and epiphyseal trabecular bone remodeling. Near-infrared (NIR) molecular imaging was used to measure in vivo bone anabolism (800 CW BoneTag) and catabolism (Cat K 680 FAST). Metaphyseal bone remodeling and articular cartilage morphology was quantified using ex vivo μ CT and contrast-enhanced μ CT, respectively. Calcein-based dynamic histomorphometry was used to quantify bone formation. OARSI scoring was used to assess joint degeneration, and osteoclast number was quantified on TRAP stained-sections. ACLR induced acute catabolic bone remodeling in subchondral, epiphyseal, and metaphyseal compartments. Thinning of medial femoral condyle (MFC) SCB was observed as early as 7 days postinjury, while lateral femoral condyles (LFCs) exhibited SCB gains. Trabecular thinning was observed in MFC epiphyseal bone, with minimal changes to LFC. NIR imaging demonstrated immediate and sustained reduction of bone anabolism ($\sim 15\%$ – 20%), and a $\sim 32\%$ increase in bone catabolism at 14 days, compared to contralateral limbs. These findings were corroborated by reduced bone formation rate and increased osteoclast numbers, observed histologically. ACLR-injured femora had significantly elevated OARSI score, cartilage thickness, and cartilage surface deviation. ACL rupture induces immediate and sustained reduction of bone anabolism and overactivation of bone catabolism, with mild-to-moderate articular cartilage damage at 14 days postinjury.

Majmudar G, Ivan K, Rangarajan T and **Zakalik D** (2021). "Improved universal tumor screening program with paired testing: Experience at a large community-based teaching hospital." Journal of Clinical Oncology 39(15 SUPPL): e22505.

[Full Text](#)

Department of Internal Medicine

Background: Lynch syndrome (LS) is the most common cause of hereditary predisposition to colon, endometrial, and other cancers. The universal tumor screening program for LS at Beaumont Health (BH) utilizes immunohistochemistry (IHC) of the mismatch repair (MMR) proteins to identify patients for genetics evaluation. We present the 8-year experience of the program at a large communitybased teaching hospital. Methods:The MMR IHC results for all colorectal cancer (CRC) resection specimens screened from August 2012 to September 2020 were reviewed. Specimens with absent MLH1 and PMS2 were evaluated for MLH1 promoter hypermethylation with reflex to BRAF V600E mutation analysis. All abnormal results were referred for cancer genetics evaluation. The distribution of abnormal MMR and germline genetic testing results was analyzed. Results: Specimens from 2361 CRC resections were screened, and 511 specimens had abnormal MMR IHC (22%). Most cases of absent MLH1 and PMS2 were explained by hypermethylation or BRAF analysis (n = 338, 66% of all abnormal, 89% of MLH1 and PMS2). Of the remaining cases showing MMR deficiency (n = 173), the most common result was absence of MSH2 and MSH6 (n = 67), followed by absence of MLH1 and PMS2 (n=41, see table). Germline genetic testing of 83 individuals with abnormal MMR IHC revealed 49 cases of Lynch syndrome [MLH1 (n=9), MSH2 (n= 25), MSH6 (n=7), PMS2 (n=7), EPCAM (n=1)]. A significant proportion of cases (n=34, 40%) had negative germline testing, and had unexplained MMR deficiency. Paired germline/tumor testing was implemented in 2017, and 14 patients had this analysis. Using this approach, 5 individuals were identified to have somatic mutations explaining their result, and the proportion of unexplained cases was reduced to 29% (n = 4). Conclusions: Recent advances in cancer screening and therapeutics have underscored the importance of analyzing tumors for mismatch repair deficiency (dMMR), with known challenges to implementation and interpretation of results. The BH cancer genetics program has demonstrated successful growth of a universal tumor screening program over 8 years. This has led to the identification of a large number of dMMR tumors (22% of all CRC resections) and LS cases (2% of all CRC resections), which impacts management for patients and their families. Recent implementation of paired germline/tumor testing has improved the testing algorithm, and resulted in more accurate interpretation of a greater proportion of abnormal IHC results. This combined approach allows for focused high-risk screening for LS patients, access to novel therapeutic interventions including immune therapies for patients with dMMR tumors, and future precision oncology approaches.

Marlow ED and **Mahmoud TH** (2021). "Current management strategies for atypical macular holes." Taiwan Journal of Ophthalmology 11(3): 221-231.

[Full Text](#)

Department of Ophthalmology

This review evaluates the current surgical management options for refractory and atypical macular holes (MH) and proposes a treatment paradigm for approaching complex cases. A review of literature was performed to deliver a thorough discussion of the epidemiology and pathophysiology of MH as well as the historic evolution of surgical management strategies. With this context established, an update on recent surgical advances for management of large, chronic, and highly myopic MH is provided. New small MH may be adequately treated with pars plana vitrectomy, while those ≥ 300 μm should undergo internal limiting membrane (ILM) peel.

For MH $\geq 400 \mu\text{m}$ with risk factors for failure, primary intervention should involve creation of an ILM flap and various methods of flap creation are discussed. For very large MH $\geq 700 \mu\text{m}$ or in refractory cases, autologous retinal transplants and other recently proposed procedures should be considered. While typical MHs enjoy high initial surgical success rates, atypical and refractory MH require additional intraoperative and postoperative considerations to maximize surgical success and optimize vision. With many techniques at the surgeon's disposal, patient selection becomes critical to improving outcomes.

Mascarenhas AK, **Lucia VC**, **Kelekar A** and **Afonso NM** (2021). "Dental students' attitudes and hesitancy toward COVID-19 vaccine." *Journal of Dental Education* 85(9): 1504-1510.

[Full Text](#)

Department of Foundational Medical Studies (OU)

Department of Internal Medicine

Background: Dentists are a group of providers who have been identified by CDC at high risk of exposure to COVID-19 through their contact with patients. This would apply to dental students as well. Thus, it is important to achieve high COVID-19 vaccination rates in this group. Further, as healthcare providers, they are entrusted with providing health recommendations and advocating for their patients, community, and profession, including vaccinations. Methods: Using QualtricsXM an online platform, in 2020, a survey was administered anonymously to dental students at three dental schools to assess the attitudes of dental students to the novel COVID-19 vaccine. Factors and reasons associated with vaccine hesitancy and acceptance toward the COVID-19 vaccine and likelihood of recommending and giving the vaccination to patients were assessed. Results: Nearly, all participants had positive attitudes toward vaccines in general, agreed they would likely be exposed to COVID-19, and personally knew someone who had COVID-19; however, only 56% are willing to take a COVID-19 vaccine as soon as an FDA-approved vaccine was available. Of those unwilling to take the vaccine, 63% reported they would take it if mandated by the health systems/dental school; however, 16.3% of the overall respondents would not take the COVID-19 vaccine even if mandated. Several factors are associated with vaccine acceptance and the likelihood of recommending the vaccination, such as trusting public health experts, concerns about side effects, and agreeing with vaccine mandates. Conclusion: Our results highlight the need for an educational curriculum about the safety and effectiveness to promote the uptake of COVID-19 vaccine.

McLean SA, Ressler K, Koenen KC, Neylan T, Germine L, Jovanovic T, Clifford GD, Zeng D, An X, Linnstaedt S, Beaudoin F, House S, Bollen KA, Musey P, Hendry P, Jones CW, Lewandowski C, **Swor R**, Datner E, Mohiuddin K, Stevens JS, Storrow A, Kurz MC, McGrath ME, Fermann GJ, Hudak LA, Gentile N, Chang AM, Peak DA, Pascual JL, Seamon MJ, Sergot P, Peacock WF, Diercks D, Sanchez LD, Rathlev N, Domeier R, Haran JP, Pearson C, Murty VP, Insel TR, Dagum P, Onnela JP, Bruce SE, Gaynes BN, Joormann J, Miller MW, Pietrzak RH, Buysse DJ, Pizzagalli DA, Rauch SL, Harte SE, Young LJ, Barch DM, Lebois LAM, van Rooij SJH, Luna B, Smoller JW, Dougherty RF, Pace TWW, Binder E, Sheridan JF, Elliott JM, Basu A, Fromer M, Parlikar T, Zaslavsky AM and Kessler R (2021). "Correction: The Aurora Study: A longitudinal, multimodal library of brain biology and function after traumatic stress exposure." *Molecular Psychiatry* 26(7): 3658.

[Full Text](#)

Department of Emergency Medicine

Minkowitz H, **Soto R**, Fanikos J, Hammer GB, Mehta N, Hu J and Redan J (2021). "Opioid-free recovery after hernia repair with htx-011 as the foundation of a non-opioid, multimodal analgesia regimen in a

real-world setting: A randomized, open-label study." [Pain and Therapy](#). ePub Ahead of Print.

[Full Text](#)

Department of Anesthesiology

Introduction: Helping Opioid Prescription Elimination (HOPE) is a project designed to provide surgeons with practical, real-world solutions to effectively manage postoperative pain and eliminate the need for opioids using HTX-011 (extended-release bupivacaine/low-dose meloxicam). In phase 3 herniorrhaphy and bunionectomy studies, HTX-011 without multimodal analgesia (MMA) was superior to bupivacaine hydrochloride in reducing pain and opioid consumption. Here, we examine the HOPE Hernia-1 study, which was designed to compare alternating ibuprofen/acetaminophen with concurrent use as part of an HTX-011-based non-opioid MMA regimen in patients undergoing herniorrhaphy and to evaluate the effectiveness of a personalized opioid prescription algorithm. Methods: Patients undergoing outpatient open inguinal herniorrhaphy with intraoperative administration of HTX-011 (300 mg bupivacaine/9 mg meloxicam) were randomly assigned to receive a scheduled oral regimen of ibuprofen plus acetaminophen, either taken together every 6 hours or alternating every 3 hours, for 5 days following surgery, while awake. Based on the opioid prescription algorithm evaluated here, patients could receive an oxycodone prescription upon discharge only if they had a numeric rating scale pain score of ≥ 6 at discharge and/or had received a postoperative rescue opioid. Results: The majority of patients did not require an opioid prescription through 2 weeks following surgery, and this was similar between cohorts (alternating MMA, 89.1%; concurrent MMA, 93.6%). Patient satisfaction was high for both regimens, and 95% of patients had an opioid-free recovery. No patient discharged without a prescription called back to request one. Treatment was well tolerated, without evidence of nonsteroidal anti-inflammatory drug-related toxicity. Conclusions: HTX-011, used with over-the-counter products ibuprofen/acetaminophen and personalized opioid prescription algorithm in a real-world environment, has the potential to reduce opioid use and opioid prescriptions after herniorrhaphy without compromising patient satisfaction.

Nandalur KR, Colvin R, Walker D, **Nandalur SR**, **Seifman B**, Gangwish D and **Hafron J** (2021). "Benign prostate hyperplasia as a potential protective factor against prostate cancer: Insights from a magnetic resonance imaging study of compositional characteristics." [Prostate](#). ePub Ahead of Print.

[Full Text](#)

Department of Radiation Oncology

Department of Diagnostic Radiology and Molecular Imaging

Department of Urology

Nasrallah A, **Ayyash M**, Bazzi F, Nasrallah M and Blackwood RA (2021). "The rates of substance use among Arab American young adults in a Michigan community." [International Journal of Mental Health and Addiction](#). ePub Ahead of Print.

[Full Text](#)

OUWB Medical Student Author

Navin MC, **Brummett AL** and **Wasserman JA** (2021). "Three kinds of decision-making capacity for refusing medical interventions." [American Journal of Bioethics](#). ePub Ahead of Print.

[Full Text](#)

Department of Foundational Medical Studies (OU)

Newson J, Sefa N and **Berger D** (2021). "Identifying acute myocardial infarction in ventricular-paced

patients: The effectiveness of modified sgarbossa criteria." American Journal of Emergency Medicine 45: 680.e681-680.e684.

[Full Text](#)

Department of Emergency Medicine

Screening for acute myocardial infarction (AMI) in patients with ventricular pacemakers (VP) is a diagnostic challenge. We report a case where application of the Modified Sgarbossa criteria (mSC) would have immediately identified AMI in a patient with a VP and merited strong advocacy for emergent cardiac catheterization. A 94-year-old male with VP presented to the emergency department (ED) after he had burning sensation in his chest. Initial ECG demonstrated >5 mm of discordant ST elevation in leads III and aVF which gave him 2 points per original Sgarbossa Criteria (oSC) and not meeting criteria for activation for cardiac catheterization. An ECG at three and a half hours after arrival demonstrated a dynamic change with new V2 concordant depression. At this point, the concordant depression (3 points) and excessive discordance (2 points) gave him a total of 5 points, which then met the oSC for activation of cardiac catheterization (≥ 3 points). Troponin I value (ng/mL) at 0/2/4 h after ED arrival are 0.02, 0.08 and 4.33 respectively. Pain never recurred after single nitroglycerine (NTG) tablet upon arrival. He was urgently taken for catheterization and had acute right coronary artery (RCA) culprit lesion and discharged on hospital day 4. This case report highlighted the benefits of applying mSC to patients with VP, which to authors knowledge remains unvalidated. A significant benefit of mSC is that they are unweighted, thus any positive criteria is suggestive of AMI. While the first EKG yielded an oSC score <3 , applying the unweighted mSC to the EKG revealed ≤ -0.25 ST/S ratio discordant changes in leads III, aVF, I and aVL would have merited strong advocacy for emergent cardiac catheterization.

Oska S, Barbat A, Babadjouni A and Folbe A (2021). "Sex, racial, and ethnic diversity of dermatology trainees, 2014-2018." SKINmed 19(4): 252-254.

[Request Form](#)

OUWB Medical Student Author

Department of Surgery

Although the US population is becoming increasingly diverse, diversity in medicine is lacking. Our aim was to examine trends in sex, racial, and ethnic diversity of trainees in the field of dermatology. Graduate medical education supplements published annually in the Journal of the American Medical Association were used to obtain demographic data of dermatology trainees from 2014 to 2018. Over the past 5 years, women have made up the majority of trainees in dermatology. The representation of women residents has remained relatively stable from 2014 to 2018, with most current data indicating that women comprise 60.78% of dermatology residents. The representation of Hispanic and black trainees in dermatology, however, lags behind that of other specialties. Racial and ethnic diversity in dermatology is still trailing, and further efforts are necessary to improve representation.

Pai VR and Rebner M (2021). "How to minimize patient anxiety from screening mammography." Journal of Breast Imaging 3(5): 603-606.

[Request Form](#)

Department of Diagnostic Radiology and Molecular Imaging

Partiali B, Oska S and Turner-Lawrence D (2021). "An analysis of sex diversity in ACGME emergency medicine fellowships." American Journal of Emergency Medicine 46: 720-721.

[Full Text](#)

*OUWB Medical Student Author
Department of Emergency Medicine*

Parzen JS, Almahariq MF, Quinn TJ, Siddiqui ZA, Thompson AB, **Guerrero T, Lee K, Stevens C** and **Grills IS** (2021). "Higher biologically effective dose is associated with improved survival in patients with squamous cell carcinoma of the lung treated with stereotactic body radiation therapy." Radiotherapy and Oncology 160: 25-31.

[Request Form](#)

Department of Radiation Oncology

Parzen JS, Chuong MD, Chang J, Rosen L, Urbanic J, Hartsell W, Tsai H, Sinesi C, Zeng J, Mishra M, Vargas C, **Stevens C** and **Kabolizadeh P** (2021). "Dosimetry and acute toxicity profile of patients with esophageal cancer treated with proton beam radiation therapy: Outcomes from the proton collaborative group reg001-09 trial." Advances in Radiation Oncology 6(5): 100751.

[Full Text](#)

Department of Radiation Oncology

Parzen JS, Zheng WL, **Li XQ, Ding XF** and **Kabolizadeh P** (2021). "Optimization of field design in the treatment of rectal cancer with intensity modulated proton beam radiation therapy: How many fields are needed to account for rectal distension uncertainty?" Advances in Radiation Oncology 6(5): 100749.

[Full Text](#)

Department of Radiation Oncology

Patel K, Eguchi N, Seo H and **Tantisattamo E** (2021). "Clinical utility of serum cystatin C to avoid misinterpreting kidney function by using serum creatinine." Southern Medical Journal 114(8): May.

[Full Text](#)

Department of Internal Medicine

Philipson RG, Romero T, Wong JK, Stish BJ, Dess RT, Spratt DE, Pilar A, Reddy C, Wedde TB, Lilleby WA, Fiano R, Merrick GS, Stock RG, Demanes DJ, Moran BJ, Braccioforte M, Tran PT, Martin S, Martinez-Monge R, **Krauss DJ**, Abu-Isa EI, Valle L, Chong N, Pisansky TM, Choo CR, Song DY, Greco S, Deville C, McNutt T, DeWeese TL, Ross AE, Ciezki JP, Tilki D, Karnes RJ, Klein EA, Tosoian JJ, Boutros PC, Nickols NG, Bhat P, Shabsovich D, Juarez JE, Kupelian PA, Rettig MB, Berlin A, Tward JD, Davis BJ, Reiter RE, Steinberg ML, Elashoff D, Horwitz EM, Tendulkar RD and Kishan AU (2021). "Patterns of clinical progression in radiorecurrent high-risk prostate cancer." European Urology 80(2): 142-146.

[Full Text](#)

Department of Radiation Oncology

The natural history of radiorecurrent high-risk prostate cancer (HRPCa) is not well-described. To better understand its clinical course, we evaluated rates of distant metastases (DM) and prostate cancer-specific mortality (PCSM) in a cohort of 978 men with radiorecurrent HRPCa who previously received either external beam radiation therapy (EBRT, n = 654, 67%) or EBRT + brachytherapy (EBRT + BT, n = 324, 33%) across 15 institutions from 1997 to 2015. In men who did not die, median follow-up after treatment was 8.9 yr and median follow-up after biochemical recurrence (BCR) was 3.7 yr. Local and systemic therapy salvage, respectively, were delivered to 21 and 390 men after EBRT, and eight and 103 men after EBRT + BT. Overall, 435 men developed DM, and 248 were detected within 1 yr of BCR. Measured from time of recurrence, 5-yr DM rates were 50% and 34% after EBRT and EBRT + BT, respectively. Measured from BCR, 5-yr PCSM rates were 27% and 29%, respectively. Interval to BCR was independently

associated with DM ($p < 0.001$) and PCSM ($p < 0.001$). These data suggest that radiorecurrent HRPcCa has an aggressive natural history and that DM is clinically evident early after BCR. These findings underscore the importance of further investigations into upfront risk assessment and prompt systemic evaluation upon recurrence in HRPcCa. Patient summary: High-risk prostate cancer that recurs after radiation therapy is an aggressive disease entity and spreads to other parts of the body (metastases). Some 60% of metastases occur within 1 yr. Approximately 30% of these patients die from their prostate cancer.

Poll BG, Xu JJ, Gupta K, **Shubitowski TB** and Pluznick JL (2021). "Olfactory receptor 78 modulates renin but not baseline blood pressure." Physiological Reports 9(18): e15017.

[Full Text](#)

OUWB Medical Student Author

Powers JM and **Chaiyasate K** (2021). "Dr Ian Jackson and the influence of a global traveling plastic surgery fellowship on his career." Journal of Craniofacial Surgery 32: 1197-1198.

[Full Text](#)

Department of Pathology

Department of Surgery

Powers JM, Sachanandani N and **Chaiyasate K** (2021). "Transfacial exposures of the anterior skull base and cervical spine: Straightforward "line-of-sight" algorithm for selection of approach." Journal of Craniofacial Surgery 32: 1269-1274.

[Full Text](#)

Department of Pathology

Department of Surgery

Surgical treatment for tumors of the skull base remains gross total resection with microscopic negative margins. Sufficient surgical access is paramount to adequate treatment but must be balanced with patient morbidity and protection of vital neurovascular structures. While endoscopic surgery has made transfacial access less common, there are still indications for open transfacial exposure including tumors that involve facial soft tissues, the palate, anterolateral frontal sinus, dural involvement lateral to the mid-pupillary line, tumor recurrence/repeat resection, and/or lack of access to endoscopic equipment or expertise. The authors present a "line-of-sight" algorithm for selection of approach, discuss pre-operative planning, review selected clinical experiences, and discuss the role of microsurgery and prevention of complications.

Puzyrenko A, **Wang D**, Schneider R, Wallace G, Schreiber S, Brandt K and Gunsolus IL (2021). "Urine drug screening in the era of designer benzodiazepines: Comparison of three immunoassay platforms, lc-qtof-ms, and lc-ms/ms." Journal of Analytical Toxicology: bkab108.

[Request Form](#)

Department of Pathology

This study investigated the presence of designer benzodiazepines in 35 urine specimens obtained from emergency department patients undergoing urine drug screening. All specimens showed apparent false-positive benzodiazepine screening results (i.e., confirmatory testing using a 19-component LC-MS/MS panel showed no prescribed benzodiazepines at detectable levels). The primary aims were to identify the possible presence of designer benzodiazepines, characterize the reactivity of commercially available screening immunoassays with designer benzodiazepines, and evaluate the risk of inappropriately ruling out designer benzodiazepine

use when utilizing common urine drug screening and confirmatory tests. Specimens were obtained from emergency departments of a single US Health system. Following clinically ordered drug screening using Abbott ARCHITECT c assays and lab-developed LC-MS/MS confirmatory testing, additional characterization was performed for investigative purposes. Specifically, urine specimens were screened using two additional assays (Roche cobas c502, Siemens Dimension Vista) and LC-QTOF-MS to identify presumptively positive species, including benzodiazepines and non-benzodiazepines. Finally, targeted, qualitative LC-MS/MS was performed to confirm the presence of 12 designer benzodiazepines. Following benzodiazepine detection using the Abbott ARCHITECT, benzodiazepines were subsequently detected in 28/35 and 35/35 urine specimens, respectively, using Siemens and Roche assays. LC-QTOF-MS showed the presumptive presence of at least one non-FDA approved benzodiazepine in 30/35 specimens: flubromazolam (12/35), flualprazolam (11/35), flubromazepam (2/35), clonazolam (4/35), etizolam (9/35), metizolam (5/35), nitrazepam (1/35), and pyrazolam (1/35). Two or three designer benzodiazepines were detected concurrently in 13/35 specimens. Qualitative LC-MS/MS confirmed the presence of at least one designer benzodiazepine or metabolite in 23/35 specimens, with 3 specimens unavailable for confirmatory testing. Urine benzodiazepine screening assays from three manufacturers were cross-reactive with multiple non-US FDA-approved benzodiazepines. Clinical and forensic toxicology laboratories using traditionally designed LC-MS/MS panels may fail to confirm the presence of non-US FDA-approved benzodiazepines detected by screening assays, risking inappropriate interpretation of screening results as false-positives.

Qu ZH, Zhao KR, Jin JG, Qu E and Lai ZS (2021). "A novel method enables general pathologists to create web dynamic forms for synoptic tumor reporting." *Archives of Pathology & Laboratory Medicine* 145(7): 864-870.

[Full Text](#)

Department of Pathology

Qumseya BJ, **Jamil LH**, Elmunzer BJ, Riaz A, Ceppa EP, Thosani NC, Buxbaum JL, Storm AC, Sawhney MS, Pawa S, Naveed M, Lee JK, Law JK, Kwon RS, Jue TL, Fujii-Lau LL, Fishman DS, Calderwood AH, Amateau SK and Al-Haddad M (2021). "ASGE guideline on the role of endoscopy in the management of malignant hilar obstruction." *Gastrointestinal Endoscopy* 94(2): 222-222.

[Full Text](#)

Department of Internal Medicine

This clinical guideline from the American Society for Gastrointestinal Endoscopy (ASGE) provides an evidence-based approach for the management of patients with malignant hilar obstruction (MHO). This document was developed using the Grading of Recommendations Assessment, Development and Evaluation framework and addresses primary drainage modality (percutaneous transhepatic biliary drainage [PTBD] vs endoscopic biliary drainage [EBD]), drainage strategy (unilateral vs bilateral), and stent selection (plastic stent [PS] vs self-expandable metal stent [SEMS]). Regarding drainage modality, in patients with MHO undergoing drainage before potential resection or transplantation, the panel suggests against routine use of PTBD as first-line therapy compared with EBD. In patients with unresectable MHO undergoing palliative drainage, the panel suggests PTBD or EBD. The final decision should be based on patient preferences, disease characteristics, and local expertise. Regarding drainage strategy, in patients with unresectable MHO undergoing palliative stent placement, the panel suggests placement of bilateral stents compared with a unilateral stent in the absence of liver atrophy. Finally, regarding type of stent, in patients with unresectable MHO undergoing palliative stent

placement, the panel suggests placing SEMs or PSs. However, in patients who have a short life expectancy and who place high value on avoiding repeated interventions, the panel suggests using SEMs compared with PSs. If optimal drainage strategy has not been established, the panel suggests placing PSs. This document clearly outlines the process, analyses, and decision processes used to reach the final recommendations and represents the official ASGE recommendations on the above topics.

Radhakrishna U, Nath SK, Vishweswaraiah S, Uppala LV, Forray A, Muvvala SB, Mishra NK, Southeikal S, Guda C, Govindamangalam H, Vargas D, Gardella WG, Crist RC, Berrettini WH, Metpally RP and **Bahado-Singh RO** (2021). "Maternal opioid use disorder: Placental transcriptome analysis for neonatal opioid withdrawal syndrome." *Genomics*. ePub Ahead of Print.

[Full Text](#)

Department of Obstetrics & Gynecology

Excessive prenatal opioid exposure may lead to the development of Neonatal Opioid Withdrawal Syndrome (NOWS). RNA-seq was done on 64 formalin-fixed paraffin-embedded placental tissue samples from 32 mothers with opioid use disorder, with newborns with NOWS that required treatment, and 32 prenatally unexposed controls. We identified 93 differentially expressed genes in the placentas of infants with NOWS compared to unexposed controls. There were 4 up- and 89 downregulated genes. Among these, 7 genes CYP1A1, APOB, RPH3A, NRXN1, LINC01206, AL157396.1, UNC80 achieved an FDR p-value of <0.01. The remaining 87 genes were significant with FDR p-value <0.05. The 4 upregulated, CYP1A1, FP671120.3, RAD1, RN7SL856P, and the 10 most significantly downregulated genes were RNA5SP364, GRIN2A, UNC5D, DMBT1P1, MIR3976HG, LINC02199, LINC02822, PANTR1, AC012178.1, CTNNA2. Ingenuity Pathway Analysis identified the 7 most likely to play an important role in the etiology of NOWS. Our study expands insights into the genetic mechanisms of NOWS development.

Rali P, Sacher D, Rivera-Lebron B, Rosovsky R, Elwing JM, Berkowitz J, Mina B, **Dalal B**, Davis GA, Dudzinski DM, Duval A, Ichinose E, Kabrhel C, Kapoor A, Lio KU, Lookstein R, McDaniel M, Melamed R, Naydenov S, Sokolow S, Rosenfield K, Tapson V, Bossone E, Keeling B, Channick R and Ross CB (2021). "Interhospital transfer of patients with acute pulmonary embolism: Challenges and opportunities." *Chest*. ePub Ahead of Print.

[Full Text](#)

Department of Internal Medicine

Acute pulmonary embolism (PE) is associated with significant morbidity and mortality. The management paradigm for acute PE has evolved in recent years with wider availability of advanced treatment modalities ranging from catheter-directed reperfusion therapies to mechanical circulatory support. This evolution has coincided with the development and implementation of institutional pulmonary embolism response teams (PERT) nationwide and internationally. Because most institutions are not equipped or staffed for advanced PE care, patients often require transfer to centers with more comprehensive resources, including PERT expertise. One of the unmet needs in current PE care is an organized approach to the process of interhospital transfer (IHT) of critically ill PE patients. In this review, we discuss medical optimization and support of patients before and during transfer, transfer checklists, defined roles of emergency medical services, and the roles and responsibilities of referring and receiving centers involved in the IHT of acute PE patients.

Randall DJ, Peacock K, Nickel KB, Olsen M, Tyser AR and Kazmers NH (2021). "Comparison of complication risk for open carpal tunnel release: In-office versus operating room settings." Plastic and Reconstructive Surgery-Global Open 9(7): e3685.

[Full Text](#)

OUWB Medical Student Author

Randall DJ, Vanood A, Jee Y and **Moore DD** (2021). "National and state level opioid-restricting legislation in total joint arthroplasty: A systematic review." Journal of Arthroplasty. ePub Ahead of Print.

[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, Chabaan A, Hamzavi I, Fahs F and Mohammad TF (2021). "The etiquette of hijab: Recommendations to improve care in dermatology clinics." British Journal of Dermatology: bjd.20665.

[Full Text](#)

OUWB Medical Student Author

Rehman R, Osto M, **Parry N**, Awada N, Agemy J, **Arianpour K** and **Folbe AJ** (2021). "Ewing sarcoma of the craniofacial bones: A qualitative systematic review." Otolaryngology-Head and Neck Surgery. ePub Ahead of Print.

[Full Text](#)

OUWB Medical Student Author

Department of Surgery

Repka MX, Glasser DB, Cohen CG, Li C, Lum C, Lum F and **Williams GA** (2021). "Use of bevacizumab injections in medicare fee for service in the IRIS® registry." Ophthalmology Retina 5(9): 935-936.

[Request Form](#)

Department of Ophthalmology

Rogers MJ, **Randall DJ**, Brennan JN, Zhang C, Presson AP and Kazmers NH (2021). "Evaluation of patient expectations before carpal tunnel release." Plastic and Reconstructive Surgery-Global Open 9(9): e3823.

[Full Text](#)

OUWB Medical Student Author

Rojas ORG, Gill I, Imam Z, Karabon P and **Halalau A** (2021). "Modified clinical risk score to predict hospital admission and in-hospital mortality in COVID-19 patients." Journal of General Internal Medicine 36(SUPPL 1): S94-S94.

[Full Text](#)

Department of Internal Medicine

Sachanandani NS, **Powers JM**, **Issa CJ**, Oliver LN and **Chaiyasate K** (2021). "Craniofacial microsurgery: An integrated approach to management of cleft and craniofacial syndromes, surgical experience, and insights." Journal of Craniofacial Surgery 32: 1215-1220.

[Full Text](#)

Department of Pathology

OUWB Medical Student Author

Department of Surgery

Ian Jackson and Jack Fisher published one of the earliest reports on microsurgical applications for craniofacial patients in 1989. Since that time, applications of craniofacial surgery and microsurgery have significantly expanded and become more refined. However, there remain certain specific clinical problems in cleft and craniofacial surgery in which traditional craniofacial methods provide variable success or suboptimal outcomes. The purpose of the current study is to share our experience using an integrated approach of craniofacial and microsurgical methods to provide optimal surgical solutions to this complex patient population. The authors performed a retrospective review of 17 patients that utilized craniofacial microsurgery in setting of cleft and craniofacial syndromes performed by the senior author from July 2013 to July 2020. 22 free flaps were performed for 17 patients. The patient age at time of flap reconstruction ranged from 10 to 48 years (mean 21.4 years). There were 8 females and 9 males. There was one total flap loss. Based on our collective experience, the authors present a comprehensive algorithm for the role of microsurgical reconstruction in cleft and craniofacial patients. There are several situations in craniofacial surgery which traditional reconstructive methods require numerous operative interventions to achieve suitable outcomes. Craniofacial Microsurgery techniques can bring in new tissue and may prevent the need to manipulate scarred and multiply operated tissues. The craniofacial surgery team should not hesitate to apply microsurgical solutions to these situations for optimal results.

Saleh ES, Vasileff CC, Omari AM and Khalil LG (2021). "The diagnosis and management of pediatric spine infections." Cureus 13(7): e16748.

[Full Text](#)

Department of Orthopaedic Surgery

Sharrak A, Yoskowitz R, Karabon P and **Lerchenfeldt S** (2021). "Understanding opioid addiction in the chaldean community: A brief report." Journal of Immigrant and Minority Health 23(2): 405-408.

[Full Text](#)

OUWB Medical Student Author

Department of Foundational Medical Studies (OU)

Sheikh MA, Kong X, Haymart B, Kaatz S, Krol G, Kozlowski J, Dahu M, Ali M, **Almany S**, Alexandris-Souphis T, Kline-Rogers E, Froehlich JB and Barnes GD (2021). "Comparison of temporary interruption with continuation of direct oral anticoagulants for low bleeding risk procedures." Thrombosis Research 203: 27-32.

[Full Text](#)

Department of Internal Medicine

Introduction: Limited data is available on the rates of bleeding and thromboembolic events for patients undergoing low bleeding risk procedures while taking direct oral anticoagulants (DOAC). Methods: Adults taking DOAC in the Michigan Anticoagulation Quality Improvement Initiative (MAQI(2)) database who underwent a low bleeding risk procedure between May 2015 and Sep 2019 were included. Thirty-day bleeding (of any severity), thromboembolic events, and death were compared between DOAC temporarily interrupted and continued uninterrupted groups. Adverse event rates were compared using an inverse probability weighting propensity score. Results: There were 820 patients who underwent 1412 low risk procedures. DOAC therapy was temporarily interrupted in 371 (45.2%) patients (601 [42.6%] procedures) and continued uninterrupted in 449 (54.8%) patients (811 [57.4%] procedures). DOAC patients with temporary interruptions were more likely to have diabetes, prior stroke or TIA, prior bleeding, higher CHA2DS2-VASc, and higher modified HAS-BLED scores. DOAC interruption was common for gastrointestinal endoscopy, electrophysiology device implantation, and cardiac catheterization while it was less common for cardioversion, dermatologic procedures, and subcutaneous injection. After propensity score adjustment, bleeding risk was lower in the DOAC temporary interruption group (OR 0.62, 95% CI 0.41-0.95) as compared to the group with continuous DOAC use. Rates of thromboembolic events and death did not differ significantly between the two groups. Conclusions: DOAC-treated patients undergoing low bleeding risk procedures may experience lower rates of bleeding when DOAC is temporarily interrupted. Prospective studies focused on low bleeding risk procedures are needed to identify the safety DOAC management strategy.

Sigua-Arce P, Mando R, **Spencer L** and **Halalau A** (2021). "Treatment of May-Thurner's syndrome and associated complications: A multicenter experience." International Journal of General Medicine 14: 4705-4710.

[Full Text](#)

OUWB Medical Student Author

Department of Internal Medicine

Objective: To assess the treatment options and associated complications in patients with May-Thurner's syndrome (MTS). Methods: We retrospectively reviewed the charts of patients diagnosed with MTS. Thorough review was completed and data relevant to methods of diagnosis, treatment, complications, hospital readmission, and mortality were extracted from patient charts. The patients were followed for two years after diagnosis. Results: Of the 47 patients identified as having "MTS", 32 (70%) were diagnosed formally with either magnetic resonance venography, computed tomography venography, or ultrasound. Two patients were excluded for insufficient availability of follow-up records. Mean age of the population included (N = 30) was 50.24 ±15.33 years and 83% (N = 25) had female gender. The majority (40%) of patients were treated with anticoagulation, thrombolysis, and stent placement, and 13.3% received a combination of anticoagulation, antiplatelet agent, thrombolysis, and stent placement. Overall, we found 28 patients (93%) who underwent endovascular stenting. However, 39.3% (11/28) had stent-related complications that included stent thrombosis, stenosis, and migration. One patient underwent open heart surgery for stent retrieval. Duration

of anticoagulation therapy ranged from 6 months to lifelong. Two patients (6.7%) suffered major bleeds requiring transfusion. Fourteen patients (46.6%) developed post-thrombotic syndrome. Seven (23.3%) patients required MTS-related readmission within 30 days. No mortality was noted at two-year follow-up. Conclusion: Although our study only included 30 patients, it was evident to us that there is no consensus in the management of MTS. Furthermore, endovascular stenting, which has a major role in the management of MTS, has complication rates that hover close to 40%. Further research is needed to help develop a standardized evidence-based approach in the management of MTS that ensures a decreased risk of immediate and long-term complications.

Smuck M, **Khalil J**, Barrette K, Hirsch JA, Kreiner S, Koreckij T, Garfin S, Mekhail N and Investigators IT (2021). "Prospective, randomized, multicenter study of intraosseous basivertebral nerve ablation for the treatment of chronic low back pain: 12-month results." Regional Anesthesia and Pain Medicine 46(8): 683-693.

[Full Text](#)

Department of Orthopaedic Surgery

Smydra R, May M, **Taranikanti V** and **Mi MS** (2021). "Integration of arts and humanities in medical education: A narrative review." Journal of Cancer Education. ePub Ahead of Print.

[Full Text](#)

Department of Foundational Medical Studies (OU)

Medical Library

Smythe MA, Koerber JM, Hoffman JL, Mertz S, Fritsch K, Chehab F, Baalbaki N and **Krishnan A** (2021). "Outcomes of activated prothrombin complex concentrate for direct XA inhibitor bleeding." Thrombosis Research 206: 142-144.

[Full Text](#)

Department of Foundational Medical Studies (BH)

Department of Diagnostic Radiology and Molecular Imaging

Solano C, Thapa S and **Chisti MM** (2021). "Adult xp11.2 translocation renal cell carcinoma managed effectively with pazopanib." BMJ Case Reports 14(6): e243058.

[Full Text](#)

OUWB Medical Student Author

Department of Internal Medicine

Xp11.2 translocation renal cell carcinoma (TRCC) is a rare and aggressive variant of renal cell carcinoma (RCC) when presenting in adults. We report a case of a man in his early 40s who was diagnosed with stage III Xp11.2 TRCC and underwent radical nephrectomy. Seven months following the surgery, an adrenal nodule and bilateral pulmonary nodules were discovered. He underwent cryoablation of the adrenal nodule and systemic treatment with daily pazopanib. He displayed stable disease for approximately 6 years. Following this period, multiple hospitalisations interrupted daily pazopanib therapy resulting in progression of disease. His regimen was then changed to ipilimumab and nivolumab, followed by current daily therapy with axitinib. The patient now shows stable disease in his 10th year after diagnosis. This case study demonstrates the efficacy of pazopanib for metastatic Xp11.2 TRCC and warrants further investigation to supplement the guidelines regarding the use of targeted therapy for TRCC.

Squires BS and **Krauss DJ** (2021). "Single-dose radiotherapy for prostate cancer-lessons learned from

single-fraction high-dose-rate brachytherapy." JAMA Oncology. ePub Ahead of Print.

[Full Text](#)

Department of Raditation Oncology

Squires BS, Levitin R and **Grills IS** (2021). "The us preventive services task force recommendation on lung cancer screening." JAMA 326(5): 440-+.

[Full Text](#)

Department of Radiation Oncology

Squires BS, Quinn TJ, **Nandalur SR** and **Jawad MS** (2021). "Adjuvant radiotherapy improves overall survival when added to surgery and chemotherapy for uterine carcinosarcoma: A surveillance, epidemiology, and end results analysis." International Journal of Clinical Oncology 26:2282–2294.

[Full Text](#)

Department of Radiation Oncology

Starr MR, Ryan EH, Obeid A, Ryan C, Xinxiao G, Madhava ML, Maloney SM, Adika AZ, Peddada KV, Sioufi K, Patel LG, Ammar MJ, Forbes NJ, **Capone Jr A**, Emerson GG, Joseph DP, Elliott D, Regillo CD, Hsu J and Gupta OP (2021). "Scleral buckling for primary retinal detachment: Outcomes of scleral tunnels versus scleral sutures." Journal of Ophthalmic & Vision Research 16(3): 377-383.

[Full Text](#)

Department of Ophthalmology

Purpose: There are primarily two techniques for affixing the scleral buckle (SB) to the sclera in the repair of rhegmatogenous retinal detachment (RRD): scleral tunnels or scleral sutures. Methods: This retrospective study examined all patients with primary RRD who were treated with primary SB or SB combined with vitrectomy from January 1, 2015 through December 31, 2015 across six sites. Two cohorts were examined: SB affixed using scleral sutures versus scleral tunnels. Pre- and postoperative variables were evaluated including visual acuity, anatomic success, and postoperative strabismus. Results: The mean preoperative logMAR VA for the belt loop cohort was 1.05 ± 1.06 (Snellen 20/224) and for the scleral suture cohort was 1.03 ± 1.04 (Snellen 20/214, $p = 0.846$). The respective mean postoperative logMAR VAs were 0.45 ± 0.55 (Snellen 20/56) and 0.46 ± 0.59 (Snellen 20/58, $p = 0.574$). The single surgery success rate for the tunnel cohort was 87.3% versus 88.6% for the suture cohort ($p = 0.601$). Three patients (1.0%) in the scleral tunnel cohort developed postoperative strabismus, but only one patient (0.1%) in the suture cohort ($p = 0.04$, multivariate $p = 0.76$). All cases of strabismus occurred in eyes that underwent SB combined with PPV ($p = 0.02$). There were no differences in vision, anatomic success, or strabismus between scleral tunnels versus scleral sutures in eyes that underwent primary SB. Conclusion: Scleral tunnels and scleral sutures had similar postoperative outcomes. Combined PPV/SB in eyes with scleral tunnels might be a risk for strabismus post retinal detachment surgery.

Steuber ER, Seligowski AV, Roeckner AR, Reda M, Lebois LAM, van Rooij SJH, Murty VP, Ely TD, Bruce SE, House SL, Beaudoin FL, An XM, Zeng DL, Neylan TC, Clifford GD, Linnstaedt SD, Germine LT, Rauch SL, Lewandowski C, Sheikh S, Jones CW, Panches BE, **Swor RA**, McGrath ME, Hudak LA, Pascual JL, Chang AM, Pearson C, Peak DA, Domeier RM, O'Neil BJ, Rathlev NK, Sanchez LD, Pietrzak RH, Joormann J, Barch DM, Pizzagalli DA, Elliott JM, Kessler RC, Koenen KC, McLean SA, Ressler KJ, Jovanovic T, Harnett NG and Stevens JS (2021). "Thalamic volume and fear extinction interact to predict acute posttraumatic stress severity." Journal of Psychiatric Research 141: 325-332.

[Full Text](#)

Department of Emergency Medicine

Swor RA, Chen N-W, **Song J**, Paxton JH, **Berger DA**, Miller JB, Pribble J and Reynolds JC (2021). "Hospital length of stay, do not resuscitate orders, and survival for post-cardiac arrest patients in michigan: A study for the cares surveillance group." Resuscitation 165: 119-126.

[Full Text](#)

Department of Emergency Medicine

OUWB Medical Student Author

Objective: Current guidelines recommend deferring prognostic decisions for at least 72 h following admission after Out of Hospital cardiac arrest (OHCA). Most non-survivors experience withdrawal of life sustaining therapy (WLST), and early WLST may adversely impact survival. We sought to characterize the hospital length of stay (LOS) and timing of Do Not Resuscitate (DNR) orders (as surrogates for WLST), to assess their relationship to survival following cardiac arrest. **Design:** We performed a retrospective cohort study of probabilistically linked cardiac arrest registries (Cardiac Arrest Registry to Enhance Survival (CARES) and Michigan Inpatient Database (MIDB) from 2014 to 2017. **Patients:** Adult (≥ 18 years) patients admitted following OHCA were included. We considered $LOS \leq 3$ days (short LOS) and written DNR order with $LOS \leq 3$ days (Early DNR) as indicators of early WLST. Our primary outcome was survival to hospital discharge. We utilized multilevel logistic regression clustered by hospital to examine associations of these variables, patient characteristics and survival to hospital discharge. **Measurement and Main Results:** We included 3644 patients from 38 hospitals with >30 patients. Patients mean age was 62.4 years and were predominately male (59.3%). $LOS \leq 3$ days (ORadj = 0.11) and early DNR (ORadj = 0.02) were inversely associated with survival to discharge. There was a non-significant inverse association between hospital rates of $LOS \leq 3$ days and survival ($p = 0.11$), and Early DNR and survival ($p = 0.83$). In the multilevel model, using median odd ratios to assess variation in $LOS \leq 3$ days and survival, patient characteristics contributed more to variability in survival than between-hospital variation. However, between-hospital variation contributed more to variability than patient characteristics in the provision of early DNR orders. **Conclusions:** We observed that $LOS \leq 3$ days for post-arrest patients was negatively-associated with survival, with both patient characteristics and between-hospital variation associated with outcomes. However, between-hospital variation appears to be more highly-associated with provision of early DNR orders than patient characteristics. Further work is needed to assess variation in early DNR orders and their impact on patient survival.

Takagi H, Leipsic JA, McNamara N, Martin I, Fairbairn TA, Akasaka T, Nørgaard BL, Berman DS, **Chinnaiyan K**, Hurwitz-Koweek LM, Pontone G, Kawasaki T, Rønnow Sand NP, Jensen JM, Amano T, Poon M, Øvrehus KA, Sonck J, Rabbat MG, Mullen S, De Bruyne B, Rogers C, Matsuo H, Bax JJ, Douglas PS, Patel MR, Nieman K and Ihsdayhid AR (2021). "Trans-lesional fractional flow reserve gradient as derived from coronary CT improves patient management: Advance registry." Journal of Cardiovascular Computed Tomography. ePub Ahead of Print.

[Full Text](#)

Department of Internal Medicine

Background: The role of change in fractional flow reserve derived from CT (FFR(CT)) across coronary stenoses ($\Delta FFR(CT)$) in guiding downstream testing in patients with stable coronary artery disease (CAD) is unknown. **Objectives:** To investigate the incremental value of $\Delta FFR(CT)$ in predicting early revascularization and improving efficiency of catheter laboratory utilization. **Materials:** Patients with CAD on coronary CT angiography (CCTA) were enrolled in an international multicenter registry. Stenosis severity was assessed as per CAD-Reporting and Data

System (CAD-RADS), and lesion-specific FFR(CT) was measured 2 cm distal to stenosis. Δ FFR(CT) was manually measured as the difference of FFR(CT) across visible stenosis. Results: Of 4730 patients (66 ± 10 years; 34% female), 42.7% underwent ICA and 24.7% underwent early revascularization. Δ FFR(CT) remained an independent predictor for early revascularization (odds ratio per 0.05 increase [95% confidence interval], 1.31 [1.26-1.35]; $p < 0.001$) after adjusting for risk factors, stenosis features, and lesion-specific FFR(CT). Among the 3 models (model 1: risk factors + stenosis type and location + CAD-RADS; model 2: model 1 + FFR(CT); model 3: model 2 + Δ FFR(CT)), model 3 improved discrimination compared to model 2 (area under the curve, 0.87 [0.86-0.88] vs 0.85 [0.84-0.86]; $p < 0.001$), with the greatest incremental value for FFR(CT) 0.71-0.80. Δ FFR(CT) of 0.13 was the optimal cut-off as determined by the Youden index. In patients with CAD-RADS ≥ 3 and lesion-specific FFR(CT) ≤ 0.8 , a diagnostic strategy incorporating Δ FFR(CT) > 0.13 , would potentially reduce ICA by 32.2% (1638-1110, $p < 0.001$) and improve the revascularization to ICA ratio from 65.2% to 73.1%. Conclusions: Δ FFR(CT) improves the discrimination of patients who underwent early revascularization compared to a standard diagnostic strategy of CCTA with FFR(CT), particularly for those with FFR(CT) 0.71-0.80. Δ FFR(CT) has the potential to aid decision-making for ICA referral and improve efficiency of catheter laboratory utilization.

Tantisattamo E, Dafoe DC, Ferrey AJ, Ichii H, Lee RA, Zuckerman JE, Sisk AEJ, Farzaneh T, Guccione J, Kabutey NK, Kalantar-Zadeh K and Reddy UG (2021). "Kidney allograft infarction associated with transplant renal artery stenosis in a COVID-19 kidney transplant recipient." Clinical Nephrology Case Studies 9: 93-104.

[Full Text](#)

Department of Internal Medicine

Kidney allograft infarction is rare, but an urgent condition that requires prompt intervention to avoid allograft loss. Renal artery thrombosis is the leading cause of infarction. Apart from traditional risk factors for thrombosis, emerging SARS-CoV-2 predisposes patients to thrombotic diseases both in arterial and venous vasculatures. We report a case of kidney transplant recipient with known transplant renal artery stenosis (TRAS) status post angioplasty with severe COVID-19, complicated by oliguric acute kidney injury requiring continuous renal replacement therapy (CRRT). She did not have a history of thromboembolic disease. The hospital course was complicated by new-onset atrial and ventricular fibrillation and cardiac arrest requiring multiple rounds of cardiopulmonary resuscitation. She had no signs of renal recovery, and an abdominal CT scan showed evidence of allograft infarcts. She underwent an allograft nephrectomy. Pathology revealed diffuse thrombotic microangiopathy involving glomeruli, arterioles, and arteries associated with diffuse cortical infarction with negative SARS-CoV-2 immunostain and in situ hybridization. This is the first case of kidney allograft infarct with a history of TRAS in a COVID-19 patient. Underlying TRAS and COVID-19-associated thrombosis in this patient are unique and likely play a key role in allograft infarction from arterial thrombosis. Recognizing risk factors and early therapy for allograft infarction may improve transplant outcomes.

To D, Khaferllari I, Liu MJ, Liang J, Knill C, **Nandalur S**, **Gustafson G** and Lack D (2021). "Evaluation of vmat planning strategies for prostate patients with bilateral hip prosthesis." Technology in Cancer Research & Treatment 20: 1-8.

[Full Text](#)

Department of Radiation Oncology

Topf JM and Williams PN (2021). "COVID-19, social media, and the role of the public physician." Blood

Purification 50(5): 595-601.

[Full Text](#)

Department of Internal Medicine

The COVID-19 pandemic has resulted in an avalanche of information, much of it false or misleading. Social media posts with misleading or dangerous opinions and analyses are often amplified by celebrities and social media influencers; these posts have contributed substantially to this avalanche of information. An emerging force in this information infodemic is public physicians, doctors who view a public presence as a large segment of their mission. These physicians bring authority and real-world experience to the COVID-19 discussion. To investigate the role of public physicians, we interviewed a convenience cohort of physicians who have played a role in the infodemic. We asked the physicians about how their roles have changed, how their audience has changed, what role politics plays, and how they address misinformation. The physicians noted increased audience size with an increased focus on the pandemic. Most avoided confronting politics, but others found it unavoidable or that even if they tried to avoid it, it would be brought up by their audience. The physicians felt that confronting and correcting misinformation was a core part of their mission. Public physicians on social media are a new occurrence and are an important part of fighting online misinformation.

Trese M (2021). "Pediatric retina: Lessons from the past and goals for the future." Indian Journal of Ophthalmology 69(8): 1983-1985.

[Full Text](#)

Department of Ophthalmology

Although retinopathy of prematurity is perhaps the most common pediatric retinal disease, many other pediatric retinal diseases, all of which tend to be rare diseases, have been studied over the past several years, first using clinical observations as tools to establish a classification system, and then using these findings to direct management. In the rest of this editorial, we will address a few of these diseases - familial exudative vitreoretinopathy, Norrie's disease, congenital X-linked retinoschisis, and persistent fetal vasculature syndrome. Over the past 20 years, pediatric retina has developed into a subspecialty of the retina that incorporates traditional medical approaches as well as evolving therapies, such as drug and gene therapy, and exciting new regenerative medical therapies. We believe that we will also see some medical devices that will help with visual function and hopefully screening, which will identify children at risk of developing more severe diseases at birth so that these diseases will be treated at an earlier stage so that hopefully significant recovery is possible for many of these diseases, which are now diagnosed only at the late stages.

Tripathi S, Gist KM, Bjornstad EC, Kashyap R, Boman K, Chiotos K, Gharpure VP, Dapul H, Sayed IA, Kuehne J, Heneghan JA, Gupta M, **Khandhar PB**, Menon S, Gupta N, Kumar VK, Retford L, Zimmerman J, Bhalala US and Soc Critical Care Med Discovery V (2021). "Coronavirus disease 2019-associated PICU admissions: A report from the society of critical care medicine discovery network viral infection and respiratory illness universal study registry." Pediatric Critical Care Medicine 22(7): 603-615.

[Full Text](#)

Department of Pediatrics

Tung NM, **Zakalik D** and Somerfield MR (2021). "Adjuvant parp inhibitors in patients with high-risk early-stage her2-negative breast cancer and germline BRCA mutations: ASCO hereditary breast cancer guideline rapid recommendation update." Journal of Clinical Oncology 39(26): 2959-+.

[Full Text](#)

Department of Internal Medicine

van Rosendael AR, Lin FY, van den Hoogen IJ, Ma XY, Gianni U, Alawamh OA, Al'Aref SJ, Pena JM, Andreini D, Budoff MJ, Cademartiri F, **Chinnaiyan K**, Choi JH, Conte E, Marques H, Goncalves PD, Gottlieb I, Hadamitzky M, Leipsic J, Maffei E, Pontone G, Raff GL, Shin S, Kim YJ, Lee BK, Chun EJ, Sung JM, Lee SE, Han D, Berman DS, Virmani R, Samady H, Stone P, Narula J, Bax JJ, Shaw LJ, Min JK and Chang HJ (2021). "Progression of whole-heart atherosclerosis by coronary CT and major adverse cardiovascular events." Journal of Cardiovascular Computed Tomography 15(4): 322-330.

[Full Text](#)

Department of Internal Medicine

van Rosendael AR, van den Hoogen IJ, Gianni U, Ma XY, Tantawy SW, Bax AM, Lu Y, Andreini D, Al-Mallah MH, Budoff MJ, Cademartiri F, **Chinnaiyan K**, Choi JH, Conte E, Marques H, Goncalves PD, Gottlieb I, Hadamitzky M, Leipsic JA, Maffei E, Pontone G, Shin S, Kim YJ, Lee BK, Chun EJ, Sung JM, Lee SE, Virmani R, Samady H, Sato Y, Stone PH, Berman DS, Narula J, Blankstein R, Min JK, Lin FY, Shaw LJ, Bax JJ and Chang HJ (2021). "Association of statin treatment with progression of coronary atherosclerotic plaque composition." JAMA Cardiology. 6(11):1257-1266.

[Full Text](#)

Department of Internal Medicine

Vince RA, Jiang RA, Qi J, Tosoian JJ, Takele R, Feng FY, Linsell S, Johnson A, **Shetty S**, Hurley P, Miller DC, George A, Ghani K, **Sun F**, Seymore M, Dess RT, Jackson WC, Schipper M, Spratt DE and Morgan TM (2021). "Impact of decipher biopsy testing on clinical outcomes in localized prostate cancer in a prospective statewide collaborative." Prostate Cancer and Prostatic Diseases. ePub Ahead of Print.

[Request Form](#)

OUWB Medical Student Author

Department of Urology

Vollstedt A, Tennyson L, Turner K, Hasenau D, **Saon M**, McCartney T, Beck D, **Gilleran J** and **Peters K** (2021). "Evidence for early cyclosporine treatment for Hunner lesion interstitial cystitis." Female Pelvic Medicine & Reconstructive Surgery. ePub Ahead of Print.

[Full Text](#)

OUWB Medical Student Author

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 ± 5.7 vs 21.3 ± 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.

Warnick Jr SJ, Mehdi L and **Kowalkowski J** (2021). "Wait-there's evidence for that? Integrative medicine treatments for major depressive disorder." *International Journal of Psychiatry in Medicine* 56(5): 334-343.

[Full Text](#)

Department of Family Medicine and Community Health

Depression is one of the most common mental health disorders and currently affects over 17 million Americans. Up to two-thirds of patients with depression in the United States will seek complementary and alternative or integrative medical treatments and thus medical providers who treat depression should understand that many integrative medical treatments have evidence of efficacy either as monotherapies or as add-on adjuncts to other treatments. This review references guidelines from the Canadian Network for Mood and Anxiety Treatments and Michigan Medicine, along with an updated literature review, to provide a framework for reviewing medications or herbal formulation, as well as other therapies, which have evidence in the treatment of depression. In general, St. John's Wort, Omega-3 Fatty Acids, S-adenosyl-L-methionine, and crocus sativus (saffron) have the highest levels of evidence in the treatment of mild-to-moderate depression. Acetyl-L-carnitine, L-methylfolate, DHEA, and lavender have a moderate level of evidence in treating depression, whereas Vitamin D, one of the most common supplements in the United States, does not have evidence in treating depression. Of the non-medication-based therapies, exercise, light therapy, yoga, acupuncture, and probiotics have evidence in the treatment of depression, whereas a full review of dietary modifications for depression was out of scope for this article.

Wayne MT, Weng W, O'Malley M, **Bozyk P**, Doshi MM, Flanders SA, McSparron JJ, Sharma P, Swaminathan L and Prescott HC (2021). "Variation in COVID-19 disease severity at hospital admission over time and across hospitals: A multi-institution cohort of Michigan hospitals." *Medicine* 100(37): e27265.

[Full Text](#)

Department of Internal Medicine

During the spring 2020 COVID-19 surge, hospitals in Southeast Michigan were overwhelmed, and hospital beds were limited. However, it is unknown whether threshold for hospital admission varied across hospitals or over time. Using a statewide registry, we performed a retrospective cohort study. We identified adult patients hospitalized with COVID-19 in Southeast Michigan (3/1/2020-6/1/2020). We classified disease severity on admission using the World Health Organization (WHO) ordinal scale. Our primary measure of interest was the proportion of patients admitted on room air. We also determined the proportion without acute organ dysfunction on admission or any point during hospitalization. We quantified variation across hospitals and over time by half-month epochs. Among 1315 hospitalizations across 22 hospitals, 57.3% (754/1,315) were admitted on room air, and 26.1% (343/1,315) remained on room air for the duration of hospitalization. Across hospitals, the proportion of COVID-19 hospitalizations admitted on room air varied from 32.3% to 80.0%. Across half-month epochs, the proportion ranged from 49.4% to 69.4% and nadired in early April 2020. Among patients admitted on room

air, 75.1% (566/754) had no acute organ dysfunction on admission, and 35.3% (266/754) never developed acute organ dysfunction at any point during hospitalization; there was marked variation in both proportions across hospitals. In-hospital mortality was 13.7% for patients admitted on room air vs 26.3% for patients requiring nasal cannula oxygen. Among patients hospitalized with COVID-19 during the spring 2020 surge in Southeast Michigan, more than half were on room air and a third had no acute organ dysfunction upon admission, but experienced high rates of disease progression and in-hospital mortality.

Xia YY, Lubinski J, **Rosen B**, Moller P, Eisen A, Ainsworth P, Senter L, Bordeleau L, Neuhausen SL, Singer CF, Brooks J, Sun P, Narod SA and Kotsopoulos J (2021). "Contraceptive use and ovarian cancer risk in BRCA1 and BRCA2 mutation carriers: A prospective cohort study." Cancer Research 81(13): 878.

[Full Text](#)

Department of Obstetrics & Gynecology

Yadav SK, Silwal S, Yadav S, Krishnamoorthy G and **Chisti MM** (2021). "A systematic comparison of overall survival between men and women with triple negative breast cancer." Clinical Breast Cancer. ePub Ahead of Print.

[Full Text](#)

Department of Internal Medicine

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.

Yanson K, Lavers W, Neely L, Lockamy E, Castillo-Hernandez LC, Oldfield C, Ackerman R, Ackerman J, **Ortiz DA**, Pacheco S, Simner PJ, Young S, McElvania E and Cooper CK (2021). "Performance evaluation of the BD SARS-CoV-2 reagents for the BD MAX™ system." Journal of Clinical Microbiology: Jcm0101921.

[Full Text](#)

Department of Pathology

Background: Nucleic acid amplification testing (NAAT) for SARS-CoV-2 is the standard approach for confirming COVID-19 cases. This study compared results between two Emergency Use Authorization (EUA) NAATs, with two additional EUA NAATs utilized for discrepant testing. Methods: The limits of detection (LOD) for the BD SARS-CoV-2 Reagents for BD MAX™ System ("MAX SARS-CoV-2 assay"), the Biomerieux BioFire® Respiratory Panel 2.1 ("BioFire SARS-CoV-2

assay"), the Roche cobas SARS-CoV-2 assay ("cobas SARS-CoV-2 assay"), and the Hologic Aptima® SARS-CoV-2 assay Panther® ("Aptima SARS-CoV-2 assay") NAAT systems were determined using a total of 84 contrived nasopharyngeal specimens with seven target levels for each comparator. The positive and negative percent agreement (PPA and NPA, respectively) of the MAX SARS-CoV-2 assay, compared to the Aptima SARS-CoV-2 assay, was evaluated in a post-market clinical study utilizing 708 nasopharyngeal specimens collected from suspected COVID-19 cases. Discordant testing was achieved using cobas and BioFire SARS-CoV-2 NAATs. Results: In this study, the measured LOD for the MAX SARS-CoV-2 assay (251 copies/mL; [95%CI: 186, 427]) was comparable to the cobas SARS-CoV-2 assay (298 copies/mL; [95%CI: 225, 509]) and the BioFire SARS-CoV-2 assay (302 copies/mL; [95%CI: 219, 565]); the Aptima SARS-CoV-2 assay had a LOD of 612 copies/mL; [95%CI: 474, 918]. The MAX SARS-CoV-2 assay had a PPA of 100% (95%CI: [97.3%-100.0%]) and a NPA of 96.7% (95%CI: [94.9%-97.9%]) when compared to the Aptima SARS-CoV-2 assay. Conclusions: The clinical performance of the MAX SARS-CoV-2 assay agreed with another sensitive EUA assay.

Yau TT, Sparks MA and **Topf JM** (2021). "Eight years of AJKD blog: Lessons learned and what lies ahead." American Journal of Kidney Diseases 78(2): 168-170.

[Full Text](#)

Department of Internal Medicine

Yoon YE, Baskaran L, Lee BC, Pandey MK, Goebel B, Lee SE, Sung JM, Andreini D, Al-Mallah MH, Budoff MJ, Cademartiri F, **Chinnaiyan K**, Choi JH, Chun EJ, Conte E, Gottlieb I, Hadamitzky M, Kim YJ, Lee BK, Leipsic JA, Maffei E, Marques H, Goncalves PD, Pontone G, Shin S, Narula J, Bax JJ, Lin FYH, Shaw L and Chang HJ (2021). "Differential progression of coronary atherosclerosis according to plaque composition: A cluster analysis of paradigm registry data." Scientific Reports 11(1): 17121.

[Full Text](#)

Department of Internal Medicine

Zhang KJ, **Qu ZH**, **Zhang PL** and Brown RE (2021). "A brief history, the progress in the variants of therapies against metastatic neoplasms, and the role of pathologists." Annals of Clinical and Laboratory Science 51(4): 461-469.

[Request Form](#)

Department of Pathology