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Henry Ford Health System

Henry Ford Health System Publication List – January 2022

This bibliography aims to recognize the scholarly activity and provide ease of access to journal articles, conference abstracts, book chapters, books and other works published by Henry Ford Health System personnel. Searches were conducted in PubMed, Embase, and Web of Science during the month, and then imported into EndNote for formatting. There are **131 unique citations** listed this month, with **9 articles** and **3 conference abstracts** on **COVID-19**.

Articles are listed first, followed by conference abstracts, books and book chapters, and a bibliography of publications on COVID-19. Because of various limitations, this does not represent an exhaustive list of all published works by Henry Ford Health System authors.

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Articles

Anesthesiology
Fegley MW, Cardi A, Augoustides JG, Horak J, Gutsche JT, Nanda S, Kornfield ZN, **Saluja A**, **Sanders J**, Marchant BE, and Fernando RJ. Acute Lung Injury Associated With Perioperative Amiodarone Therapy-Navigating the Challenges in Diagnosis and Management. *J Cardiothorac Vasc Anesth* 2022; 36(2):608-615. PMID: 34172364. Full Text

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Anesthesiology
Radvansky BM, Shah R, Feinman J, Augoustides JG, **Kiers A**, **Younger J**, **Sanders J**, Knott VH, and Fernando RJ. Pulmonary Hypertension in Pregnancy: A Positive Outcome with a Multidisciplinary Team and Individualized Treatment Plan. *J Cardiothorac Vasc Anesth* 2022; Epub ahead of print. PMID: 35105488. Full Text

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Anesthesiology
Turan A, Fang J, Esa WAS, **Hamadnalla H**, Leung S, Pu X, Raza S, Chelnick D, Mounir Soliman L, Seif J, Ruetzler K, and Sessler DI. Naloxegol and Postoperative Urinary Retention: A Randomized Trial. *J Clin Med* 2022; 11(2). PMID: 35054148. Full Text

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BACKGROUND: Naloxegol antagonizes peripheral opioid-related side effects without preventing opioid-related analgesia. However, the effect of naloxegol on opioid-induced bladder dysfunction remains unknown. HYPOTHESIS: patients given naloxegol have lower residual bladder urine volume than those

given placebo. METHODS: 136 patients scheduled for elective hip and knee surgery were randomized to oral naloxegol or placebo given the morning of surgery, and on the first two postoperative mornings. Residual urine volume was measured ultrasonographically within 30 min after voiding once in the morning and once in the afternoon for two postoperative days. Opioid-related Symptom Distress Scale (ORSDS), the need for indwelling urinary catheterization, and quality of recovery (QoR) score were secondary outcomes. RESULTS: 67 were randomized to naloxegol and 64 to placebo. We did not identify a significant effect on urine residual volume, with an estimated ratio of geometric means of 0.9 (0.3, 2.6), p = 0.84. There were no significant differences in ORSDS or QoR. There were 19 (29%) patients assigned to naloxegol who needed indwelling urination catheterization versus 7 (11%) patients in the placebo group, p = 0.012. CONCLUSIONS: Our results do not support use of naloxegol for postoperative urinary retention after hip and knee surgery.

Behavioral Health Services/Psychiatry/Neuropsychology

Dasa O, Mahmoud AN, Kaufmann PG, **Ketterer M**, Light KC, Raczynski J, Sheps DS, Stone PH, Handberg E, and Pepine CJ. Relationship of Psychological Characteristics to Daily Life Ischemia: An Analysis from the NHLBI Psychophysiological Investigations in Myocardial Ischemia (PIMI). *Psychosom Med* 2022; Epub ahead of print. PMID: 35067655. Full Text

Department of Medicine, College of Medicine, University of Florida, Gainesville, Florida College of Nursing, Villanova University, Villanova, Pennsylvania Department of Behavioral Health, Henry Ford Hospital and Wayne State University, Detroit, Michigan Departments of Anesthesiology and Psychology, University of Utah School of Medicine, Salt Lake City, Utah University of Arkansas for Medical Sciences Fay W. Boozman College of Public Health, Little Rock, Arkansas Department of Epidemiology, College of Public Health and Health Professions, University of Florida, Gainesville, Florida Cardiovascular Division, Brigham and Women's Hospital, Harvard Medical School, Boston, Massachusetts.

OBJECTIVE: Cardiac ischemia during daily life is associated with an increased risk for adverse outcomes. Mental stress is known to provoke cardiac ischemia and is related to psychological variables. In this multicenter cohort study, we assessed whether psychological characteristics were associated with ischemia in daily life. METHODS: This study examined patients with clinically stable coronary artery disease (CAD) with documented cardiac ischemia during treadmill exercise (N = 196, mean age = 62.64, SD = 8.31 years; 13% women). Daily life ischemia (DLI) was assessed by 48-hour ambulatory ECG monitoring. Psychological characteristics were assessed using validated instruments to identify characteristics associated with ischemia occurring in daily life stress. RESULTS: High scores on anger and hostility were common in this sample of patients with CAD and DLI was documented in 83 (42%) patients. However, the presence of DLI was associated with lower anger scores (OR 2.03; 95% CI, 1.12-3.69), reduced anger expressiveness (OR 2.04; 95% CI, 1.10-3.75), and increased ratio of anger control to total anger (OR 2.33; 95% CI, 1.27-4.17). Increased risk for DLI was also associated with lower hostile attribution (OR 2.22; 95% CI, 1.21-4.09), hostile affect (OR 1.92; 95% CI, 1.03-3.58), and aggressive responding (OR 2.26; 95% CI, 1.25-4.08). We observed weak inverse correlations between DLI episode frequency and anger expressiveness, total anger, and hostility scores. DLI was not associated with depression or anxiety measures. The combination of the constructs low anger expressiveness and low hostile attribution was independently associated with DLI (OR = 2.59; 95% CI, 1.42-4.72. CONCLUSION: In clinically stable patients with CAD, the tendency to suppress angry and hostile feelings, particularly openly aggressive behavior was associated with DLI. These findings warrant study in larger cohorts and intervention studies are needed to ascertain whether management strategies that modify these psychological characteristics improve outcomes.

Behavioral Health Services/Psychiatry/Neuropsychology

Gautam M, **Patel S**, and Zarkowski P. Practice patterns of bupropion co-prescription with antipsychotic medications. *J Addict Dis* 2022; Epub ahead of print.:1-8. PMID: 35068363. Full Text

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Objective: Bupropion is one of the few medications with an FDA indication for smoking cessation. This is of particular significance due to the high co-morbidity of tobacco use disorder in patients with schizophrenia spectrum and other psychotic disorders. We sought to determine whether historical suggestions of bupropion's pro-dopaminergic activity lead prescribers to withhold bupropion in populations receiving antipsychotic medications. Methods: The prevalence in clinical practice of the combination of bupropion and 10 antipsychotic formulations was determined by a computer review of the Genoa Healthcare database for all prescribers at 10 participating community mental health centers. Actual prevalence was compared with expected prevalence using the test of proportions. A Bonferroni correction for multiple comparisons was included. Results: Clozapine, $p = 0.0004$, and the microsphere formulation of risperidone, $p = 0.0045$, were prescribed with bupropion significantly less often that chance. None of the other eight antipsychotic formulations were prescribed significantly differently than chance. Conclusions: The co-prescription of bupropion and antipsychotic medication may be affected by historical misconceptions regarding bupropion's purportedly pro-dopamine properties. Viable options for the treatment of tobacco use disorder should not be discounted prematurely in patients with schizophrenia spectrum and other psychotic disorders. We suggest further study on the safety and efficacy of the combination of bupropion and antipsychotic medication is needed.

Behavioral Health Services/Psychiatry/Neuropsychology

Hecht LM, **Martens KM**, **Pester BD**, **Hamann A**, **Carlin AM**, and **Miller-Matero LR**. Adherence to Medical Appointments Among Patients Undergoing Bariatric Surgery: Do Health Literacy, Health Numeracy, and Cognitive Functioning Play a Role? *Obes Surg* 2022; Epub ahead of print. PMID: 35061155. Full Text

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Behavioral Health Services/Psychiatry/Neuropsychology

Penfold RB, Thompson EE, Hilt RJ, Schwartz N, Robb AS, Correll CU, Newton D, **Rogalski K**, Earls MF, Kowatch RA, Beck A, Yarborough BJH, Crystal S, Vitiello B, Kelleher KJ, and Simon GE. Development of a Symptom-Focused Model to Guide the Prescribing of Antipsychotics in Children and Adolescents: Results of the First Phase of the Safer Use of Antipsychotics in Youth (SUAY) Clinical Trial. *J Am Acad Child Adolesc Psychiatry* 2022; 61(1):93-102. PMID: 34256967. Full Text

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Dr. Earls is with Community Care of North Carolina, Raleigh.
Dr. Beck is with Kaiser Permanente Colorado Institute for Health Research, Denver.
Dr. Yarborough is with Kaiser Permanente Northwest Center for Health Research, Portland, Oregon.
Dr. Crystal is with Rutgers University, Brunswick, New Jersey.
Dr. Vitiello is with Università degli Studi di Torino, Turin, Italy.

OBJECTIVE: To develop a new approach to prescribing guidelines as part of a pragmatic trial, Safer Use of Antipsychotics in Youth (SUAY; ClinicalTrials.gov Identifier: NCT03448575), which supports prescribers in delivering high-quality mental health care to youths. METHOD: A nominal group technique was used to identify first- to nth-line treatments for target symptoms and potential diagnoses. The panel included US pediatricians, child and adolescent psychiatrists, and psychopharmacology experts. Meeting materials included information about Medicaid review programs, systematic reviews, prescribing guidelines, and a description of the pragmatic trial. Afterward, a series of 4 webinar discussions were held to achieve consensus on recommendations. RESULTS: The panel unanimously agreed that the guideline should focus on target symptoms rather than diagnoses. Guidance included recommendations for first- to nth-line treatment of target mental health symptoms, environmental factors to be addressed, possible underlying diagnoses that should first be considered and ruled out, and general considerations for pharmacological and therapeutic treatments. CONCLUSION: Prescribing guidelines are often ignored because they do not incorporate the real-world availability of first-line psychosocial treatments, comorbid conditions, and clinical complexity. Our approach addresses some of these concerns. If the approach proves successful in our ongoing pragmatic trial, Safer Use of Antipsychotics in Youth (SUAY), it may serve as a model to state Medicaid programs and health systems to support clinicians in delivering high-quality mental health care to youths. CLINICAL TRIAL REGISTRATION INFORMATION: Safer Use of Antipsychotics in Youth; http://clinicaltrials.gov/; NCT03448575.

Cardiology/Cardiovascular Research

Alrayes H, **Kabbani L**, and **Basir M**. Failed Manta Closure Device After High-Risk PCI. *J Invasive Cardiol* 2022; 34(1):E69-e70. PMID: 34982730. Request Article

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Although the collagen-based Manta closure device (Teleflex) is a safe and effective option to close large-bore arterial access sites, complications can occur in at-risk cohorts, as seen in this clinical scenario. It is important for clinicians to share these complications as new technology is introduced.

Cardiology/Cardiovascular Research

Cajigas HR, Kaptzan T, Lewis B, El-Sabbagh A, Al-Hijji M, Eleid M, Alkhouli M, **Wang DD**, **Eng M**, Kodali S, George I, Chakravarty T, Pershad A, O'Hair D, Jones N, **Makkar R**, Reisman M, Leon M, **O'Neill W**, Rihal C, and Guerrero M. The impact of pulmonary hypertension on outcomes of transcatheter mitral valve replacement in mitral annular calcification. *Catheter Cardiovasc Interv* 2022; Epub ahead of print. PMID: 35019204. Full Text

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OBJECTIVES: To assess the impact of pulmonary hypertension (PH) on outcomes of patients with severe mitral annular calcification (MAC) undergoing transcatheter mitral valve replacement (TMVR). BACKGROUND: PH is associated with poor outcomes after mitral valve surgery. Whether the presence of PH in patients with MAC undergoing (TMVR) is associated with poor outcomes, is unknown.

METHODS: Retrospective evaluation of 116 patients from 51 centers in 11 countries who underwent TMVR with valve in mitral annular calcification (ViMAC) using balloon-expandable aortic transcatheter valves (THVs) from September 2012 to March 2017. Pulmonary artery systolic blood pressure (PASP) by echocardiogram was available in 90 patients. The subjects were stratified based on PASP: No PH = PASP ≤35 mmHg (n = 11); mild to moderate PH = PASP 36-49 mmHg (n = 21) and severe PH = PASP ≥50 mmHg (n = 58). Clinical, procedural, and echocardiographic outcomes were assessed. RESULTS: Mean age was 72.7 (±12.8) years, 59 (65.6%) were female, Society of Thoracic Surgeons score was 15.8 + 11.8% and 90.0% where in New York Heart Association (NYHA) class III-IV. There was no significant difference in all-cause mortality at 30 days (no PH = 27.3%, mild-moderate PH = 19.0%, severe PH = 31.6%; p = 0.55) or at 1 year (no PH = 54.5%, mild-moderate PH = 38.1%, severe PH = 56.1%; p = 0.36). No difference in adverse events, NYHA class or amount of residual mitral regurgitation at 1 year were observed between the groups. CONCLUSION: This study suggests that the presence of PH in patients with predominantly mitral stenosis with MAC undergoing TMVR does not impact mortality or adverse events. Further studies are needed to fully understand the effect of PH in this group of patients.

Cardiology/Cardiovascular Research

Defilippis EM, Psotka MA, Khazanie P, **Cowger J**, and Cogswell R. Exploring Physician Perceptions of the 2018 United States Heart Transplant Allocation System. *J Card Fail* 2022; Epub ahead of print. PMID: 35039204. Full Text

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BACKGROUND: After the implementation of the 2018 US heart transplant allocation system, the experience and perceptions of heart transplant clinicians have not been well-cataloged. METHODS AND RESULTS: This web-based survey of both heart failure cardiologists and surgeons examined physician perspectives about the policy changes and whether the system is meeting its intended goals. The majority of participants (94%, n = 113) responded that the 2018 heart allocation system requires modification. Eighty-four percent reported using more temporary mechanical circulatory support to achieve higher status and 86% were concerned about the change in physician behavior and practices under the new system. CONCLUSIONS: Suggestions for possible improvement included higher status for patients on durable left ventricular assist device support, changes to criteria for status 2, modification of status exceptions, and advocacy for a heart allocation score.

Cardiology/Cardiovascular Research

Elgendy IY, **Ya'Qoub L**, Chen KH, and Pepine CJ. Coronary Microvascular Dysfunction in Patients with Non-Obstructive Coronary Arteries: Current Gaps and Future Directions. *Drugs* 2022; Epub ahead of print. PMID: 35092594. Full Text

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There has been increasing interest in open artery syndrome, also known as ischemia with non-obstructive coronary arteries (INOCA). INOCA has been increasingly recognized as a heterogeneous clinical entity. Diagnostic evaluation of this heterogeneous entity, including invasive assessment, remains key to diagnose this clinical condition and provide the appropriate treatment. Importantly, medical stratification based on the type of INOCA has shown benefit in improving the symptoms in these patients, as illustrated in the CorMicA trial. The Women's IschemiA Trial to Reduce Events in Non-ObstRuctIve CORonary

Artery Disease (WARRIOR) is another promising landmark trial that is currently enrolling patients and will address some of the unanswered questions for management of women with INOCA. In this review, we discuss the pathophysiology, management options, knowledge gaps, and future directions while highlighting the rationale and design of the ongoing WARRIOR trial.

Cardiology/Cardiovascular Research
Gindi R, **Gorgis S**, **Raad M**, **O'Neill W**, and **Koenig G**. The use of coronary sinus reducer for refractory angina in the U.S.: A case series. *Cardiovasc Revasc Med* 2022; Epub ahead of print. PMID: 35042667. Full Text

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Chronic refractory angina remains a common and debilitating condition for millions of people, with up to 30% of patients experiencing persistent angina despite successful revascularization. We share our experience with the implantation of a coronary sinus reducer in two complex CAD patients with refractory angina despite multiple revascularization strategies and maximally tolerated medical therapy.

Cardiology/Cardiovascular Research
Megaly M, **Basir MB**, Brilakis E, and **Alaswad K**. Side Power Knuckle and Antegrade-Antegrade Dissection Re-Entry: Techniques to Overcome Difficulties in Chronic Occlusion Revascularization. *JACC Cardiovasc Interv* 2022; 15(1):e13-e15. PMID: 34991829. Full Text

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Cardiology/Cardiovascular Research
Mohananey D, **Villablanca P**, Nunez-Gil I, and Ramakrishna H. Percutaneous Intervention and In-Hospital Mortality: A Contemporary Risk-Prediction Model. *J Cardiothorac Vasc Anesth* 2022; 36(2):356-357. PMID: 34635379. Full Text

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Cardiology/Cardiovascular Research
Simsek B, Kostantinis S, Karacsonyi J, **Alaswad K**, Karmpaliotis D, Masoumi A, Jaffer FA, Doshi D, Khatri J, Poommipanit P, Gorgulu S, Goktekin O, Krestyaninov O, Davies R, ElGuindy A, Jefferson BK, Patel TN, Patel M, Chandwaney RH, Mashayekhi K, Galassi AR, Rangan BV, and Brilakis ES. Outcomes of chronic total occlusion percutaneous coronary intervention in patients with reduced left ventricular ejection fraction. *Catheter Cardiovasc Interv* 2022; Epub ahead of print. PMID: 35066985. Full Text

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BACKGROUND: The relationship between left ventricular ejection fraction (LVEF) and the success and safety of coronary chronic total occlusion (CTO) percutaneous coronary intervention (PCI) has received limited study. METHODS: We examined the clinical characteristics and outcomes of CTO PCI in the Prospective Global Registry for the Study of CTO Intervention (PROGRESS-CTO) after stratifying patients by LVEF (≤35%, 36%-49%, and ≥50%). RESULTS: A total of 7827 CTO PCI procedures with LVEF data were included. Mean age was 64 ± 10 years, 81% were men, 43% had diabetes mellitus, 61% had prior PCI, 45% had prior myocardial infarction, and 29% had prior coronary artery bypass graft surgery. Technical success was similar in the three LVEF strata: 85%, 86%, and 87%, p = 0.391 for LVEF ≤35%, 36%-49%, and ≥50%, respectively. In-hospital mortality was higher in lower LVEF patients (1.1%, 0.4%, and 0.3%, respectively, p = 0.001). In-hospital major adverse cardiovascular events (MACE) were numerically higher in lower EF patients (2.7%, 2.1%, and 1.9%, p = 0.271). At a median follow-up of 2 months (interquartile range: 19-350 days), patients with lower LVEF continued to have higher mortality (4.9%, 3.2%, and 1.4%, p < 0.001) while the MACE rates were similar (9.3%, 9.6%, and 7.4%, p = 0.172). CONCLUSION: CTO PCI can be performed with high technical success in patients with reduced LVEF but is associated with higher in-hospital and post-discharge mortality.

Cardiology/Cardiovascular Research

Torabi AJ, **Mshelbwala FS**, Hugenberg D, Kovacs RJ, and Kreutz RP. Social deprivation index and ischemic events after percutaneous coronary intervention in patients with diabetes mellitus. *Catheter Cardiovasc Interv* 2022; Epub ahead of print. PMID: 35094474. Full Text

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The aim of this study was to assess neighborhood-based differences in outcomes of diabetics versus non-diabetics undergoing percutaneous coronary interventions. Disparities in healthcare access impact long-term outcomes in safety net populations. Diabetes mellitus (DM) is associated with worse clinical outcomes in patients with coronary artery disease (CAD) and may disproportionately impact patients with CAD from underserved populations. We created a geocoded retrospective cohort of patients who underwent percutaneous coronary intervention (PCI) at an urban safety net hospital in this single-center cohort analysis. We evaluated long-term ischemic events in diabetics versus nondiabetics through review of electronic medical records. Social deprivation index (SDI) was calculated based on US-census tract level and stratified according to quintiles. Among 1002 patients, 46% (n = 463) were diabetic and among those 48% (n = 222) were in the highest quintile of SDI. Baseline and angiographic characteristics were similar among diabetic and nondiabetic subjects. Among diabetic patients, those in the highest SDI quintile had significantly higher risk of cardiovascular death and myocardial infarction as compared to those in the remaining quintiles (log rank: p = 0.029) (adjusted hazard's ratio: 1.72 [95% CI: 1.01-2.92], p = 0.04). There was no association of the SDI with outcomes in nondiabetic patients (log rank: p = 0.39). In an underserved population, patients with diabetes and high SDI demonstrate higher rates of adverse ischemic events and cardiovascular death during long-term follow up after PCI. Further research

examining the impact of disparities in healthcare access on outcomes after PCI in patients with diabetes is warranted.

Cardiology/Cardiovascular Research
Ya'Qoub L, Alkhouli M, and Elgendy IY. Symptomatic improvement using the New York Heart Association classification as a predictor for survival after transcatheter edge-to-edge repair of the mitral valve. *Int J Cardiol* 2022; Epub ahead of print. PMID: 35081424. Full Text

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Cardiology/Cardiovascular Research
Ya'Qoub L, Gad M, Faza NN, **Kunkel KJ**, Ya'acoub R, **Villablanca P**, Bagur R, Alasnag M, **Eng M**, and Elgendy IY. Sex differences in outcomes of transcatheter edge-to-edge repair with MitraClip: A meta-analysis. *Catheter Cardiovasc Interv* 2022; Epub ahead of print. PMID: 35094482. Full Text

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BACKGROUND: Transcatheter edge-to-edge repair (TEER) with MitraClip improves outcomes among select patients with moderate-to-severe and severe mitral regurgitation; however, data regarding sex-specific differences in the outcomes among patients undergoing TEER are limited. METHODS: An electronic search of the PubMed, Embase, Central, and Web of Science databases for studies comparing sex differences in outcomes among patients undergoing TEER was performed. Summary estimates were primarily conducted using a random-effects model. RESULTS: Eleven studies with a total of 24,905 patients (45.6% women) were included. Women were older and had a lower prevalence of comorbidities, including diabetes, chronic kidney disease, and coronary artery disease. There was no difference in procedural success (odds ratio [OR]: 0.75, 95% confidence interval [CI]: 0.55-1.05) and short-term mortality (i.e., up to 30 days) between women and men (OR: 1.16, 95% CI: 0.97-1.39). Women had a higher incidence of periprocedural bleeding and stroke (OR: 1.34, 95% CI: 1.15-1.56) and (OR: 1.57, 95% CI: 1.10-2.25), respectively. At a median follow-up of 12 months, there was no difference in mortality (OR: 0.98, 95% CI: 0.89-1.09) and heart failure hospitalizations (OR: 1.07, 95% CI: 0.68-1.67). An analysis of adjusted long-term mortality showed a lower incidence of mortality among women (hazards ratio: 0.77, 95% CI: 0.67-0.88). CONCLUSIONS: Despite a lower prevalence of baseline comorbidities, women undergoing TEER with MitraClip had higher unadjusted rates of periprocedural stroke and bleeding as compared with men. There was no difference in unadjusted procedural success, short-term or long-term mortality. However, women had lower adjusted mortality on long-term follow-up. Future high-quality studies assessing sex differences in outcomes after TEER are needed to confirm these findings.

Center for Health Policy and Health Services Research
Anvari MS, Kleinman MB, Massey EC, Bradley VD, **Felton JW**, Belcher AM, and Magidson JF. "In their mind, they always felt less than": The role of peers in shifting stigma as a barrier to opioid use disorder treatment retention. *J Subst Abuse Treat* 2022; Epub ahead of print.:108721. PMID: 35067397. Full Text

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INTRODUCTION: A substantial, national need exists for culturally acceptable, accessible opioid use disorder (OUD) treatment. Medication for opioid use disorder (MOUD) is regarded as effective in treating OUD; however, retention in MOUD programs remains low nationally. One known barrier to MOUD retention is stigma, particularly within ethno-racial minority communities. Peer recovery specialists (PRSs), individuals with shared experience in substance use and recovery, may be particularly well suited to support patients in MOUD treatment, and may have capacity to play a key role in decreasing stigma-related barriers to MOUD retention. METHODS: This study used qualitative methods to solicit feedback on how patients receiving methadone treatment (MT) experience stigma (i.e., toward substance use [SU] and MT). Study staff also gathered information regarding how a PRS role may reduce stigma and improve retention in care, including barriers and facilitators to the PRS role shifting stigma. Study staff conducted semi-structured qualitative interviews and focus groups (N = 32) with staff and patients receiving MT at an opioid treatment program as well as PRSs in Baltimore. RESULTS: Participants identified experiences of internalized, as well as enacted and anticipated, MT and SU stigma, and described these as barriers to treatment. Participants also identified opportunities for PRSs to shift stigma-related barriers for patients receiving MT through unique aspects of the PRS role, such as their shared lived experience. CONCLUSIONS: Reducing stigma surrounding SUD and MT is critical for improving MOUD outcomes, and future research may consider how the PRS role can support this effort.

Center for Health Policy and Health Services Research
Chi FW, Alexeeff S, **Ahmedani B**, Boscarino JA, Waitzfelder B, Dugan R, Frankland T, **Hu Y**, **Loree A**, and Sterling S. Predicting adolescent alcohol and other drug problems using electronic health records data. *J Subst Abuse Treat* 2022; 132:108487. PMID: 34098206. Full Text

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IMPORTANCE: Alcohol and other drug (AOD) use problems may cause significant burden on affected adolescents and their families, yet treatment providers often do not identify these problems early enough. OBJECTIVE: To develop, and internally and externally validate a multivariable prediction model of adolescent AOD problems using child- and maternal-level predictors before age 12, and child-level predictors between ages 12 to 18, as recorded in the electronic health records (EHR). DESIGN: A retrospective cohort study conducted time-to-event analyses using Cox proportional hazards models. SETTING AND PARTICIPANTS: 41,172 children born between 1997 and 2000 at four health plans

(Kaiser Permanente Hawaii, KPHI; Kaiser Permanente Northern California, KPNC; Geisinger Clinic, GC; and Henry Ford Health System, HFHS) who had continuous membership since birth and linkable maternal records in the health plan. OUTCOMES: AOD use problems between ages 12 to 18, defined as either: 1) having a contact with the AOD treatment program or 2) receiving a non-tobacco AOD diagnosis in an inpatient or outpatient encounter. EXPOSURES: Candidate predictor variables include demographics, socioeconomic status, and clinical diagnoses of the children and the mothers. RESULTS: Overall, 1400 (3.4%) adolescents had an AOD disorder between ages 12 to 18; the median follow-up time post-age 12 was 5.3 years. The research team developed two final prediction models: a "baseline" model of 10 child-level and 7 maternal-level predictors before age 12, and a more comprehensive "time-varying" model, which incorporated child risk factors after age 12 as time-varying covariates in addition to the baseline model predictors. Model performance evaluation showed good discrimination performance of the models, with the concordance index improved for the time-varying model, especially for prediction of AOD events in late adolescence. CONCLUSIONS AND RELEVANCE: This study identified a number of child and maternal characteristics and diagnoses routinely available in EHR data as predictive of risk for developing AOD problems in adolescence. Further, we found that risk of developing problems varies significantly by the timing and persistence of the risk factors. Findings may have potential clinical implications for prevention and identification of adolescent AOD problems, but more research is needed, especially across additional health systems.

Center for Health Policy and Health Services Research

Collado A, **Felton J**, Grunevski S, Doran K, and Yi R. Working Memory Training Reduces Cigarette Smoking among Low-Income Individuals with Elevated Delay Discounting. *Nicotine Tob Res* 2022; Epub ahead of print. PMID: 35018452. Full Text

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INTRODUCTION: The competing neurobehavioral decision systems theory conceptualizes addictive behavior, such as cigarette smoking, as arising from the imbalance between stronger impulsive relative to weaker executive decision processes. Working memory trainings may enhance executive decision processes, yet few studies have evaluated its efficacy on substance misuse, with mixed evidence. The current study is the first to evaluate the efficacy of a working memory training on cigarette smoking. We consider the moderating role of delay discounting, or the preference for smaller, immediately available rewards relative to larger, delayed rewards, which has been associated with smoking onset, progression, and resumption. The investigation focuses on individuals living in high-poverty, low-resource environments due high burden of tobacco-related disease they experience. METHOD: The study utilized a subset of data (N = 177 individuals who smoke) generated from a randomized clinical trial that is evaluating the efficacy of working memory training for improving health-related outcomes. Participants were randomized to complete up to 15 sessions of the active, working memory training or a control training. RESULTS: Findings showed that among participants who were randomized to the working memory condition, those with higher rates of baseline delay discounting demonstrated decreases in cigarette smoking ($p = .05$). Conversely, individuals randomized to the control condition, who had higher rates of baseline delay discounting exhibited increases in cigarette smoking ($p = .025$). CONCLUSIONS: Results suggest that DD may be an important indicator of working memory training outcomes and a possible approach for effectively targeting treatments in the future. IMPLICATIONS: Delay discounting is important indicator of working memory training outcomes on cigarette smoking. The findings suggest the possibility to effectively target treatments considering the impact of delay discounting. Given that rates of DD tend to be higher among individuals from low-resource communities, and that computer-based working memory training programs are relatively low-cost and scalable, these findings suggest this approach may have specific utility for adults at heightened risk for cigarette use.

Center for Health Policy and Health Services Research

Gonzalez HC, **Zhou Y**, **Nimri FM**, **Rupp LB**, **Trudeau S**, and **Gordon SC**. Alcohol-related hepatitis admissions increased 50% in the first months of the CoViD-19 pandemic in the US. *Liver Int* 2022; Epub ahead of print. PMID: 35094494. Full Text

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Early reports suggest that alcohol misuse increased in 2020 due to the CoViD-19 pandemic. Using retrospective data from Henry Ford Health System in Detroit MI-an area that experienced an early and severe CoViD-19 outbreak-to investigate the impact of the pandemic on alcohol-related liver disease (ARLD) in the summer of 2020 compared to the same period in 2016-2019. Both the number of ARLD admissions and the proportion of total admissions represented by ARLD patients increased significantly in 2020 compared to previous years. The number of ARLD admissions as a proportion of all hospitalizations was 50% higher in 2020 than in 2016-2019 (0.31% versus 0.21%; p=0.0013); by September 2020, the number of admissions was 66% higher than previous years. Despite racial and geographic disparities in direct and indirect CoViD-related stressors across the Detroit metropolitan area, the demographic profile of ARLD patients did not change compared to previous years.

Center for Health Policy and Health Services Research

Hecht LM, **Martens KM**, **Pester BD**, **Hamann A**, **Carlin AM**, and **Miller-Matero LR**. Adherence to Medical Appointments Among Patients Undergoing Bariatric Surgery: Do Health Literacy, Health Numeracy, and Cognitive Functioning Play a Role? *Obes Surg* 2022; Epub ahead of print. PMID: 35061155. Full Text

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Center for Health Policy and Health Services Research

Lim S, **Bazydlo M**, **Macki M**, **Haider S**, **Schultz L**, **Nerenz D**, **Fadel H**, **Pawloski J**, **Yeh HH**, Park P, Aleem I, Khalil J, Easton R, **Schwalb JM**, **Abdulhak M**, and **Chang V**. A Matched Cohort Analysis of Drain Usage in Elective Anterior Cervical Discectomy and Fusion: A Michigan Spine Surgery Improvement Collaborative (MSSIC) Study. *Spine (Phila Pa 1976)* 2022; 47(3):220-226. PMID: 34516058. Full Text

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STUDY DESIGN: This is a retrospective, cohort analysis of multi-institutional database. OBJECTIVE: This study was designed to analyze the impact of drain use following elective anterior cervical discectomy and fusion (ACDF) surgeries. SUMMARY OF BACKGROUND DATA: After ACDF, a drain is often placed to prevent postoperative hematoma. However, there has been no high quality evidence to support its use with ACDF despite the theoretical benefits and risks of drain placement. METHODS: The Michigan Spine Surgery Improvement Collaborative database was queried to identify all patients undergoing elective ACDF between February 2014 and October 2019. Cases were divided into two cohorts based on drain use. Propensity-score matching was utilized to adjust for inherent differences between the two cohorts.

Measured outcomes included surgical site hematoma, length of stay, surgical site infection, dysphagia, home discharge, readmission within 30 days, and unplanned reoperation. RESULTS: We identified 7943 patients during the study period. Propensity-score matching yielded 3206 pairs. On univariate analysis of matched cohorts, there were no differences in rate of postoperative hematoma requiring either return to OR or readmission. We noted patients with drains had a higher rate of dysphagia (4.6% vs. 6.3%; P=0.003) and had longer hospital stay (P<0.001). On multivariate analysis, drain use was associated with significantly increased length of stay (relative risk 1.23, 95% confidence interval [CI] 1.13-1.34; P<0.001). There were no significant differences in other outcomes measured. CONCLUSION: Our analysis demonstrated that drain use is associated with significant longer hospital stay.

Center for Health Policy and Health Services Research

Selim R, **Zhou Y**, **Rupp LB**, **Trudeau S**, **Naffouj S**, **Shamaa O**, **Ahmed A**, **Jafri SM**, **Gordon SC**, **Segal A**, and **Gonzalez HC**. Availability of PEth testing is associated with reduced eligibility for liver transplant among patients with alcohol-related liver disease. *Clin Transplant* 2022; Epub ahead of print.:e14595. PMID: 35041223. Full Text

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BACKGROUND: Serum phosphatidylethanol (PEth) is a highly sensitive test to detect alcohol use. We evaluated whether the availability of PEth testing impacted rates of liver transplant evaluation terminations and delistings. METHODS: Medical record data were collected for patients who initiated transplant evaluation due to alcohol-related liver disease in the pre-PEth (2017) or PEth (2019) eras. Inverse probability weighting (IPW) was used to balance baseline patient characteristics. Outcomes included termination of evaluation or delisting due to alcohol use; patients were censored at receipt of transplant; death was considered a competing risk. The Fine-Gray method was performed to determine whether PEth testing affected risk of evaluation termination/ delisting due to alcohol use. RESULTS: Three hundred and seventy-five patients with alcohol-related indications for transplant (157 in 2017; 210 in 2019) were included. The final IPW-adjusted model for the composite outcome of terminations/delisting due to alcohol use retained two significant variables (P < .05): PEth era and BMI category. Patients evaluated during the PEth era were almost three times more likely to experience an alcohol-related termination/delisting than those in the pre-PEth era (sHR = 2.86; 95%CI 1.67-4.97) CONCLUSION: We found that availability of PEth testing at our institution was associated with a higher rate of exclusion of patients from eligibility for liver transplant. Use of PEth testing has significant potential to inform decisions regarding transplant candidacy for patients with alcohol-related liver disease.

Center for Health Policy and Health Services Research

Spradling PR, Xing J, Zhong Y, **Rupp LB**, Moorman AC, Lu M, Teshale EH, Schmidt MA, Daida YG, Boscarino JA, and **Gordon SC**. Incidence of malignancies among patients with chronic hepatitis B in US health care organizations, 2006-2018. *J Infect Dis* 2022; Epub ahead of print. PMID: 35039863. Full Text

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Hepatitis B virus (HBV) infection causes hepatocellular carcinoma but its association with other cancers is not well established. We compared age-adjusted incidence of primary cancers among 5,773 HBV-infected persons with US cancer registries during 2006-2018. Compared with the US population,

substantially higher incidence among HBV-infected persons was observed for hepatocellular carcinoma (Standardized rate ratio [SRR] 30.79), gastric (SRR 7.95), neuroendocrine (SRR 5.88), cholangiocarcinoma (SRR 4.62), and ovarian (SRR 3.72) cancers, and non-Hodgkin lymphoma (SRR 2.52). Clinicians should be aware of a heightened potential for certain non-hepatic malignancies among hepatitis B patients, as earlier diagnosis favors improved survival.

Dermatology

Alavi A, **Hamzavi I**, Brown K, Santos LL, Zhu Z, Liu H, Howell MD, and Kirby J. Janus kinase 1 inhibitor INCB054707 for patients with moderate-to-severe hidradenitis suppurativa: results from two phase 2 studies. *Br J Dermatol* 2022; Epub ahead of print. PMID: 34978076. Full Text

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BACKGROUND: Janus kinase (JAK)-mediated cytokine signaling contributes to local and systemic inflammation in hidradenitis suppurativa (HS). OBJECTIVES: To describe safety and efficacy results from two multicenter phase 2 trials of the JAK1 inhibitor INCB054707 in patients with moderate-to-severe HS. METHODS: Patients received open-label 15 mg INCB054707 once daily (QD; Study 1) or were randomized to 30, 60, or 90 mg INCB054707 QD or placebo (3:1 within each cohort; Study 2) for 8 weeks. Eligible patients were aged 18-75 years with moderate-to-severe HS (Hurley stage II/III disease), lesions present in ≥2 anatomic locations, and a total abscess and inflammatory nodule count ≥3. The primary endpoint for both studies was safety and tolerability. Secondary endpoints included HS Clinical Response (HiSCR) and other efficacy measures. RESULTS: Ten patients were enrolled in Study 1 (15 mg INCB054707) and 35 in Study 2 (INCB054707: 30 mg, n=9; 60 mg, n=9; 90 mg, n=8; placebo: n=9). Overall, 70·0% of patients in Study 1 and 80·8% of patients receiving INCB054707 in Study 2 experienced ≥1 treatment-emergent adverse event (TEAE); 30·0% and 42·3% of patients, respectively, had ≥1 treatment-related TEAE. Among evaluable patients, 3 patients (42·9%) in Study 1 and 17 patients (overall 65·4%: 30 mg, 55·6%; 60 mg, 55·6%; 90 mg, 87·5%) receiving INCB054707 versus 4 patients (57·1%) receiving placebo in Study 2 achieved HiSCR at Week 8. CONCLUSIONS: INCB054707 was well tolerated, with responses observed in patients with moderate-to-severe HS. Safety and efficacy findings from these studies demonstrate proof of concept for JAK1 inhibition in HS (ClinicalTrials.gov identifiers, NCT03569371, NCT03607487).

Dermatology

Boothby-Shoemaker WT, **Mohammad TF**, **Ozog DM**, and **Lim HW**. Photoprotection by Clothing: A Review. *Photodermatol Photoimmunol Photomed* 2022; Epub ahead of print. PMID: 35073443. Full Text

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Clothing is recognized by leading health agencies as a primary method to protect against the harmful effects of photodamage caused by ultraviolet (UV) radiation and visible light. The photoprotective capacity of clothing is commonly measured as the ultraviolet protective factor (UPF). While the technology driving photoprotective clothing has been well-established, there continues to be efforts to discover new materials to improve the UPF of clothing. Here, we show increased Google searches for photoprotective clothing over the last decade, suggesting a high level of public interest in photoprotective clothing. In addition, we investigate the frequency of UPF-graded photoprotective clothing sold by large retail stores featured in Fortune 1000. We review factors that alter the UPF of clothing and describe emerging textile technologies used to increase clothing's photoprotective capacity. Finally, we compare how photoprotective clothing is regulated among different countries, the importance of photoprotective clothing in occupational health, and research in visible light and clothing photoprotection.

Dermatology

Buechler CR, **Sagher E**, **Tisack A**, **Jacobsen G**, **Lim HW**, **McHargue C**, **Friedman BJ**, **Mi QS**, **Ozog DM**, and **Veenstra J**. Demographic Factors and Disparate Outcomes in Mycosis Fungoides: Retrospective Analysis of a Racially Diverse 440 Patient Cohort from Detroit, MI, USA. *Br J Dermatol* 2022; Epub ahead of print. PMID: 35092691. Full Text

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Dermatology

Fu C, **Zhou L**, **Mi QS**, and **Jiang A**. Plasmacytoid Dendritic Cells and Cancer Immunotherapy. *Cells* 2022; 11(2). PMID: 35053338. Full Text

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Despite largely disappointing clinical trials of dendritic cell (DC)-based vaccines, recent studies have shown that DC-mediated cross-priming plays a critical role in generating anti-tumor CD8 T cell immunity and regulating anti-tumor efficacy of immunotherapies. These new findings thus support further development and refinement of DC-based vaccines as mono-immunotherapy or combinational immunotherapies. One exciting development is recent clinical studies with naturally circulating DCs including plasmacytoid DCs (pDCs). pDC vaccines were particularly intriguing, as pDCs are generally presumed to play a negative role in regulating T cell responses in tumors. Similarly, DC-derived exosomes (DCexos) have been heralded as cell-free therapeutic cancer vaccines that are potentially superior to DC vaccines in overcoming tumor-mediated immunosuppression, although DCexo clinical trials have not led to expected clinical outcomes. Using a pDC-targeted vaccine model, we have recently reported that pDCs required type 1 conventional DCs (cDC1s) for optimal cross-priming by transferring antigens through pDC-derived exosomes (pDCexos), which also cross-prime CD8 T cells in a bystander cDC-dependent manner. Thus, pDCexos could combine the advantages of both cDC1s and pDCs as cancer vaccines to achieve better anti-tumor efficacy. In this review, we will focus on the pDC-based cancer vaccines and discuss potential clinical application of pDCexos in cancer immunotherapy.

Dermatology

Kibbi N, Owen JL, Worley B, Wang JX, Harikumar V, Downing MB, Aasi SZ, Aung PP, Barker CA, Bolotin D, Bordeaux JS, Cartee TV, Chandra S, Cho NL, Choi JN, Chung KY, Cliby WA, Dorigo O, Eisen DB, Fujisawa Y, Golda N, Halfdanarson TR, Iavazzo C, Jiang SIB, Kanitakis J, Khan A, Kim JYS, Kuzel TM, Lawrence N, Leitao MM, Jr., MacLean AB, Maher IA, Mittal BB, Nehal KS, **Ozog DM**, Pettaway CA, Ross JS, Rossi AM, Servaes S, Solomon MJ, Thomas VD, Tolia M, Voelzke BB, Waldman A, Wong MK, Zhou Y, Arai N, Brackett A, Ibrahim SA, Kang BY, Poon E, and Alam M. Evidence-Based Clinical Practice Guidelines for Extramammary Paget Disease. *JAMA Oncol* 2022; Epub ahead of print. PMID: 35050310. Full Text

IMPORTANCE: Extramammary Paget disease (EMPD) is a frequently recurring malignant neoplasm with metastatic potential that presents in older adults on the genital, perianal, and axillary skin. Extramammary Paget disease can precede or occur along with internal malignant neoplasms. OBJECTIVE: To develop recommendations for the care of adults with EMPD. EVIDENCE REVIEW: A systematic review of the literature on EMPD from January 1990 to September 18, 2019, was conducted using MEDLINE, Embase, Web of Science Core Collection, and Cochrane Libraries. Analysis included 483 studies. A multidisciplinary expert panel evaluation of the findings led to the development of clinical care recommendations for EMPD. FINDINGS: The key findings were as follows: (1) Multiple skin biopsies, including those of any nodular areas, are critical for diagnosis. (2) Malignant neoplasm screening appropriate for age and anatomical site should be performed at baseline to distinguish between primary and secondary EMPD. (3) Routine use of sentinel lymph node biopsy or lymph node dissection is not recommended. (4) For intraepidermal EMPD, surgical and nonsurgical treatments may be used

depending on patient and tumor characteristics, although cure rates may be superior with surgical approaches. For invasive EMPD, surgical resection with curative intent is preferred. (5) Patients with unresectable intraepidermal EMPD or patients who are medically unable to undergo surgery may receive nonsurgical treatments, including radiotherapy, imiquimod, photodynamic therapy, carbon dioxide laser therapy, or other modalities. (6) Distant metastatic disease may be treated with chemotherapy or individualized targeted approaches. (7) Close follow-up to monitor for recurrence is recommended for at least the first 5 years. CONCLUSIONS AND RELEVANCE: Clinical practice guidelines for EMPD provide guidance regarding recommended diagnostic approaches, differentiation between invasive and noninvasive disease, and use of surgical vs nonsurgical treatments. Prospective registries may further improve our understanding of the natural history of the disease in primary vs secondary EMPD, clarify features of high-risk tumors, and identify superior management approaches.

Dermatology

Maghfour J, **Ceresnie M**, Olson J, and **Lim HW**. The Association between Frontal Fibrosing Alopecia, Sunscreen, and Moisturizers: A Systematic Review with a Meta-Analysis. *J Am Acad Dermatol* 2022; Epub ahead of print. PMID: 35074440. Full Text

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Dermatology

Musa A, Nasser S, Yousif J, **Hamad J**, and Daveluy S. By the skin of our teeth: potential applications of dental pulp stem cells to cutaneous disease. *Int J Dermatol* 2022; Epub ahead of print. PMID: 35094389. Full Text

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Dermatology

Rehman R, Hasan S, Akram H, and **Jahnke M**. TikTok as a Source of Dermatologic Information on Atopic Dermatitis. *Dermatitis* 2022; Epub ahead of print. PMID: 35089902. Full Text

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Dermatology

Shareef SJ, Rehman R, **Seale L**, **Mohammad TF**, and Fahs F. Hijab and hair loss: a cross-sectional analysis of information on YouTube. *Int J Dermatol* 2022; Epub ahead of print. PMID: 35094383. Full Text

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Dermatology

Stein Gold L, Papp K, Pariser D, Green L, Bhatia N, Sofen H, Albrecht L, Gooderham M, Chen M, Paris M, Wang Y, and Callis Duffin K. Efficacy and safety of apremilast in patients with mild-to-moderate plaque psoriasis: Results of a phase 3, multicenter, randomized, double-blind, placebo-controlled trial. *J Am Acad Dermatol* 2022; 86(1):77-85. PMID: 34343599. Full Text

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BACKGROUND: Patients with mild-to-moderate psoriasis may have substantial quality-of-life impairment. OBJECTIVE: To evaluate apremilast 30 mg twice daily for mild-to-moderate psoriasis. METHODS: Phase 3, double-blind, placebo-controlled study in adults with mild-to-moderate psoriasis inadequately controlled or intolerant to ≥ 1 topical psoriasis therapy (NCT03721172). The primary endpoint was the achievement of static Physician Global Assessment score of 0 (clear) or 1 (almost clear) and ≥ 2-point reduction at week 16. RESULTS: Five hundred ninety-five patients were randomized (apremilast: 297; placebo: 298). The primary endpoint was met, with a significantly greater static Physician Global Assessment response rate observed at week 16 in the apremilast group compared with the placebo group (21.6% vs 4.1%; $P < .0001$). All secondary endpoints were met with the achievement of body surface area-75 (33.0% vs 7.4%), body surface area ≤ 3% (61.0% vs 22.9%), ≥ 4-point reduction in Whole Body Itch Numeric Rating Scale (43.2% vs 18.6%), Scalp Physician Global Assessment 0 or 1 and ≥ 2-point reduction (44.0% vs 16.6 %), and changes from baseline in body surface area, Psoriasis Area and Severity Index, and Dermatology Life Quality Index (all $P < .0001$). The most commonly reported adverse events (≥ 5%) with apremilast were diarrhea, headache, nausea, nasopharyngitis, and upper respiratory tract infection, consistent with prior studies. LIMITATIONS: The study lacked an active-comparator arm. CONCLUSION: Apremilast demonstrated efficacy in mild-to-moderate psoriasis and safety consistent with the established safety profile of apremilast.

Dermatology

Szeto MD, Kokoska RE, **Maghfour J**, Rundle CW, Presley CL, Harp T, Hamp A, Wegener V, Hugh J, and Dellavalle RP. An Analysis of Public Sunscreen Distribution in the United States During the COVID-19 Pandemic. *J Am Acad Dermatol* 2022; Epub ahead of print. PMID: 35090999. Full Text

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Diagnostic Radiology

Chen I, **Perkins SQ**, **Schwartz SE**, and **Leavitt D**. Nephrolithiasis associated with embolization material, Lipiodol®, following embolization of large renal angiomyolipoma. *Urol Case Rep* 2022; 40:101910. PMID: 34786344. Full Text

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Angiomyolipoma (AML) is a benign renal mass that can be treated with nephron sparing surgery or transarterial embolization. Embolization has been favored due to efficacy and safety profile. This case demonstrates a previously undocumented phenomenon of AML treated with transarterial embolization using Lipiodol® (Guerbet LLC, Princeton, NJ) resulting in nephrolithiasis and retention of Lipiodol® two years after original embolization. Although Lipiodol®-based embolization has not been shown to cause nephrolithiasis, it may have been the nidus for stone formation, and this is an important potential complication worthy of further study.

Diagnostic Radiology
Poyiadji N, **Tassopoulos A**, **Myers DT**, **Wolf L**, and **Griffith B**. COVID-19 Vaccine Mandates: Impact on Radiology Department Operations and Mitigation Strategies. *J Am Coll Radiol* 2021; Epub ahead of print. PMID: 34863775. Full Text

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OBJECTIVE: Coronavirus disease 2019 (COVID-19) vaccine mandates are being implemented in health systems across the United States, and the impact on the radiology department workforce and operations becuase of vaccine hesitancy among health care workers is currently unknown. This article discusses the potential impact of the COVID-19 vaccine mandate on a large multicenter radiology department as well as strategies to mitigate those effects. METHODS: Weekly vaccine compliance data were obtained for employees across the entire health system from August 17, 2021, through September 13, 2021, and radiology department-specific data were extracted. Vaccine compliance data was mapped to specific radiology job titles and the five different hospital locations. RESULTS: A total of 6% of radiology department employees were not fully vaccine compliant by the initial deadline of September 10, 2021. MR technologists and radiology technology assistants had the highest initial rates of noncompliance of 37% and 38%, respectively. Vaccine noncompliance rates by the mandate deadline ranged from 0.5% to 7.0% at the five hospital sites. Only one hospital required a decrease in imaging hours of operation because of the vaccine mandate. CONCLUSION: Despite initial concerns about the impact of vaccine mandate noncompliance on departmental operations, there was ultimately little effect because of improved vaccine compliance after the mandate. Understanding individual employee and locoregional differences in vaccine compliance can help leaders proactively develop mitigation strategies to manage this new challenge during the COVID-19 pandemic.

Diagnostic Radiology
Ruder MC, **Lawrence RL**, **Soliman SB**, and **Bey MJ**. Presurgical tear characteristics and estimated shear modulus as predictors of repair integrity and shoulder function one year after rotator cuff repair. *JSES Int* 2022. PMID: Not assigned. Full Text

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Background: Rotator cuff repair provides pain relief for many patients; however, retears are relatively common and affect approximately 20%-70% of patients after repair. Although magnetic resonance imaging (MRI) offers the ability to assess tissue characteristics such as tear size, retraction, and fatty infiltration, it provides little insight into the quality of the musculotendinous tissues the surgeon will encounter during surgery. However, shear wave elastography (SWE) could provide an indirect assessment of quality (ie, stiffness) by measuring the speed of shear waves propagating through tissue. The objective of this study was to determine the extent to which estimated shear modulus predicts repair

integrity and functional outcomes 1 year after rotator cuff repair. Methods: Thirty-three individuals scheduled to undergo arthroscopic rotator cuff repair were enrolled in this study. Before surgery, shear modulus of the supraspinatus tendon and muscle was estimated using ultrasound SWE. MRIs were obtained before and 1 year after surgery to assess tear characteristics and repair integrity, respectively. Shoulder strength, range of motion, and patient-reported pain and function were assessed before and after surgery. Functional outcomes were compared between groups and across time using a two-factor mixed model analysis of variance. Stepwise regression with model comparison was used to investigate the extent to which MRI and shear modulus predicted repair integrity and function at 1 year after surgery. Results: At 1 year after surgery, 56.5% of patients had an intact repair. No significant differences were found in any demographic variable, presurgical tear characteristic, or shear modulus between patients with an intact repair and those with a recurrent tear. Compared with presurgical measures, patients in both groups demonstrated significant improvements at 1 year after surgery in pain ($P < .01$), self-reported function ($P < .01$), range of motion ($P < .01$), and shoulder strength ($P < .01$). In addition, neither presurgical MRI variables ($P > .16$) nor shear modulus ($P > .52$) was significantly different between groups at 1 year after surgery. Finally, presurgical shear modulus generally did not improve the prediction of functional outcomes above and beyond that provided by MRI variables alone ($P > .22$). Conclusion: Although SWE remains a promising modality for many clinical applications, this study found that SWE-estimated shear modulus did not predict repair integrity or functional outcomes at 1 year after surgery, nor did it add to the prediction of outcomes above and beyond that provided by traditional presurgical MRI measures of tear characteristics. Therefore, it appears that further research is needed to fully understand the clinical utility of SWE for musculoskeletal tissue and its potential use for predicting outcomes after surgical rotator cuff repair.

Diagnostic Radiology

Somnay V, and **Dalal I**. Incidental Uptake of 18F-Fluciclovine by Type AB Thymoma. *Clin Nucl Med* 2022; 47(2):e116-e117. PMID: 35006112. Full Text

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Biochemical recurrence of prostate cancer, detected by a rising PSA, may reflect intraprostatic or extraprostatic recurrence. 18F-Fluciclovine (Axumin), a synthetic amino acid substrate in tumor metabolism, has frequently been used for to localize recurrent prostate cancers. We present a 71-year-old man with biochemical recurrence of prostate cancer but no convincing imaging findings on 18F-fluciclovine PET/CT. Of note, however, was an incidental uptake within the anterior mediastinum, which was found on biopsy to be a type AB thymoma. With this, we stress that awareness of false-positive uptake patterns is crucial for accurate diagnosis of recurrent prostate cancer.

Emergency Medicine

Ayyash M, **Ayyash M**, **Hassan Z**, Farhat A, Rakine H, and Blackwood RA. Factors and scenarios influencing Arab Americans' preference for male versus female physicians. *J Natl Med Assoc* 2022; Epub ahead of print. PMID: 35105458. Full Text

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As the Arab American community sees an increase in female physicians, knowledge of patients' perceptions is necessary to foster the physician-patient relationship. The objective of this study was to

better understand physician gender preference among Arab Americans when given a range of selected medical scenarios. An anonymous survey was distributed electronically through social media. The survey elicited gender preferences of Arab Americans given different scenarios. Data was collected from 325 participants. No physician gender preference was noted for 6 out of 7 scenarios with the exception for sensitive medical issues. Same-sex gender preference was noted in the cases of sensitive medical issues, routine medical visits, medical emergencies, and minor medical procedures. Predominant visitations to male physicians across specialties was found. The current study shows that although most Arab Americans expressed no preference for physician gender, the majority currently visit male physicians. The study highlights similarities to other populations in terms of same-sex physician gender preference when it comes to patient choices. Our study shows, however, that physicians' experience and empathy were leading criteria as opposed to gender or Arab identity when it came to physician selection by Arab American patients.

Emergency Medicine

Davenport D, Alvarez A, Natesan S, **Caldwell MT**, Gallegos M, Landry A, Parsons M, and Gottlieb M. Faculty Recruitment, Retention, and Representation in Leadership: An Evidence-Based Guide to Best Practices for Diversity, Equity, and Inclusion from the Council of Residency Directors in Emergency Medicine. *West J Emerg Med* 2022; 23(1):62-71. PMID: 35060865. Full Text

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Improving the recruitment, retention, and leadership advancement of faculty who are under-represented in medicine is a priority at many academic institutions to ensure excellence in patient care, research, and health equity. Here we provide a critical review of the literature and offer evidence-based guidelines for faculty recruitment, retention, and representation in leadership. Recommendations for recruitment include targeted recruitment to expand the candidate pool with diverse candidates, holistic review of applications, and incentivizing stakeholders for success with diversity efforts. Retention efforts should establish a culture of inclusivity, promote faculty development, and evaluate for biases in the promotion and tenure process. We believe this guide will be valuable for all leaders and faculty members seeking to advance diversity, equity, and inclusion in their institutions.

Emergency Medicine

Hagerman TK, McKernan GP, Carle AC, Yu JA, Stover AD, and Houtrow AJ. The Mental and Physical Health of Mothers of Children with Special Health Care Needs in the United States. *Matern Child Health J* 2022; Epub ahead of print. PMID: 35072870. Full Text

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OBJECTIVE: To determine the prevalence of poor mental and physical health among mothers of children with special health care needs (CSHCN) and to determine the association between maternal health and the child's number of special health care needs (SHCN) and severity of ability limitation. METHODS: We used the combined 2016-2018 National Survey of Children's Health Dataset of 102,341 children ages 0-17 including 23,280 CSHCN. We used regression models to examine the associations of a child's number of SHCN and ability limitations with maternal health. RESULTS: Twice as many mothers of CSHCN had

poor mental and physical health compared to non-CSHCN (mental 10.3% vs. 4.0%, p < .001; physical 11.9% vs 5.0%, p < .001). In regression models, increased number of SHCN and severity of activity limitations were associated with significantly increased odds of poor maternal health. CONCLUSIONS FOR PRACTICE: Mothers of CSHCN have worse health compared to mothers of non-CSHCN, especially those who experience social disadvantage and those with children with complex SHCN or severe ability limitations. Interventions to improve the health of these particularly vulnerable caregivers of CSHCN are warranted.

Emergency Medicine

Haidar DA, Kessler R, **Khanna NK**, Cover MT, Burkhardt JC, Theyyunni N, Tucker RV, Huang RD, Holman E, Bridge PD, Klein KA, and Fung CM. Association of a longitudinal, preclinical ultrasound curriculum with medical student performance. *BMC Med Educ* 2022; 22(1):50. PMID: 35062942. Full Text

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INTRODUCTION: Point-of-care ultrasound (US) is used in clinical practice across many specialties. Ultrasound (US) curricula for medical students are increasingly common. Optimal timing, structure, and effect of ultrasound education during medical school remains poorly understood. This study aims to retrospectively determine the association between participation in a preclinical, longitudinal US curriculum and medical student academic performance. METHODS: All first-year medical students at a medical school in the Midwest region of the United States were offered a voluntary longitudinal US curriculum. Participants were selected by random lottery. The curriculum consisted of five three-hour hands on-sessions with matching asynchronous content covering anatomy and pathologic findings. Content was paired with organ system blocks in the standard first year curriculum at our medical school. Exam scores between the participating and non-participating students were compared to evaluate the objective impact of US education on performance in an existing curriculum. We hypothesized that there would be an association between participation in the curriculum and improved medical student performance. Secondary outcomes included shelf exam scores for the surgery, internal medicine, neurology clerkships and USMLE Step 1. A multivariable linear regression model was used to evaluate the association of US curriculum participation with student performance. Scores were adjusted for age, gender, MCAT percentile, and science or engineering degree. RESULTS: 76 of 178 students applied to participate in the curriculum, of which 51 were accepted. US curriculum students were compared to non-participating students (n = 127) from the same class. The US curriculum students performed better in cardiovascular anatomy (mean score 92.1 vs. 88.7, p = 0.048 after adjustment for multiple comparisons). There were no significant differences in cumulative cardiovascular exam scores, or in anatomy and cumulative exam scores for the gastroenterology and neurology blocks. The effect of US curriculum participation on cardiovascular anatomy scores was estimated to be an improvement of 3.48 points (95% CI 0.78-6.18). No significant differences were observed for USMLE Step 1 or clerkship shelf exams. There were no significant differences in either preclinical, clerkship or Step 1 score for the 25 students who applied and were not accepted and the 102 who did not apply. CONCLUSIONS: Participation in a preclinical longitudinal US curriculum was associated with improved exam performance in cardiovascular anatomy but not examination of other cardiovascular system concepts. Neither anatomy or comprehensive exam scores for neurology and gastrointestinal organ system blocks were improved.

Emergency Medicine

Harnett NG, Dumornay NM, Delity M, Sanchez LD, Mohiuddin K, Musey PI, Seamon MJ, McLean SA, Kessler RC, Koenen KC, Beaudoin FL, Lebois LAM, van Rooij SJH, Sampson NA, Michopoulos V, Maples-Keller JL, Haran JP, Storrow AB, **Lewandowski C**, Hendry PL, Sheikh S, Jones CW, Punches BE, Kurz MC, Swor RA, McGrath ME, Hudak LA, Pascual JL, House SL, An X, Stevens JS, Neylan TC, Jovanovic T, Linnstaedt SD, Germine LT, Datner EM, Chang AM, Pearson C, Peak DA, Merchant RC, Domeier RM, Rathlev NK, O'Neil BJ, Sergot P, Bruce SE, Miller MW, Pietrzak RH, Joormann J, Barch DM, Pizzagalli DA, Sheridan JF, Smoller JW, Luna B, Harte SE, Elliott JM, and Ressler KJ. Prior differences in previous trauma exposure primarily drive the observed racial/ethnic differences in posttrauma depression and anxiety following a recent trauma. *Psychol Med* 2022; Epub ahead of print.:1-10. PMID: 35094717. Full Text

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

Emergency Medicine

Joshi S, **Smith Z**, **Soman S**, **Jain S**, **Yako A**, **Hojeij M**, **Massoud L**, **Alsaadi A**, **Williams J**, **Kenney R**, **Miller J**, **Alangaden G**, and **Ramesh M**. Low- Versus High-Dose Methylprednisolone in Adult Patients With Coronavirus Disease 2019: Less Is More. *Open Forum Infect Dis* 2022; 9(1):ofab619. PMID: 35024376. Full Text

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BACKGROUND: Corticosteroids use in severe coronavirus disease 2019 (COVID-19) improves survival; however, the optimal dose is not established. We aim to evaluate clinical outcomes in patients with severe COVID-19 receiving high-dose corticosteroids (HDC) versus low-dose corticosteroids (LDC). METHODS: This was a quasi-experimental study conducted at a large, quaternary care center in Michigan. A corticosteroid dose change was implemented in the standardized institutional treatment protocol on November 17, 2020. All patients admitted with severe COVID-19 that received corticosteroids were included. Consecutive patients in the HDC group (September 1 to November 15, 2020) were compared to the LDC group (November 30, 2020 to January 20, 2021). High-dose corticosteroids was defined as 80 mg of methylprednisolone daily in 2 divided doses, and LDC was defined as 32-40 mg of methylprednisolone daily in 2 divided doses. The primary outcome was all-cause 28-day mortality. Secondary outcomes included progression to mechanical ventilation, hospital length of stay (LOS), discharge on supplemental oxygen, and corticosteroid-associated adverse events. RESULTS: Four-

hundred seventy patients were included: 218 (46%) and 252 (54%) in the HDC and LDC groups, respectively. No difference was observed in 28-day mortality (14.5% vs 13.5%, P = .712). This finding remained intact when controlling for additional variables (odds ratio, 0.947; confidence interval, 0.515-1.742; P = .861). Median hospital LOS was 6 and 5 days in the HDC and LDC groups, respectively (P < .001). No differences were noted in any of the other secondary outcomes. CONCLUSIONS: Low-dose methylprednisolone had comparable outcomes including mortality to high-dose methylprednisolone for the treatment of severe COVID-19.

Emergency Medicine

Peacock WF, Soto-Ruiz KM, House SL, Cannon CM, Headden G, Tiffany B, Motov S, Merchant-Borna K, Chang AM, Pearson C, Patterson BW, Jones AE, **Miller J**, Varon J, Bastani A, Clark C, Rafique Z, Kea B, Eppensteiner J, Williams JM, Mahler SA, Driver BE, Hendry P, Quackenbush E, Robinson D, Schrock JW, D'Etienne JP, Hogan CJ, Osborne A, Riviello R, and Young S. Utility of COVID-19 antigen testing in the emergency department. *J Am Coll Emerg Physicians Open* 2022; 3(1):e12605. PMID: 35072154. Full Text

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

Emergency Medicine

Yu J, Perrin JM, **Hagerman T**, and Houtrow AJ. Underinsurance Among Children in the United States. *Pediatrics* 2022; 149(1). PMID: 34866156. Full Text

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OBJECTIVES: We describe the change in the percentage of children lacking continuous and adequate health insurance (underinsurance) from 2016 to 2019. We also examine the relationships between child health complexity and insurance type with underinsurance. METHODS: Secondary analysis of US children in the National Survey of Children's Health combined 2016-2019 dataset who had continuous and adequate health insurance. We calculated differences in point estimates, with 95% confidence intervals (CIs), to describe changes in our outcomes over the study period. We used multivariable logistic regression adjusted for sociodemographic characteristics and examined relationships between child health complexity and insurance type with underinsurance. RESULTS: From 2016 to 2019, the proportion of US children experiencing underinsurance rose from 30.6% to 34.0% (+3.4%; 95% CI, +1.9% to

+4.9%), an additional 2.4 million children. This trend was driven by rising insurance inadequacy (24.8% to 27.9% [+3.1%; 95% CI, +1.7% to +4.5%]), which was mainly experienced as unreasonable out-of-pocket medical expenses. Although the estimate of children lacking continuous insurance coverage rose from 8.1% to 8.7% (+0.6%), it was not significant at the 95% CI (-0.5% to +1.7%). We observed significant growth in underinsurance among White and multiracial children, children living in households with income ≥200% of the federal poverty limit, and those with private health insurance. Increased child health complexity and private insurance were significantly associated with experiencing underinsurance (adjusted odds ratio, 1.9 and 3.5, respectively). CONCLUSIONS: Underinsurance is increasing among US children because of rising inadequacy. Reforms to the child health insurance system are necessary to curb this problem.

Endocrinology and Metabolism

Carlson AL, Daniel TD, DeSantis A, Jabbour S, Karslioglu French E, **Kruger D**, Miller E, Ozer K, and Elliott T. Flash glucose monitoring in type 2 diabetes managed with basal insulin in the USA: a retrospective real-world chart review study and meta-analysis. *BMJ Open Diabetes Res Care* 2022; 10(1). PMID: 35058312. Full Text

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INTRODUCTION: Evidence supporting use of continuous glucose monitoring in type 2 diabetes treated with basal insulin is unclear. This real-world study aimed to assess the impact on glycated hemoglobin (HbA1c) of flash glucose monitoring use in adults with type 2 diabetes managed with basal insulin. RESEARCH DESIGN AND METHODS: Medical records were reviewed for adult individuals with type 2 diabetes using basal insulin for ≥1 year with or without additional antihyperglycemic medication, HbA1c 8.0%-12.0% prior to FreeStyle Libre Flash Glucose Monitoring use for ≥90 days and an HbA1c measurement recorded between 90 and 194 days after device use. Exclusion criteria included utilization of bolus insulin. Meta-analysis data are from the current study (USA) and a similar Canadian cohort. RESULTS: Medical record analysis (n=100) from 8 USA study sites showed significant HbA1c decrease of 1.4%±1.3%, from 9.4%±1.0% at baseline to 8.0%±1.2% after device use, p<0.0001 (mean±SD).Meta-analysis of medical records from USA and Canada sites (n=191) showed HbA1c significantly decreased by 1.1%±0.14% (mean±SE), from baseline 9.2%±1.0% to 8.1%±1.1%, p≤0.0001, with moderate to high heterogeneity between sites (Q=43.9, I(2)=74.9, p<0.0001) explained by differences in baseline HbA1c between sites.The HbA1c improvement in both groups was observed by age group, body mass index, duration of insulin use and sex at birth. CONCLUSIONS: In a real-world retrospective USA study and a meta-analysis of a larger USA and Canada cohort, HbA1c significantly reduced in basal insulin-treated type 2 diabetes, without bolus insulin initiation and following the commencement of flash glucose monitoring technology.

Gastroenterology

Gonzalez HC, **Zhou Y**, **Nimri FM**, **Rupp LB**, **Trudeau S**, and **Gordon SC**. Alcohol-related hepatitis admissions increased 50% in the first months of the CoViD-19 pandemic in the US. *Liver Int* 2022; Epub ahead of print. PMID: 35094494. Full Text

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Early reports suggest that alcohol misuse increased in 2020 due to the CoViD-19 pandemic. Using retrospective data from Henry Ford Health System in Detroit MI-an area that experienced an early and severe CoViD-19 outbreak-to investigate the impact of the pandemic on alcohol-related liver disease (ARLD) in the summer of 2020 compared to the same period in 2016-2019. Both the number of ARLD admissions and the proportion of total admissions represented by ARLD patients increased significantly in 2020 compared to previous years. The number of ARLD admissions as a proportion of all hospitalizations was 50% higher in 2020 than in 2016-2019 (0.31% versus 0.21%; p=0.0013); by September 2020, the number of admissions was 66% higher than previous years. Despite racial and geographic disparities in direct and indirect CoViD-related stressors across the Detroit metropolitan area, the demographic profile of ARLD patients did not change compared to previous years.

Gastroenterology
Selim R, **Zhou Y**, **Rupp LB**, **Trudeau S**, **Naffouj S**, **Shamaa O**, **Ahmed A**, **Jafri SM**, **Gordon SC**, **Segal A**, and **Gonzalez HC**. Availability of PEth testing is associated with reduced eligibility for liver transplant among patients with alcohol-related liver disease. *Clin Transplant* 2022; Epub ahead of print.:e14595. PMID: 35041223. Full Text

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BACKGROUND: Serum phosphatidylethanol (PEth) is a highly sensitive test to detect alcohol use. We evaluated whether the availability of PEth testing impacted rates of liver transplant evaluation terminations and delistings. METHODS: Medical record data were collected for patients who initiated transplant evaluation due to alcohol-related liver disease in the pre-PEth (2017) or PEth (2019) eras. Inverse probability weighting (IPW) was used to balance baseline patient characteristics. Outcomes included termination of evaluation or delisting due to alcohol use; patients were censored at receipt of transplant; death was considered a competing risk. The Fine-Gray method was performed to determine whether PEth testing affected risk of evaluation termination/ delisting due to alcohol use. RESULTS: Three hundred and seventy-five patients with alcohol-related indications for transplant (157 in 2017; 210 in 2019) were included. The final IPW-adjusted model for the composite outcome of terminations/delisting due to alcohol use retained two significant variables ($P < .05$): PEth era and BMI category. Patients evaluated during the PEth era were almost three times more likely to experience an alcohol-related termination/delisting than those in the pre-PEth era (sHR = 2.86; 95%CI 1.67-4.97) CONCLUSION: We found that availability of PEth testing at our institution was associated with a higher rate of exclusion of patients from eligibility for liver transplant. Use of PEth testing has significant potential to inform decisions regarding transplant candidacy for patients with alcohol-related liver disease.

Gastroenterology
Spradling PR, Xing J, Zhong Y, **Rupp LB**, Moorman AC, Lu M, Teshale EH, Schmidt MA, Daida YG, Boscarino JA, and **Gordon SC**. Incidence of malignancies among patients with chronic hepatitis B in US health care organizations, 2006-2018. *J Infect Dis* 2022; Epub ahead of print. PMID: 35039863. Full Text

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Hepatitis B virus (HBV) infection causes hepatocellular carcinoma but its association with other cancers is not well established. We compared age-adjusted incidence of primary cancers among 5,773 HBV-infected persons with US cancer registries during 2006-2018. Compared with the US population, substantially higher incidence among HBV-infected persons was observed for hepatocellular carcinoma (Standardized rate ratio [SRR] 30.79), gastric (SRR 7.95), neuroendocrine (SRR 5.88), cholangiocarcinoma (SRR 4.62), and ovarian (SRR 3.72) cancers, and non-Hodgkin lymphoma (SRR 2.52). Clinicians should be aware of a heightened potential for certain non-hepatic malignancies among hepatitis B patients, as earlier diagnosis favors improved survival.

Hematology-Oncology

Camidge DR, Barlesi F, Goldman JW, Morgensztern D, Heist R, Vokes E, Angevin E, Hong DS, **Rybkin, II**, Barve M, Bauer TM, Delmonte A, Dunbar M, Motwani M, Parikh A, Noon E, Wu J, Blot V, and Kelly K. A Phase 1b Study of Telisotuzumab Vedotin in Combination With Nivolumab in Patients With NSCLC. *JTO Clin Res Rep* 2022; 3(1):100262. PMID: 35005654. Full Text

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INTRODUCTION: Telisotuzumab vedotin (Teliso-V) is an anti-c-Met-directed antibody-drug conjugate that has exhibited antitumor activity as monotherapy in NSCLC. Its potential activity combined with programmed cell death protein-1 inhibitors has not been previously evaluated. METHODS: In a phase 1b study (NCT02099058), adult patients (≥18 y) with advanced NSCLC received combination therapy with Teliso-V (1.6, 1.9, or 2.2 mg/kg, every 2 wk) plus nivolumab (3 mg/kg, 240 mg, or per locally approved label). The primary objective was to assess safety and tolerability; secondary objectives included the evaluation of antitumor activity. RESULTS: As of January 2020, a total of 37 patients received treatment with Teliso-V (safety population) in combination with nivolumab; 27 patients (efficacy population) were c-Met immunohistochemistry-positive. Programmed death-ligand 1 (PD-L1) status was evaluated in the efficacy population (PD-L1-positive [PD-L1+]: n = 15; PD-L1-negative [PD-L1-]: n = 9; PD-L1-unknown: n = 3). The median age was 67 years and 74% (20 of 27) of patients were naive to immune checkpoint inhibitors. The most common any-grade treatment-related adverse events were fatigue (27%) and peripheral sensory neuropathy (19%). The pharmacokinetic profile of Teliso-V plus nivolumab was similar to Teliso-V monotherapy. The objective response rate was 7.4%, with two patients (PD-L1+, c-Met immunohistochemistry H-score 190, n = 1; PD-L1-, c-Met H-score 290, n = 1) having a confirmed partial response. Overall median progression-free survival was 7.2 months (PD-L1+: 7.2 mo; PD-L1-: 4.5 mo; PD-L1-unknown: not reached). CONCLUSIONS: Combination therapy with Teliso-V plus nivolumab was well tolerated in patients with c-Met+ NSCLC with limited antitumor activity.

Hematology-Oncology

Gadgeel S, Hirsch FR, Kerr K, Barlesi F, Park K, Rittmeyer A, Zou W, Bhatia N, Koeppen H, Paul SM, Shames D, Yi J, Matheny C, Ballinger M, McCleland M, and Gandara DR. Comparison of SP142 and 22C3 Immunohistochemistry PD-L1 Assays for Clinical Efficacy of Atezolizumab in Non-Small Cell Lung Cancer: Results From the Randomized OAK Trial. *Clin Lung Cancer* 2022; 23(1):21-33. PMID: 34226144. Full Text

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BACKGROUND: This phase III OAK trial (NCT02008227) subgroup analysis (data cutoff, January 9, 2019) evaluated the predictive value of 2 PD-L1 IHC tests (VENTANA SP142 and Dako 22C3) for benefit from atezolizumab versus docetaxel by programmed death ligand 1 (PD-L1) status in patients with previously treated metastatic non-small cell lung cancer. METHODS: PD-L1 expression was assessed prospectively with SP142 on tumor cells (TC) and tumor-infiltrating immune cells (IC) and retrospectively with 22C3 using a tumor proportion score (TPS) based on TC membrane staining. Efficacy was assessed in the 22C3 biomarker-evaluable population (22C3-BEP) (n = 577; 47.1% of SP142-intention-to-treat population) and non-22C3-BEP (n = 648) in PD-L1 subgroups (high, low, and negative) and according to selection by 1 or both assays. RESULTS: In the 22C3-BEP, overall survival benefits with atezolizumab versus docetaxel were observed across PD-L1 subgroups; benefits were greatest in SP142-defined PD-L1-high (TC3 or IC3: hazard ratio [HR], 0.39 [95% confidence interval (CI), 0.25-0.63]) and 22C3-defined PD-L1-high (TPS ≥ 50%: HR, 0.56 [95% CI, 0.38-0.82]) and low (TPS, 1% to < 50%: HR, 0.55 [95% CI, 0.37-0.82]) groups. Progression-free survival improved with increasing PD-L1 expression for both assays. SP142 and 22C3 assays identified overlapping and unique patient populations in PD-L1-high, positive, and negative subgroups. Overall survival and progression-free survival benefits favored atezolizumab over docetaxel in double PD-L1-positive and negative groups; patients with both SP142- and 22C3-positive tumors derived the greatest benefit. CONCLUSIONS: Despite different scoring algorithms and differing sensitivity levels, the SP142 and 22C3 assays similarly predicted atezolizumab benefit at validated PD-L1 thresholds in patients with non-small cell lung cancer.

Hematology-Oncology

Hawley JE, Sun T, Chism DD, Duma N, Fu JC, Gatson NTN, Mishra S, Nguyen RH, Reid SA, Serrano OK, **Singh SRK**, Venepalli NK, Bakouny Z, Bashir B, Bilen MA, Caimi PF, Choueiri TK, Dawsey SJ, Fecher LA, Flora DB, Friese CR, Glover MJ, Gonzalez CJ, Goyal S, Halfdanarson TR, Hershman DL, Khan H, Labaki C, Lewis MA, McKay RR, Messing I, Pennell NA, Puc M, Ravindranathan D, Rhodes TD, Rivera AV, Roller J, Schwartz GK, Shah SA, Shaya JA, Streckfuss M, Thompson MA, Wulff-Burchfield EM, Xie Z, Yu PP, Warner JL, Shah DP, French B, and **Hwang C**. Assessment of Regional Variability in COVID-19 Outcomes Among Patients With Cancer in the United States. *JAMA Netw Open* 2022; 5(1):e2142046. PMID: 34982158. Full Text

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Banner MD Anderson Cancer Center, Gilbert, Arizona.

University of Illinois Hospital & Health Sciences System, Chicago.
Hartford HealthCare Cancer Institute, Hartford, Connecticut.
Henry Ford Cancer Institute, Henry Ford Hospital, Detroit, Michigan.
University of North Carolina, Lineberger Cancer Center, Chapel Hill.
Dana-Farber Cancer Institute, Boston, Massachusetts.
Sidney Kimmel Cancer Center at Thomas Jefferson University, Philadelphia, Pennsylvania.
Winship Cancer Institute of Emory University, Atlanta, Georgia.
Case Comprehensive Cancer Center at Case Western Reserve University/University Hospitals, Cleveland, Ohio.
Cleveland Clinic Taussig Cancer Institute, Cleveland, Ohio.
University of Michigan Rogel Cancer Center, Ann Arbor.
St Elizabeth Healthcare, Edgewood, Kentucky.
Stanford Cancer Institute at Stanford University, Palo Alto, California.
George Washington University, Washington, DC.
Mayo Clinic, Rochester, Minnesota.
Brown University and Lifespan Cancer Institute, Providence, Rhode Island.
Intermountain Healthcare, Salt Lake City, Utah.
University of California, San Diego.
Virtua Health, Marlton, New Jersey.
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IMPORTANCE: The COVID-19 pandemic has had a distinct spatiotemporal pattern in the United States. Patients with cancer are at higher risk of severe complications from COVID-19, but it is not well known whether COVID-19 outcomes in this patient population were associated with geography. OBJECTIVE: To quantify spatiotemporal variation in COVID-19 outcomes among patients with cancer. DESIGN, SETTING, AND PARTICIPANTS: This registry-based retrospective cohort study included patients with a historical diagnosis of invasive malignant neoplasm and laboratory-confirmed SARS-CoV-2 infection between March and November 2020. Data were collected from cancer care delivery centers in the United States. EXPOSURES: Patient residence was categorized into 9 US census divisions. Cancer center characteristics included academic or community classification, rural-urban continuum code (RUCC), and social vulnerability index. MAIN OUTCOMES AND MEASURES: The primary outcome was 30-day all-cause mortality. The secondary composite outcome consisted of receipt of mechanical ventilation, intensive care unit admission, and all-cause death. Multilevel mixed-effects models estimated associations of center-level and census division-level exposures with outcomes after adjustment for patient-level risk factors and quantified variation in adjusted outcomes across centers, census divisions, and calendar time. RESULTS: Data for 4749 patients (median [IQR] age, 66 [56-76] years; 2439 [51.4%] female individuals, 1079 [22.7%] non-Hispanic Black individuals, and 690 [14.5%] Hispanic individuals) were reported from 83 centers in the Northeast (1564 patients [32.9%]), Midwest (1638 [34.5%]), South (894 [18.8%]), and West (653 [13.8%]). After adjustment for patient characteristics, including month of COVID-19 diagnosis, estimated 30-day mortality rates ranged from 5.2% to 26.6% across centers. Patients from centers located in metropolitan areas with population less than 250 000 (RUCC 3) had lower odds of 30-day mortality compared with patients from centers in metropolitan areas with population at least 1 million (RUCC 1) (adjusted odds ratio [aOR], 0.31; 95% CI, 0.11-0.84). The type of center was not significantly associated with primary or secondary outcomes. There were no statistically significant differences in outcome rates across the 9 census divisions, but adjusted mortality rates significantly improved over time (eg, September to November vs March to May: aOR, 0.32; 95% CI, 0.17-0.58). CONCLUSIONS AND RELEVANCE: In this registry-based cohort study, significant differences in COVID-19 outcomes across US census divisions were not observed. However, substantial heterogeneity in COVID-19 outcomes across cancer care delivery centers was found. Attention to implementing standardized guidelines for the care of patients with cancer and COVID-19 could improve outcomes for these vulnerable patients.

Hematology-Oncology

Ou SI, Solomon BJ, Shaw AT, **Gadgeel SM**, Besse B, Soo RA, Abbattista A, Toffalorio F, Wiltshire R, and Bearz A. Continuation of Lorlatinib in ALK-positive NSCLC Beyond Progressive Disease. *J Thorac Oncol* 2022; Epub ahead of print. PMID: 35026476. Full Text

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INTRODUCTION: Lorlatinib, a potent, selective third-generation anaplastic lymphoma kinase tyrosine kinase inhibitor (ALK TKI), showed overall and intracranial anti-tumor activity in patients with ALK-positive non-small cell lung cancer (NSCLC). METHODS: Retrospective analyses in the ongoing phase II trial (NCT01970865) investigated clinical benefit of continuing lorlatinib beyond progressive disease (LBPD). Patients with prior crizotinib as the only ALK TKI were Group A (n = 28); those with ≥1 prior second-generation ALK TKIs were Group B (n = 74). LBPD was defined as >3 weeks of lorlatinib treatment after investigator-assessed progressive disease. Only patients with a best overall response of complete or partial response or stable disease were included. RESULTS: There were no major differences in baseline characteristics between groups. Median duration of treatment for LBPD patients was 32.4 months (Group A) and 16.4 months (Group B) versus 12.5 months (Group A) and 7.7 months (Group B) for non-LBPD patients. Median overall survival (OS) in Group A was not reached (NR) in LBPD patients versus 24.4 months (95% confidence interval [CI] 12.1-NR); Group B median was 26.5 months (95% CI 18.7-35.5) in LBPD patients versus 14.7 months (95% CI 9.3-38.5) in non-LBPD patients. Median OS post-progression for Groups A and B was NR (95% CI 21.4-NR) and 14.6 months (95% CI 11.2-19.2) in LBPD patients, and 8.0 months (95% CI 1.5-NR) versus 5.3 months (95% CI 2.8-14.3) in non-LBPD patients. CONCLUSIONS: Continuing LBPD is a viable treatment option for select patients with ALK-positive NSCLC who progressed on lorlatinib.

Hematology-Oncology

Pu CY, Lusk CM, **Neslund-Dudas C**, **Gadgeel S**, Soubani AO, and Schwartz AG. Comparison Between the 2021 USPSTF Lung Cancer Screening Criteria and Other Lung Cancer Screening Criteria for Racial Disparity in Eligibility. *JAMA Oncol* 2022; Epub ahead of print. PMID: 35024781. Full Text

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IMPORTANCE: In 2021, the US Preventive Services Task Force (USPSTF) broadened its age and smoking pack-year requirement for lung cancer screening. OBJECTIVES: To compare the 2021 USPSTF lung cancer screening criteria with other lung cancer screening criteria and evaluate whether the sensitivity and specificity of these criteria differ by race. DESIGN, SETTING, AND PARTICIPANTS: This study included 912 patients with lung cancer and 1457 controls without lung cancer enrolled in an epidemiology study (INHALE [Inflammation, Health, Ancestry, and Lung Epidemiology]) in the Detroit metropolitan area between May 15, 2012, and March 31, 2018. Patients with lung cancer and controls were 21 to 89 years of age; patients with lung cancer who were never smokers and controls who were never smokers were not included in these analyses. Statistical analysis was performed from August 31,

2020, to April 13, 2021. MAIN OUTCOMES AND MEASURES: The study assessed whether patients with lung cancer and controls would have qualified for lung cancer screening using the 2013 USPSTF, 2021 USPSTF, and 2012 modification of the model from the Prostate, Lung, Colorectal, and Ovarian Cancer Screening Trial (PLCOm2012) screening criteria. Sensitivity was defined as the percentage of patients with lung cancer who qualified for screening, while specificity was defined as the percentage of controls who did not qualify for lung cancer screening. RESULTS: Participants included 912 patients with a lung cancer diagnosis (493 women [54%]; mean [SD] age, 63.7 [9.5] years) and 1457 control participants without lung cancer at enrollment (795 women [55%]; mean [SD] age, 60.4 [9.6] years). With the use of 2021 USPSTF criteria, 590 patients with lung cancer (65%) were eligible for screening compared with 619 patients (68%) per the PLCOm2012 criteria and 445 patients (49%) per the 2013 USPSTF criteria. With the use of 2013 USPSTF criteria, significantly more White patients than African American patients with lung cancer (324 of 625 [52%] vs 121 of 287 [42%]) would have been eligible for screening. This racial disparity was absent when using 2021 USPSTF criteria (408 of 625 [65%] White patients vs 182 of 287 [63%] African American patients) and PLCOm2012 criteria (427 of 625 [68%] White patients vs 192 of 287 [67%] African American patients). The 2013 USPSTF criteria excluded 950 control participants (65%), while the PLCOm2012 criteria excluded 843 control participants (58%), and the 2021 USPSTF criteria excluded 709 control participants (49%). The 2013 USPSTF criteria excluded fewer White control participants than African American control participants (514 of 838 [61%] vs 436 of 619 [70%]). This racial disparity is again absent when using 2021 USPSTF criteria (401 of 838 [48%] White patients vs 308 of 619 [50%] African American patients) and PLCOm2012 guidelines (475 of 838 [57%] White patients vs 368 of 619 [60%] African American patients). CONCLUSIONS AND RELEVANCE: This study suggests that the USPSTF 2021 guideline changes improve on earlier, fixed screening criteria for lung cancer, broadening eligibility and reducing the racial disparity in access to screening.

Hematology-Oncology

Vriesen N, Carmany EP, and Natoli JL. Clinical outcomes of preimplantation genetic testing for hereditary cancer syndromes: A systematic review. *Prenat Diagn* 2022; Epub ahead of print. PMID: 34981540. Full Text

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OBJECTIVE: To conduct a systematic review of the published literature on clinical outcomes following preimplantation genetic testing for monogenic disorders (PGT-M) for hereditary cancer syndromes (HCS). METHODS: Three electronic databases (PubMed, Cochrane, and EMBASE) were searched for publications related to PGT-M for HCS. When appropriate, weighted means were used to calculate clinical and live birth rates. RESULTS: We identified 22 publications that reported on clinical and/or psychosocial outcomes of PGT-M for HCS. The weighted mean clinical pregnancy rate (CPR) per embryo was 33.5% (11 studies, 95% CI: 29.1%, 38.2%), and the CPR per cycle with embryonic transfer was 40.1% (14 studies, 95% CI: 36.1%, 44.3%). The weighted mean live birth rate (LBR) per embryo was 28.9% (11 studies, 95% CI: 24.7%, 33.4%) and the LBR per cycle with embryonic transfer was 33.2% (13 studies, 95% CI: 29.2%, 37.4%). The limited literature regarding the psychosocial outcomes of PGT-M for HCS suggests reproductive decision-making is difficult and additional support may be desired. CONCLUSION: These findings suggest that CPR and LBR following PGT-M for HCS are comparable to other monogenic disorders. Heterogeneity across studies suggests the overall CPR and LBR found may not be applicable to all HCS indications and PGT-M methodologies.

Hospital Medicine

Remer HB, Gu X, Haymart B, Barnes GD, Ali MA, Kline-Rogers E, Alexandris-Souphis T, Kozlowski J, Froehlich J, **Shah V**, **Krol GD**, and **Kaatz S**. Management Strategies Following Slightly Out of Range INRs: Watchful Waiting vs. Dose Changes. *Blood Adv* 2022; Epub ahead of print. PMID: 35052000. Full Text

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Patients' international normalized ratios (INRs) often fall slightly out of range. In these cases, the American College of Chest Physician (ACCP) guidelines suggest maintaining the current warfarin dose and retesting the INR within the following two weeks (watchful waiting). We sought to determine whether watchful waiting or dose changes for slightly out of range INRs is more effective in obtaining in-range INRs at follow-up. INRs and management strategies of warfarin-treated patients within the Michigan Anticoagulation Quality Improvement Initiative (MAQI²) registry were analyzed. Management strategies included watchful waiting or dose changes. INRs slightly out of range (target range 2.0-3.0) and their associated management were identified. Multilevel mixed-effects logistic regression was used to estimate the probability of the next INR being in range adjusted for clustering due to multiple out of range INRs per patient. A total of 45,351 slightly out of range INRs (ranging 1.50-1.99 and 3.01-3.49) from 8,288 patients were identified. The next INR was slightly less likely to be in range with watchful waiting than with a dose change (Predicted Probabilities 58.9% vs. 60.0%, P-value = 0.024). Although a significant statistical difference was detected in the probabilities of the next INR being back in range when managed by a dose change compared to watchful waiting following a slightly out of range INR, the magnitude of the difference was small and unlikely to represent clinical importance. Our study supports the current guideline recommendations for watchful waiting in cases of slightly out of range INRs values.

Hypertension and Vascular Research
Yap YT, Li W, Zhou Q, Haj-Diab S, Chowdhury DD, Vaishnav A, **Harding P**, Williams DC, Edwards BF, Strauss JF, and Zhang Z. The Ancient and Evolved Mouse Sperm-Associated Antigen 6 Genes Have Different Biologic Functions In Vivo. *Cells* 2022; 11(3). PMID: Not assigned. Full Text

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Sperm-associated antigen 6 (SPAG6) is the mammalian orthologue of Chlamydomonas PF16, an axonemal central pair protein involved in flagellar motility. In mice, two Spag6 genes have been identified. The ancestral gene, on mouse chromosome 2, is named Spag6. A related gene originally called Spag6, localized on mouse chromosome 16, evolved from the ancient Spag6 gene. It has been renamed Spag6-like (Spag6l). Spag6 encodes a 1.6 kb transcript consisting of 11 exons, while Spag6l encodes a 2.4 kb transcript which contains an additional non-coding exon in the 3′-end as well as the 11 exons found in Spag6. The two Spag6 genes share high similarities in their nucleotide and amino acid sequences. Unlike Spag6l mRNA, which is widely expressed, Spag6 mRNA expression is limited to a smaller number of tissues, including the testis and brain. In transfected mammalian cells, SPAG6/GFP is localized on microtubules, a similar localization as SPAG6L. A global Spag6l knockout mouse model was generated previously. In addition to a role in modulating the ciliary beat, SPAG6L has many unexpected functions, including roles in the regulation of ciliogenesis/spermatogenesis, hearing, and the immunological synapse, among others. To investigate the role of the ancient Spag6 gene, we phenotyped global Spag6 knockout mice. All homozygous mutant mice were grossly normal, and fertility was not affected in both males and females. The homozygous males had normal sperm parameters, including sperm number, motility, and morphology. Examination of testis histology revealed normal spermatogenesis. Testicular protein expression levels of selected SPAG6L binding partners, including SPAG16L, were not changed in the Spag6 knockout mice, even though its level was significantly reduced in the Spag6l knockout mice. Structural analysis of the two SPAG6 proteins shows that both adopt very similar folds, with differences in a few amino acids, many of which are solvent-exposed. These differences endow the two proteins with different functional characteristics, even though both have eight armadillo repeats that mediate protein–protein interaction. Our studies suggest that SPAG6 and SPAG6L have different functions in vivo, with the evolved SPAG6L protein being more important. Since the two proteins have some overlapping binding partners, SPAG6 could have functions that are yet to be identified.

Infectious Diseases

Joshi S, **Smith Z**, **Soman S**, **Jain S**, **Yako A**, **Hojeij M**, **Massoud L**, **Alsaadi A**, **Williams J**, **Kenney R**, **Miller J**, **Alangaden G**, and **Ramesh M**. Low- Versus High-Dose Methylprednisolone in Adult Patients With Coronavirus Disease 2019: Less Is More. *Open Forum Infect Dis* 2022; 9(1):ofab619. PMID: 35024376. Full Text

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BACKGROUND: Corticosteroids use in severe coronavirus disease 2019 (COVID-19) improves survival; however, the optimal dose is not established. We aim to evaluate clinical outcomes in patients with severe COVID-19 receiving high-dose corticosteroids (HDC) versus low-dose corticosteroids (LDC). METHODS: This was a quasi-experimental study conducted at a large, quaternary care center in Michigan. A corticosteroid dose change was implemented in the standardized institutional treatment protocol on November 17, 2020. All patients admitted with severe COVID-19 that received corticosteroids were included. Consecutive patients in the HDC group (September 1 to November 15, 2020) were compared to the LDC group (November 30, 2020 to January 20, 2021). High-dose corticosteroids was defined as 80 mg of methylprednisolone daily in 2 divided doses, and LDC was defined as 32-40 mg of methylprednisolone daily in 2 divided doses. The primary outcome was all-cause 28-day mortality. Secondary outcomes included progression to mechanical ventilation, hospital length of stay (LOS), discharge on supplemental oxygen, and corticosteroid-associated adverse events. RESULTS: Four-hundred seventy patients were included: 218 (46%) and 252 (54%) in the HDC and LDC groups, respectively. No difference was observed in 28-day mortality (14.5% vs 13.5%, P = .712). This finding remained intact when controlling for additional variables (odds ratio, 0.947; confidence interval, 0.515-1.742; P = .861). Median hospital LOS was 6 and 5 days in the HDC and LDC groups, respectively (P < .001). No differences were noted in any of the other secondary outcomes. CONCLUSIONS: Low-dose methylprednisolone had comparable outcomes including mortality to high-dose methylprednisolone for the treatment of severe COVID-19.

Infectious Diseases

Monday LM, Sebastian J, Nguyen P, Yazdanpanah O, Solokowski C, Chi J, and Bazzy K. A Resident-driven Quality Improvement Project to Increase Primary Care Follow-up after Congestive Heart Failure Exacerbation: Use of a Quality and Safety Award. *Am J Med Qual* 2022; Epub ahead of print. PMID: 34991097. Full Text

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OBJECTIVES: Congestive heart failure (CHF) is the most common cause of 30-day inpatient readmission. Studies have found that early follow-up with primary care physicians (PCP) within 7 days of discharge may improve 30-day readmission rates; however, many have used a multidisciplinary discharge coordination team, which is not a resource at all centers. Here, the authors present a resident-driven quality improvement initiative using a monthly quality and safety award to increase early PCP follow-up for veterans discharged following admissions due to a CHF exacerbation. Primary outcomes were percentage of PCP follow-up within 7 days and median time to PCP follow-up. Secondary outcomes included percentage of patients attending a PCP visit within 7 days, 30-day readmission, and 30-day mortality. METHODS: This prepost quasi-experimental cohort study evaluated 3 concurrent quality improvement interventions to increase PCP follow-up after CHF exacerbation. Process maps and Ishikawa diagrams examined the discharge process. Interventions included a standardized discharge scheduling order, monthly education on the process, and monthly aggregated performance feedback for each medical resident. A patient safety and quality award was given to the team with the highest rate of PCP appointments scheduled within 7 days. Patient characteristics and outcomes were gathered for a 6-

month historic period and 6-month intervention period. Test of proportions and Wilcoxon Rank-Sum test were used to compare groups. RESULTS: A total of 294 patients were discharged (161 in historic group and 133 in intervention group). Appointments scheduled within 7 days of discharge increased from 43% to 79% (P < 0.001). Median time to PCP follow-up decreased from 8 to 6 days (P < 0.001). Patients who completed (showed up to) a PCP appointment within 7 days increased from 16% to 41% (P < 0.001). There was no impact on 30-day readmission or mortality; however, the number of study subjects was too small to rule out an effect. CONCLUSIONS: A standardized discharge scheduling order, more robust resident education, and a monthly patient safety and quality award resulted in a significant increase in the rate of primary care follow-up within 7 days of CHF exacerbation.

Infectious Diseases
Morrison AR, **Jones MC**, **Makowski CT**, **Samuel LP**, **Ramadan AR**, **Alangaden GJ**, **Davis SL**, and **Kenney RM**. Evaluation of the selection of cerebrospinal fluid testing in suspected meningitis and encephalitis. *Diagn Microbiol Infect Dis* 2022; 102(1):115571. PMID: 34768207. Full Text

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Diagnostic stewardship interventions can decrease unnecessary antimicrobial therapy and microbiology laboratory resources and costs. This retrospective cross-sectional study evaluated factors associated with inappropriate initial cerebrospinal fluid (CSF) testing in patients with suspected community-acquired meningitis or encephalitis. In 250 patients, 202 (80.8%) and 48 (19.2%) were suspected meningitis and encephalitis, respectively. 207 (82.8%) patients had inappropriate and 43 (17.2%) appropriate testing. Any inappropriate CSF test was greatest in the immunocompromised (IC) group (n = 54, 91.5%), followed by non-IC (n = 109, 80.1%) and HIV (n = 44, 80%). Ordering performed on the general ward was associated with inappropriate CSF test orders (adjOR 2.81, 95% CI [1.08-7.34]). Laboratory fee costs associated with excessive testing was close to $300,000 per year. A stepwise algorithm defining empiric and add on tests according to CSF parameters and patient characteristics could improve CSF test ordering in patients with suspected meningitis or encephalitis.

Infectious Diseases
Wasylyshyn A, **Maki G**, Linder KA, and **Herc ES**. Hemophagocytic Lymphohistiocytosis Secondary to Disseminated Histoplasmosis A Report of 3 Cases and Review of the Literature. *Infect Dis Clin Pract* 2022; 30(1). PMID: Not assigned. Full Text

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Hemophagocytic lymphohistiocytosis is a syndrome of immune dysregulation that can lead to an overwhelming inflammatory state. In this case series, we describe 3 cases in which disseminated Histoplasma capsulatum infection caused hemophagocytic lymphohistiocytosis.

Internal Medicine
Ayyash M, **Ayyash M**, **Hassan Z**, Farhat A, Rakine H, and Blackwood RA. Factors and scenarios influencing Arab Americans' preference for male versus female physicians. *J Natl Med Assoc* 2022; Epub ahead of print. PMID: 35105458. Full Text

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As the Arab American community sees an increase in female physicians, knowledge of patients' perceptions is necessary to foster the physician-patient relationship. The objective of this study was to better understand physician gender preference among Arab Americans when given a range of selected medical scenarios. An anonymous survey was distributed electronically through social media. The survey elicited gender preferences of Arab Americans given different scenarios. Data was collected from 325 participants. No physician gender preference was noted for 6 out of 7 scenarios with the exception for sensitive medical issues. Same-sex gender preference was noted in the cases of sensitive medical issues, routine medical visits, medical emergencies, and minor medical procedures. Predominant visitations to male physicians across specialties was found. The current study shows that although most Arab Americans expressed no preference for physician gender, the majority currently visit male physicians. The study highlights similarities to other populations in terms of same-sex physician gender preference when it comes to patient choices. Our study shows, however, that physicians' experience and empathy were leading criteria as opposed to gender or Arab identity when it came to physician selection by Arab American patients.

Internal Medicine

Ichkhanian Y, Barawi M, Seoud T, Thakkar S, Kothari TH, Halabi ME, Ullah A, Edris W, Aepli P, Kowalski T, Shinn B, Shariaha RZ, Mahadev S, Mosko JD, Andrisani G, Di Matteo FM, Albrecht H, Giap AQ, Tang SJ, Naga YM, van Geenen E, Friedland S, Tharian B, Irani S, Ross AS, Jamil LH, Lew D, Nett AS, Farha J, Runge TM, Jovani M, and Khashab MA. Endoscopic full-thickness resection of polyps involving the appendiceal orifice: a multicenter international experience. *Endoscopy* 2022; 54(1):16-24. PMID: 33395714. Request Article

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

Internal Medicine

Joshi S, **Smith Z**, **Soman S**, **Jain S**, **Yako A**, **Hojeij M**, **Massoud L**, **Alsaadi A**, **Williams J**, **Kenney R**, **Miller J**, **Alangaden G**, and **Ramesh M**. Low- Versus High-Dose Methylprednisolone in Adult Patients With Coronavirus Disease 2019: Less Is More. *Open Forum Infect Dis* 2022; 9(1):ofab619. PMID: 35024376. Full Text

Henry Ford Hospital, Division of Infectious Diseases, Detroit, Michigan, USA.
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BACKGROUND: Corticosteroids use in severe coronavirus disease 2019 (COVID-19) improves survival; however, the optimal dose is not established. We aim to evaluate clinical outcomes in patients with severe COVID-19 receiving high-dose corticosteroids (HDC) versus low-dose corticosteroids (LDC). METHODS: This was a quasi-experimental study conducted at a large, quaternary care center in Michigan. A corticosteroid dose change was implemented in the standardized institutional treatment protocol on November 17, 2020. All patients admitted with severe COVID-19 that received corticosteroids were included. Consecutive patients in the HDC group (September 1 to November 15, 2020) were compared to the LDC group (November 30, 2020 to January 20, 2021). High-dose corticosteroids was defined as 80 mg of methylprednisolone daily in 2 divided doses, and LDC was defined as 32-40 mg of methylprednisolone daily in 2 divided doses. The primary outcome was all-cause 28-day mortality. Secondary outcomes included progression to mechanical ventilation, hospital length of stay (LOS), discharge on supplemental oxygen, and corticosteroid-associated adverse events. RESULTS: Four-hundred seventy patients were included: 218 (46%) and 252 (54%) in the HDC and LDC groups, respectively. No difference was observed in 28-day mortality (14.5% vs 13.5%, P = .712). This finding remained intact when controlling for additional variables (odds ratio, 0.947; confidence interval, 0.515-

1.742; P = .861). Median hospital LOS was 6 and 5 days in the HDC and LDC groups, respectively (P < .001). No differences were noted in any of the other secondary outcomes. CONCLUSIONS: Low-dose methylprednisolone had comparable outcomes including mortality to high-dose methylprednisolone for the treatment of severe COVID-19.

Internal Medicine

Remer HB, Gu X, Haymart B, Barnes GD, Ali MA, Kline-Rogers E, Alexandris-Souphis T, Kozlowski J, Froehlich J, **Shah V**, **Krol GD**, and **Kaatz S**. Management Strategies Following Slightly Out of Range INRs: Watchful Waiting vs. Dose Changes. *Blood Adv* 2022; Epub ahead of print. PMID: 35052000. Full Text

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Patients' international normalized ratios (INRs) often fall slightly out of range. In these cases, the American College of Chest Physician (ACCP) guidelines suggest maintaining the current warfarin dose and retesting the INR within the following two weeks (watchful waiting). We sought to determine whether watchful waiting or dose changes for slightly out of range INRs is more effective in obtaining in-range INRs at follow-up. INRs and management strategies of warfarin-treated patients within the Michigan Anticoagulation Quality Improvement Initiative (MAQI²) registry were analyzed. Management strategies included watchful waiting or dose changes. INRs slightly out of range (target range 2.0-3.0) and their associated management were identified. Multilevel mixed-effects logistic regression was used to estimate the probability of the next INR being in range adjusted for clustering due to multiple out of range INRs per patient. A total of 45,351 slightly out of range INRs (ranging 1.50-1.99 and 3.01-3.49) from 8,288 patients were identified. The next INR was slightly less likely to be in range with watchful waiting than with a dose change (Predicted Probabilities 58.9% vs. 60.0%, P-value = 0.024). Although a significant statistical difference was detected in the probabilities of the next INR being back in range when managed by a dose change compared to watchful waiting following a slightly out of range INR, the magnitude of the difference was small and unlikely to represent clinical importance. Our study supports the current guideline recommendations for watchful waiting in cases of slightly out of range INRs values.

Internal Medicine

Selim R, **Zhou Y**, **Rupp LB**, **Trudeau S**, **Naffouj S**, **Shamaa O**, **Ahmed A**, **Jafri SM**, **Gordon SC**, **Segal A**, and **Gonzalez HC**. Availability of PEth testing is associated with reduced eligibility for liver transplant among patients with alcohol-related liver disease. *Clin Transplant* 2022;e14595. Epub ahead of print. PMID: 35041223. Full Text

Department of Gastroenterology and Hepatology, Henry Ford Health System, Detroit, Michigan, USA.
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Transplant Institute, Henry Ford Health System, Detroit, Michigan, USA.

BACKGROUND: Serum phosphatidylethanol (PEth) is a highly sensitive test to detect alcohol use. We evaluated whether the availability of PEth testing impacted rates of liver transplant evaluation terminations and delistings. METHODS: Medical record data were collected for patients who initiated transplant evaluation due to alcohol-related liver disease in the pre-PEth (2017) or PEth (2019) eras. Inverse probability weighting (IPW) was used to balance baseline patient characteristics. Outcomes included termination of evaluation or delisting due to alcohol use; patients were censored at receipt of transplant; death was considered a competing risk. The Fine-Gray method was performed to determine whether PEth testing affected risk of evaluation termination/ delisting due to alcohol use. RESULTS:

Three hundred and seventy-five patients with alcohol-related indications for transplant (157 in 2017; 210 in 2019) were included. The final IPW-adjusted model for the composite outcome of terminations/delisting due to alcohol use retained two significant variables (P < .05): PEth era and BMI category. Patients evaluated during the PEth era were almost three times more likely to experience an alcohol-related termination/delisting than those in the pre-PEth era (sHR = 2.86; 95%CI 1.67-4.97) CONCLUSION: We found that availability of PEth testing at our institution was associated with a higher rate of exclusion of patients from eligibility for liver transplant. Use of PEth testing has significant potential to inform decisions regarding transplant candidacy for patients with alcohol-related liver disease.

Internal Medicine

Sharaf B, AlMasri R, **Abdel-Razeq N**, Salama O, Hamad I, Abunasser M, and Abdel-Razeq H. Vitiligo-Like Lesions in a Patient with Metastatic Breast Cancer Treated with Cyclin-Dependent Kinase (CDK) 4/6 Inhibitor: A Case Report and Literature Review. *Clin Cosmet Investig Dermatol* 2022; 15:5-10. PMID: 35023941. Full Text

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BACKGROUND: Cyclin-dependent kinase (CDK) 4/6 inhibitors have revolutionized the treatment landscape of hormone receptor-positive (HR(+)), human epidermal growth factor receptor 2-negative (HER2(-)) metastatic breast cancer, with an impressive efficacy and safety profile. Cytopenia is the main adverse event, which is both predictable and manageable. Here, we report a case of CDK4/6 inhibitor-induced vitiligo-like lesions. Vitiligo or vitiligo-like lesions are a rare adverse event; only a few cases are reported in the literature. CASE PRESENTATION: A 71-year-old female patient was diagnosed initially with early-stage right breast cancer (HR(+)/HER2(-)) and was treated with breast-conserving surgery followed by chemotherapy, radiotherapy, and hormonal therapy. A few years later, she developed metastatic disease to the hilar lymph nodes, and to multiple skeletal sites, including the left scapula, left shoulder, left iliac bone, and dorsal vertebrae, for which she was treated with ribociclib and letrozole. While on treatment, she developed hypopigmented lesions involving both hands, feet, and face, which were described as vitiligo-like lesions. CONCLUSION: CDK4/6 inhibitor-induced vitiligo is a rare and unpredictable adverse event. This case report highlights the rarity of this adverse event, the dilemma related to the optimal treatment, and decisions related to continuation, holding, or switching CDK4/6 inhibitors.

Internal Medicine

Yu E, and **Kelly B**. The Next Challenge for Post-COVID-19 Clinics: Scale. *Chest* 2022; 161(1):e63. PMID: 35000722. Full Text

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Neurology

Liu Z, **Jeffrey W**, and **Rui B**. Metabolomics as a promising tool for improving understanding of Multiple Sclerosis: a review of recent advances. *Biomed J* 2022; Epub ahead of print. PMID: 35042018. Full Text

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Multiple sclerosis (MS) is an inflammatory demyelinating disease of the central nervous system that usually affects young adults. The development of MS is closely related to the changes in the metabolome. Metabolomics studies have been performed using biofluids or tissue samples from rodent models and human patients to reveal metabolic alterations associated with MS progression. This review aims to provide an overview of the applications of metabolomics that for the investigations of the perturbed metabolic pathways in MS and to reveal the potential of metabolomics in personalizing treatments. In conclusion, informative variations of metabolites can be potential biomarkers in advancing our understanding of MS pathogenesis for MS diagnosis, predicting the progression of the disease, and estimating drug effects. Metabolomics will be a promising technique for improving clinical care in MS.

Neurology
Mangalam AK, and **Giri S**. Role of microbiome and metabolome in the pathobiology of MS. *Clin Immunol* 2022; 108934. Epub ahead of print. PMID: 35066173. Full Text

Department of Pathology, University of Iowa, Iowa City, IA 52242, USA; Graduate Program in Immunology, University of Iowa, Iowa City, IA 52242, USA; Graduate Program in Molecular Medicine, University of Iowa, Iowa City, IA 52242, USA. Electronic address: ashutosh-mangalam@uiowa.edu. Department of Neurology, Henry Ford Hospital, Detroit, MI 48202, USA. Electronic address: Sgiri1@hfhs.org.

Neurology
Matar RH, Than CA, Nakanishi H, Daniel RS, Smayra K, Sim BL, Beran A, and **Danoun OA**. Outcomes of patients with thromboembolic events following coronavirus disease 2019 AstraZeneca vaccination: a systematic review and meta-analysis. *Blood Coagul Fibrinolysis* 2022; Epub ahead of print. PMID: 34980833. Full Text

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AstraZeneca coronavirus disease 2019 (COVID-19) vaccinations have recently been implicated in thromboembolism formations. Our aim was to investigate the outcomes of patients with thromboembolic events following the AstraZeneca vaccine (ChAdOx1 nCoV-19, AZD1222). A literature search was performed from December 2019 to September 2021. Eligible studies must report participants older than 18 years vaccinated with AstraZeneca and outcomes of thromboembolic events. Pooled mean or proportion were analyzed using a random-effects model. A total of 45 unique studies (number of patients = 144, 64.6% women, mean age 21-68 years) were included. The most common presenting adverse events were headache (12.1%), intracerebral hemorrhage (7.5%), and hemiparesis (7%). The most common thromboembolic adverse events were cerebral venous sinus thrombosis (38.5%) and deep vein thrombosis/pulmonary embolism (21.1%). The most common radiologic finding were intracerebral hemorrhage and cerebral venous thrombosis. Laboratory findings included thrombocytopenia (75%) and hypofibrinogenemia (41%). On admission, 64 patients tested positive for PF4-Heparin ELISA assay (80%). Seventy-four patients were hospitalized with 22 being admitted to the ICU. A total of 78 patients recovered while 39 patients died. This meta-analysis presents evidence to suggest vaccine-induced immune thrombotic thrombocytopenia (VITT) following AstraZeneca vaccine. Clinical practice must, therefore, account for the possibility of VITT and subsequent embolic events in certain individuals' postvaccination with adenovirus-based COVID-19 vaccines. Serum anti-PF4 suggests diagnostic value for VITT and could subsequently inform treatment choices in such instances.

Neurology
Morrison AR, **Jones MC**, **Makowski CT**, **Samuel LP**, **Ramadan AR**, **Alangaden GJ**, **Davis SL**, and **Kenney RM**. Evaluation of the selection of cerebrospinal fluid testing in suspected meningitis and encephalitis. *Diagn Microbiol Infect Dis* 2022; 102(1):115571. PMID: 34768207. Full Text

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Diagnostic stewardship interventions can decrease unnecessary antimicrobial therapy and microbiology laboratory resources and costs. This retrospective cross-sectional study evaluated factors associated with inappropriate initial cerebrospinal fluid (CSF) testing in patients with suspected community-acquired meningitis or encephalitis. In 250 patients, 202 (80.8%) and 48 (19.2%) were suspected meningitis and encephalitis, respectively. 207 (82.8%) patients had inappropriate and 43 (17.2%) appropriate testing. Any inappropriate CSF test was greatest in the immunocompromised (IC) group (n = 54, 91.5%), followed by non-IC (n = 109, 80.1%) and HIV (n = 44, 80%). Ordering performed on the general ward was associated with inappropriate CSF test orders (adjOR 2.81, 95% CI [1.08-7.34]). Laboratory fee costs associated with excessive testing was close to $300,000 per year. A stepwise algorithm defining empiric and add on tests according to CSF parameters and patient characteristics could improve CSF test ordering in patients with suspected meningitis or encephalitis.

Neurology

Stec NE, and **Walbert T**. Neuro-oncology and supportive care: the role of the neurologist. *Neurol Sci* 2022; 43(2):939-950. PMID: 34988720. Full Text

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The diagnosis of a brain tumor is a life-changing event for patients and their families. Despite numerous treatment advances, malignant brain tumors are universally incurable and long-term survival is limited. Treatment response, prognosis, and survival depend on underlying histopathology and recently defined molecular features. Patients suffer from a disproportionately high symptom burden throughout the disease trajectory and at the end of life. Pronounced neurologic decline and psychological distress significantly impair quality of life (QoL) and impose high supportive care needs relative to other systemic cancers. Palliative interventions addressing brain tumor-specific symptoms, such as seizures, cognitive dysfunction, and headaches, are paramount to maintaining QoL. In the terminal phase of illness, most brain tumor patients lose the ability to communicate and participate in end-of-life decision-making. The benefits of advance care planning and early integration of specialized palliative care are well-established in other systemic cancers and have received wider recognition in neuro-oncology. We review how to approach neurological symptoms in brain tumor patients, as well as address prognosis and advance care planning with the goal of improving QoL for patients and caregivers.

Neurology

Venkat P, and **Chopp M**. Exosome treatment for stroke with diabetic comorbidity. *Neural Regen Res* 2022; 17(2):315-317. PMID: 34269198. Full Text

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Neurosurgery

Aftab K, Aamir FB, Mallick S, Mubarak F, Pope WB, **Mikkelsen T**, **Rock JP**, and Enam SA. Radiomics for precision medicine in glioblastoma. *J Neurooncol* 2022; Epub ahead of print. PMID: 35020109. Full Text

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INTRODUCTION: Being the most common primary brain tumor, glioblastoma presents as an extremely challenging malignancy to treat with dismal outcomes despite treatment. Varying molecular epidemiology of glioblastoma between patients and intra-tumoral heterogeneity explains the failure of current one-size-fits-all treatment modalities. Radiomics uses machine learning to identify salient features of the tumor on brain imaging and promises patient-specific management in glioblastoma patients. METHODS: We performed a comprehensive review of the available literature on studies investigating the role of radiomics and radiogenomics models for the diagnosis, stratification, prognostication as well as treatment planning and monitoring of glioblastoma. RESULTS: Classifiers based on a combination of various MRI sequences, genetic information and clinical data can predict non-invasive tumor diagnosis, overall survival and treatment response with reasonable accuracy. However, the use of radiomics for glioblastoma treatment remains in infancy as larger sample sizes, standardized image acquisition and data extraction techniques are needed to develop machine learning models that can be translated effectively into clinical practice. CONCLUSION: Radiomics has the potential to transform the scope of glioblastoma management through personalized medicine.

Neurosurgery
Aquino VM, **Rock JP**, **Perry KD**, and **Barbetta BT**. Functional reconstruction of the glenoid fossa utilizing a pedicled temporal osteomuscular flap. *Oral Maxillofac Surg Cases* 2022; 8(1). PMID: Not assigned. Full Text

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Current techniques in management of end stage pathology of the temporomandibular joint (TMJ) include the use of alloplastic joint reconstruction. A polyethylene glenoid fossa prosthesis is a necessity of this treatment as it provides a stable platform for function of the metal alloy condylar head. Additionally, the fossa prosthesis limits superior and posterior movement of the reconstructed joint which prevents complications such as migration of the condylar prosthesis into the middle cranial fossa and ear, ankylosis, and pain. When a pathologic process affects the glenoid fossa alone, alloplastic joint reconstruction becomes a less desirable treatment option. Lack of osseous structure along the temporal bone and zygomatic arch can impact the surgeon's ability to fixate a glenoid fossa prosthesis. Additionally, resection of an uninvolved condylar head in situations where there is no advanced pathology would provide a functional solution, but may be overly aggressive and potentially unnecessary. The following is our experience with utilizing a pedicled temporal osteomuscular flap to reconstruct an acquired defect of the glenoid fossa in a 42-year-old male with a diffuse-type tenosynovial giant cell tumor. In this case the mandibular condyle was not affected by the pathology.

Neurosurgery
Hamilton T, and **Chang V**. Commentary: Posterior Cervical Decompression and Fusion With Exoscope: 2-Dimensional Operative Video. *Oper Neurosurg (Hagerstown)* 2022; Epub ahead of print. PMID: 35030143. Full Text

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Neurosurgery

Lim S, **Bazydlo M**, **Macki M**, **Haider S**, **Schultz L**, **Nerenz D**, **Fadel H**, **Pawloski J**, **Yeh HH**, Park P, Aleem I, Khalil J, Easton R, **Schwalb JM**, **Abdulhak M**, and **Chang V**. A Matched Cohort Analysis of Drain Usage in Elective Anterior Cervical Discectomy and Fusion: A Michigan Spine Surgery Improvement Collaborative (MSSIC) Study. *Spine (Phila Pa 1976)* 2022; 47(3):220-226. PMID: 34516058. Full Text

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STUDY DESIGN: This is a retrospective, cohort analysis of multi-institutional database. OBJECTIVE: This study was designed to analyze the impact of drain use following elective anterior cervical discectomy and fusion (ACDF) surgeries. SUMMARY OF BACKGROUND DATA: After ACDF, a drain is often placed to prevent postoperative hematoma. However, there has been no high quality evidence to support its use with ACDF despite the theoretical benefits and risks of drain placement. METHODS: The Michigan Spine Surgery Improvement Collaborative database was queried to identify all patients undergoing elective ACDF between February 2014 and October 2019. Cases were divided into two cohorts based on drain use. Propensity-score matching was utilized to adjust for inherent differences between the two cohorts. Measured outcomes included surgical site hematoma, length of stay, surgical site infection, dysphagia, home discharge, readmission within 30 days, and unplanned reoperation. RESULTS: We identified 7943 patients during the study period. Propensity-score matching yielded 3206 pairs. On univariate analysis of matched cohorts, there were no differences in rate of postoperative hematoma requiring either return to OR or readmission. We noted patients with drains had a higher rate of dysphagia (4.6% vs. 6.3%; $P=0.003$) and had longer hospital stay ($P<0.001$). On multivariate analysis, drain use was associated with significantly increased length of stay (relative risk 1.23, 95% confidence interval [CI] 1.13-1.34; $P<0.001$). There were no significant differences in other outcomes measured. CONCLUSION: Our analysis demonstrated that drain use is associated with significant longer hospital stay.Level of Evidence: 3.

Neurosurgery

Shah H, Madni A, Khan MM, Ahmad FU, Jan N, Khan S, Rahim MA, Khan S, **Ali MM**, and Kazi M. pH-Responsive Liposomes of Dioleoyl Phosphatidylethanolamine and Cholesteryl Hemisuccinate for the Enhanced Anticancer Efficacy of Cisplatin. *Pharmaceutics* 2022; 14(1). PMID: 35057025. Full Text

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The current study aimed to develop pH-responsive cisplatin-loaded liposomes (CDDP@PLs) via the thin film hydration method. Formulations with varied ratios of dioleoyl phosphatidylethanolamine (DOPE) to cholesteryl hemisuccinate (CHEMS) were investigated to obtain the optimal particle size, zeta potential, entrapment efficiency, in vitro release profile, and stability. The particle size of the CDDP@PLs was in the range of 153.2 ± 3.08-206.4 ± 2.26 nm, zeta potential was -17.8 ± 1.26 to -24.6 ± 1.72, and PDI displayed an acceptable size distribution. Transmission electron microscopy revealed a spherical shape with ~200 nm size. Fourier transform infrared spectroscopic analysis showed the physicochemical stability of

CDDP@PLs, and differential scanning calorimetry analysis showed the loss of the crystalline nature of cisplatin in liposomes. In vitro release study of CDDP@PLs at pH 7.4 depicted the lower release rate of cisplatin (less than 40%), and at a pH of 6.5, an almost 65% release rate was achieved compared to the release rate at pH 5.5 (more than 80%) showing the tumor-specific drug release. The cytotoxicity study showed the improved cytotoxicity of CDDP@PLs compared to cisplatin solution in MDA-MB-231 and SK-OV-3 cell lines, and fluorescence microscopy also showed enhanced cellular internalization. The acute toxicity study showed the safety and biocompatibility of the developed carrier system for the potential delivery of chemotherapeutic agents. These studies suggest that CDDP@PLs could be utilized as an efficient delivery system for the enhancement of therapeutic efficacy and to minimize the side effects of chemotherapy by releasing cisplatin at the tumor site.

Neurosurgery
Stec NE, and **Walbert T**. Neuro-oncology and supportive care: the role of the neurologist. *Neurol Sci* 2022; 43(2):939-950. PMID: 34988720. Full Text

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The diagnosis of a brain tumor is a life-changing event for patients and their families. Despite numerous treatment advances, malignant brain tumors are universally incurable and long-term survival is limited. Treatment response, prognosis, and survival depend on underlying histopathology and recently defined molecular features. Patients suffer from a disproportionately high symptom burden throughout the disease trajectory and at the end of life. Pronounced neurologic decline and psychological distress significantly impair quality of life (QoL) and impose high supportive care needs relative to other systemic cancers. Palliative interventions addressing brain tumor-specific symptoms, such as seizures, cognitive dysfunction, and headaches, are paramount to maintaining QoL. In the terminal phase of illness, most brain tumor patients lose the ability to communicate and participate in end-of-life decision-making. The benefits of advance care planning and early integration of specialized palliative care are well-established in other systemic cancers and have received wider recognition in neuro-oncology. We review how to approach neurological symptoms in brain tumor patients, as well as address prognosis and advance care planning with the goal of improving QoL for patients and caregivers.

Neurosurgery
Walbert T, and Gerstner ER. Reply to Koekkoek et al. concerning SNO and EANO practice guideline update. *Neuro Oncol* 2022; Epub ahead of print. PMID: 35079807. Full Text

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Neurosurgery
Wu C, **Schwalb JM**, Rosenow JM, McKhann GM, 2nd, and Neimat JS. The American Society for Stereotactic and Functional Neurosurgery Position Statement on Laser Interstitial Thermal Therapy for the Treatment of Drug-Resistant Epilepsy. *Neurosurgery* 2022; 90(2):155-160. PMID: 34995216. Full Text

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Magnetic resonance image-guided laser interstitial thermal therapy (MRgLITT) is a novel tool in the neurosurgical armamentarium for the management of drug-resistant epilepsy. Given the recent introduction of this technology, the American Society for Stereotactic and Functional Neurosurgery (ASSFN), which acts as the joint section representing the field of stereotactic and functional neurosurgery on behalf of the Congress of Neurological Surgeons and the American Association of Neurological Surgeons, provides here the expert consensus opinion on evidence-based best practices for the use and implementation of this treatment modality. Indications for treatment are outlined, consisting of failure to respond to, or intolerance of, at least 2 appropriately chosen medications at appropriate doses for disabling, localization-related epilepsy in the setting of well-defined epileptogenic foci, or critical pathways of seizure propagation accessible by MRgLITT. Applications of MRgLITT in mesial temporal lobe epilepsy and hypothalamic hamartoma, along with its contraindications in the treatment of epilepsy, are discussed based on current evidence. To put this position statement in perspective, we detail the evidence and authority on which this ASSFN position statement is based.

Obstetrics, Gynecology and Women's Health Services

Ayyash M, **Ayyash M**, **Hassan Z**, Farhat A, Rakine H, and Blackwood RA. Factors and scenarios influencing Arab Americans' preference for male versus female physicians. *J Natl Med Assoc* 2022; Epub ahead of print. PMID: 35105458. Full Text

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As the Arab American community sees an increase in female physicians, knowledge of patients' perceptions is necessary to foster the physician-patient relationship. The objective of this study was to better understand physician gender preference among Arab Americans when given a range of selected medical scenarios. An anonymous survey was distributed electronically through social media. The survey elicited gender preferences of Arab Americans given different scenarios. Data was collected from 325 participants. No physician gender preference was noted for 6 out of 7 scenarios with the exception for sensitive medical issues. Same-sex gender preference was noted in the cases of sensitive medical issues, routine medical visits, medical emergencies, and minor medical procedures. Predominant visitations to male physicians across specialties was found. The current study shows that although most Arab Americans expressed no preference for physician gender, the majority currently visit male physicians. The study highlights similarities to other populations in terms of same-sex physician gender preference when it comes to patient choices. Our study shows, however, that physicians' experience and empathy were leading criteria as opposed to gender or Arab identity when it came to physician selection by Arab American patients.

Orthopedics/Bone and Joint Center

Andrews E, **Jildeh TR**, **Abbas MJ**, **Lindsay-Rivera K**, Berguson J, and Okoroha KR. Concussions in the National Hockey League: Analysis of Incidence, Return to Play, and Performance. *Orthop J Sports Med* 2022; 10(1). PMID: 35097141. Full Text

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BACKGROUND: Concussion injuries are common in professional hockey; however, their effect on player performance remains unclear. PURPOSE: To quantify the effect of concussions on the performance of position players in the National Hockey League (NHL). STUDY DESIGN: Cohort study; Level of evidence, 3. METHODS: Concussion data from the NHL were collected using publicly available databases for the seasons between 2009-2010 and 2015-2016, coinciding with new NHL concussion rules. Age, body mass index, position, number of concussions during a player's NHL career, games played, and time on ice were recorded. Basic and advanced performance metrics were collected for 1 season pre- and postconcussion (short-term period) and 3 seasons before and after concussion (long-term period) to assess short- and long-term changes in performance. A control group of players without an identified concussion who competed during the study period was assembled for comparison. Wilcoxon signed rank tests were used to evaluate pre- to postconcussion data in the short- and long-term settings as well as to compare the cohorts at each time point. RESULTS: Overall, 48 players were identified as having a concussion during the study period. Players missed 17.2 ± 15.1 days (mean ± standard deviation) and 7.5 ± 6.9 games postconcussion. There were no significant differences in any metric when pre- and postconcussion intraseason performance was assessed. Athletes who were concussed demonstrated significantly deceased performance metrics (assists per 60 minutes, points per 60 minutes, Corsi percentage, and Fenwick percentage) in the 3 years after the concussion as compared with the year before injury ($P < .05$). However, no difference was found between the concussed group and matched control group in the short- or long-term period. Players with concussion played fewer career games (856.4 ± 287.4 vs 725.7 ± 215.0; $P < .05$) than did controls. CONCLUSION: A high rate of NHL players were able to return to play after a concussion injury. Players with concussion did not experience a reduction in performance metrics in the short- or long-term setting when compared with matched controls. The concussed cohort maintained a similar workload up to 3 seasons postconcussion but played in fewer career games when compared with matched controls.

Orthopedics/Bone and Joint Center

Asif I, Thornton JS, Carek S, Miles C, **Nayak M**, Novak M, Stovak M, Zaremski JL, and Drezner J. Exercise medicine and physical activity promotion: core curricula for US medical schools, residencies and sports medicine fellowships: developed by the American Medical Society for Sports Medicine and endorsed by the Canadian Academy of Sport and Exercise Medicine. *Br J Sports Med* 2022; Epub ahead of print. PMID: 35012931. Full Text

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Regular physical activity provides a variety of health benefits and is proven to treat and prevent several non-communicable diseases. Specifically, physical activity enhances muscular and osseous strength, improves cardiorespiratory fitness, and reduces the risk of hypertension, coronary heart disease, stroke, type 2 diabetes, mental health disorders, cognitive decline and several cancers. Despite these well-known benefits, physical activity promotion in clinical practice is underused due to insufficient training during medical education. Medical trainees in the USA receive relatively few hours of instruction in sports

and exercise medicine (SEM). One reason for this shortage of instruction is a lack of curricular resources at each level of medical education. To address this need, the American Medical Society for Sports Medicine (AMSSM) assembled a group of SEM experts to develop curricular guidance for exercise medicine and physical activity promotion at the medical school, residency and sports medicine fellowship levels of training. After an evidence review of existing curricular examples, we performed a modified Delphi process to create curricula for medical students, residents and sports medicine fellows. Three training level-specific curricula emerged, each containing Domains, General Learning Areas, and Specific Learning Areas; options for additional training and suggestions for assessment and evaluation were also provided. Review and comment on the initial curricula were conducted by three groups: a second set of experts in exercise medicine and physical activity promotion, sports medicine fellowship directors representing a variety of fellowship settings and the AMSSM Board of Directors. The final curricula for each training level were prepared based on input from the review groups. We believe enhanced medical education will enable clinicians to better integrate exercise medicine and physical activity promotion in their clinical practice and result in healthier, more physically active patients.

Orthopedics/Bone and Joint Center

Castle JP, Cotter DL, **Jildeh TR**, **Abbas MJ**, **Gaudiani MA**, Ghali A, Bridges C, and **Moutzouros V**. Reduced Career Longevity but Return to Baseline Performance After Arthroscopic Shoulder Labral Repair in National Hockey League Players. *Arthrosc Sports Med Rehabil* 2022. PMID: Not assigned. Full Text

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Purpose: To investigate the impact of arthroscopic shoulder labral repair without shoulder instability on career longevity, game use, and performance in National Hockey League (NHL) athletes. Methods: A retrospective review of all NHL players who underwent arthroscopic shoulder labral repair from 2004 to 2020 was performed. A 2:1 matched control group was used for comparison. Controls were matched by age, body mass index, position, and experience prior to the index year. Demographic characteristics, game use, and performance metrics were collected for all athletes. Statistical analysis examined game use and performance both at 1-year and 3-year follow-up compared with one season before injury. Results: Twenty-nine players who underwent arthroscopic shoulder labral surgery returned to play (100%) and were matched with 55 control players. The operative cohort experienced shorter careers compared with controls (4.4 ± 3.1 vs 6.0 ± 3.6 seasons, P < .05). After one season, injured players experienced significant reductions in goals per 60 (0.6 ± 0.4 vs 0.8 ± 0.5, P = .013), points per 60 (1.5 ± 0.9 vs 2.0 ± 0.9, P = .001), and shooting percentage, (8.5 ± 5.8 vs 10.5 ± 5.2, P = .02) compared with the year prior. The reduction in goals (0.6 ± 0.4 vs 0.8 ± 0.5, P = .01) and shooting % (8.5 ± 4.7 vs 10.5 ± 5.2, P = .04) persisted at 3 years. Compared with controls, the surgical group experienced significant reductions at one season postindex in percentage of goals, assists, points per 60, and shooting percentage. Only the reduction in goals per 60 persisted at 3 seasons postindex. Conclusions: Following return to play after arthroscopic shoulder labral repair, NHL players demonstrated reduced career longevity compared with healthy controls. Players exhibited significant reductions in game use and performance at one season after injury but returned closer to baseline after 3 seasons. Level of Evidence: Level III; retrospective case control.

Orthopedics/Bone and Joint Center

George AV, Bober K, **Eller EB**, **Hakeos WM**, **Hoegler J**, Jawad AH, and **Guthrie ST**. Short cephalomedullary nail toggle: a closer examination. *OTA Int* 2022; 5(1):e185. PMID: 35098047. Full Text

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OBJECTIVES: In patients with wide femoral canals, an undersized short nail may not provide adequate stability, leading to toggling of the nail around the distal interlocking screw and subsequent loss of reduction. The purpose of this study was to identify risk factors associated with nail toggle and to examine

whether increased nail toggle is associated with increased varus collapse. DESIGN: Retrospective cohort study. SETTING: Level 1 and level 3 trauma center. PATIENTS/PARTICIPANTS: Seventy-one patients with intertrochanteric femur fractures treated with short cephalomedullary nails (CMN) from October 2013 to December 2017. INTERVENTION: Short CMN. MAIN OUTCOME MEASUREMENTS: Nail toggle and varus collapse were measured on intraoperative and final follow-up radiographs. Risk factors for nail toggle including demographics, fracture classification, quality of reduction, Dorr type, nail/canal diameter ratio, lag screw engaging the lateral cortex, and tip-apex distance (TAD) were recorded. RESULTS: On multivariate regression analysis, shorter TAD (P=.005) and smaller nail/canal ratio (P<.001) were associated with increased nail toggle. Seven patients (10%) sustained nail toggle >4 degrees. They had a smaller nail/canal ratio (0.54 vs 0.74, P<.001), more commonly Dorr C (57% vs 14%, P=.025), lower incidence of lag screw engaging the lateral cortex (29% vs 73%, P=.026), shorter TAD (13.4 mm vs 18.5 mm, P=.042), and greater varus collapse (6.2 degrees vs 1.3 degrees, P<.001) compared to patients with nail toggle<4 degrees. CONCLUSIONS: Lower percentage nail fill of the canal and shorter TAD are risk factors for increased nail toggle in short CMNs. Increased nail toggle is associated with increased varus collapse.Level of evidence: Therapeutic Level III.

Orthopedics/Bone and Joint Center
Ruder MC, **Lawrence RL**, **Soliman SB**, and **Bey MJ**. Presurgical tear characteristics and estimated shear modulus as predictors of repair integrity and shoulder function one year after rotator cuff repair. *JSES Int* 2022. PMID: Not assigned. Full Text

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Background: Rotator cuff repair provides pain relief for many patients; however, retears are relatively common and affect approximately 20%-70% of patients after repair. Although magnetic resonance imaging (MRI) offers the ability to assess tissue characteristics such as tear size, retraction, and fatty infiltration, it provides little insight into the quality of the musculotendinous tissues the surgeon will encounter during surgery. However, shear wave elastography (SWE) could provide an indirect assessment of quality (ie, stiffness) by measuring the speed of shear waves propagating through tissue. The objective of this study was to determine the extent to which estimated shear modulus predicts repair integrity and functional outcomes 1 year after rotator cuff repair. Methods: Thirty-three individuals scheduled to undergo arthroscopic rotator cuff repair were enrolled in this study. Before surgery, shear modulus of the supraspinatus tendon and muscle was estimated using ultrasound SWE. MRIs were obtained before and 1 year after surgery to assess tear characteristics and repair integrity, respectively. Shoulder strength, range of motion, and patient-reported pain and function were assessed before and after surgery. Functional outcomes were compared between groups and across time using a two-factor mixed model analysis of variance. Stepwise regression with model comparison was used to investigate the extent to which MRI and shear modulus predicted repair integrity and function at 1 year after surgery. Results: At 1 year after surgery, 56.5% of patients had an intact repair. No significant differences were found in any demographic variable, presurgical tear characteristic, or shear modulus between patients with an intact repair and those with a recurrent tear. Compared with presurgical measures, patients in both groups demonstrated significant improvements at 1 year after surgery in pain (P < .01), self-reported function (P < .01), range of motion (P < .01), and shoulder strength (P < .01). In addition, neither presurgical MRI variables (P > .16) nor shear modulus (P > .52) was significantly different between groups at 1 year after surgery. Finally, presurgical shear modulus generally did not improve the prediction of functional outcomes above and beyond that provided by MRI variables alone (P > .22). Conclusion: Although SWE remains a promising modality for many clinical applications, this study found that SWE-estimated shear modulus did not predict repair integrity or functional outcomes at 1 year after surgery, nor did it add to the prediction of outcomes above and beyond that provided by traditional presurgical MRI measures of tear characteristics. Therefore, it appears that further research is needed to fully understand the clinical utility of SWE for musculoskeletal tissue and its potential use for predicting outcomes after surgical rotator cuff repair.

Orthopedics/Bone and Joint Center
Yeni YN, **Dix MR**, **Xiao A**, **Oravec DJ**, and **Flynn MJ**. Measuring the thickness of vertebral endplate and shell using digital tomosynthesis. *Bone* 2022; 116341. Epub ahead of print. PMID: 35092890. Full Text

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The vertebral endplate and cortical shell play an important structural role and contribute to the overall strength of the vertebral body, are at highest risk of initial failure, and are involved in degenerative disease of the spine. The ability to accurately measure the thickness of these structures is therefore important, even if difficult due to relatively low resolution clinical imaging. We posit that digital tomosynthesis (DTS) may be a suitable imaging modality for measurement of endplate and cortical shell thickness owing to the ability to reconstruct multiplanar images with good spatial resolution at low radiation dose. In this study, for 25 cadaveric L1 vertebrae, average and standard deviation of endplate and cortical shell thickness were measured using images from DTS and microcomputed tomography (μCT). For endplate thickness measurements, significant correlations between DTS and μCT were found for all variables when comparing thicknesses measured in both the overall endplate volume ($R(2) = 0.25$-0.54) and when measurements were limited to a central range of coronal or sagittal slices ($R(2) = 0.24$-0.62). When compared to reference values from the overall shell volume, DTS thickness measurements were generally nonsignificant. However, when measurement of cortical shell thickness was limited to a range of central slices, DTS outcomes were significantly correlated with reference values for both sagittal and coronal central regions ($R(2) = 0.21$-0.49). DTS may therefore offer a means for measurement of endplate thickness and, within a limited sagittal or coronal measurement volume, for measurement of cortical shell thickness.

Palliative Medicine

Forth N, **Nguyen M**, and **Grech A**. A Case Report of Subanesthetic Ketamine Bolus and Infusion for Opioid Refractory Cancer Pain. *J Palliat Med* 2022; Epub ahead of print. PMID: 35085456. Full Text

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Opioids and traditional adjuvant medications are frequently prescribed for the management of moderate to severe cancer pain with good effect. However, there are many cases, in which patients experience severe opioid refractory cancer pain. Ketamine is being used more frequently in the hospice and palliative setting to manage opioid refractory pain, although high-quality evidence regarding its effectiveness is lacking. It seems certain patients respond favorably to ketamine, while others experience no effect. Studies have not yet identified factors associated with a favorable response to ketamine. We present a case describing the successful treatment of high-dose opioid refractory cancer pain with a subanesthetic ketamine infusion and propose the novel use of a preinfusion test bolus of ketamine to identify patients who are likely to respond favorably to an infusion.

Pathology and Laboratory Medicine

Aquino VM, **Rock JP**, **Perry KD**, and **Barbetta BT**. Functional reconstruction of the glenoid fossa utilizing a pedicled temporal osteomuscular flap. *Oral Maxillofac Surg Cases* 2022; 8(1). PMID: Not assigned. Full Text

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Current techniques in management of end stage pathology of the temporomandibular joint (TMJ) include the use of alloplastic joint reconstruction. A polyethylene glenoid fossa prosthesis is a necessity of this treatment as it provides a stable platform for function of the metal alloy condylar head. Additionally, the fossa prosthesis limits superior and posterior movement of the reconstructed joint which prevents complications such as migration of the condylar prosthesis into the middle cranial fossa and ear, ankylosis, and pain. When a pathologic process affects the glenoid fossa alone, alloplastic joint reconstruction becomes a less desirable treatment option. Lack of osseous structure along the temporal bone and zygomatic arch can impact the surgeon's ability to fixate a glenoid fossa prosthesis.

Additionally, resection of an uninvolved condylar head in situations where there is no advanced pathology would provide a functional solution, but may be overly aggressive and potentially unnecessary. The following is our experience with utilizing a pedicled temporal osteomuscular flap to reconstruct an acquired defect of the glenoid fossa in a 42-year-old male with a diffuse-type tenosynovial giant cell tumor. In this case the mandibular condyle was not affected by the pathology.

Pathology and Laboratory Medicine

Morrison AR, **Jones MC**, **Makowski CT**, **Samuel LP**, **Ramadan AR**, **Alangaden GJ**, **Davis SL**, and **Kenney RM**. Evaluation of the selection of cerebrospinal fluid testing in suspected meningitis and encephalitis. *Diagn Microbiol Infect Dis* 2022; 102(1):115571. PMID: 34768207. Full Text

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Diagnostic stewardship interventions can decrease unnecessary antimicrobial therapy and microbiology laboratory resources and costs. This retrospective cross-sectional study evaluated factors associated with inappropriate initial cerebrospinal fluid (CSF) testing in patients with suspected community-acquired meningitis or encephalitis. In 250 patients, 202 (80.8%) and 48 (19.2%) were suspected meningitis and encephalitis, respectively. 207 (82.8%) patients had inappropriate and 43 (17.2%) appropriate testing. Any inappropriate CSF test was greatest in the immunocompromised (IC) group (n = 54, 91.5%), followed by non-IC (n = 109, 80.1%) and HIV (n = 44, 80%). Ordering performed on the general ward was associated with inappropriate CSF test orders (adjOR 2.81, 95% CI [1.08-7.34]). Laboratory fee costs associated with excessive testing was close to $300,000 per year. A stepwise algorithm defining empiric and add on tests according to CSF parameters and patient characteristics could improve CSF test ordering in patients with suspected meningitis or encephalitis.

Pharmacy

Joshi S, **Smith Z**, **Soman S**, **Jain S**, **Yako A**, **Hojeij M**, **Massoud L**, **Alsaadi A**, **Williams J**, **Kenney R**, **Miller J**, **Alangaden G**, and **Ramesh M**. Low- Versus High-Dose Methylprednisolone in Adult Patients With Coronavirus Disease 2019: Less Is More. *Open Forum Infect Dis* 2022; 9(1):ofab619. PMID: 35024376. Full Text

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BACKGROUND: Corticosteroids use in severe coronavirus disease 2019 (COVID-19) improves survival; however, the optimal dose is not established. We aim to evaluate clinical outcomes in patients with severe COVID-19 receiving high-dose corticosteroids (HDC) versus low-dose corticosteroids (LDC). METHODS: This was a quasi-experimental study conducted at a large, quaternary care center in Michigan. A corticosteroid dose change was implemented in the standardized institutional treatment protocol on November 17, 2020. All patients admitted with severe COVID-19 that received corticosteroids were included. Consecutive patients in the HDC group (September 1 to November 15, 2020) were compared to the LDC group (November 30, 2020 to January 20, 2021). High-dose corticosteroids was defined as 80 mg of methylprednisolone daily in 2 divided doses, and LDC was defined as 32-40 mg of methylprednisolone daily in 2 divided doses. The primary outcome was all-cause 28-day mortality. Secondary outcomes included progression to mechanical ventilation, hospital length of stay (LOS), discharge on supplemental oxygen, and corticosteroid-associated adverse events. RESULTS: Four-

hundred seventy patients were included: 218 (46%) and 252 (54%) in the HDC and LDC groups, respectively. No difference was observed in 28-day mortality (14.5% vs 13.5%, P = .712). This finding remained intact when controlling for additional variables (odds ratio, 0.947; confidence interval, 0.515-1.742; P = .861). Median hospital LOS was 6 and 5 days in the HDC and LDC groups, respectively (P < .001). No differences were noted in any of the other secondary outcomes. CONCLUSIONS: Low-dose methylprednisolone had comparable outcomes including mortality to high-dose methylprednisolone for the treatment of severe COVID-19.

Pharmacy

Mohammad I, **Lobkovich A**, **Nardolillo J**, and Wilhelm S. Pharmacy Student Satisfaction and Perceptions Following a Virtual Sterile Compounding Experience. *Int J Pharm Compd* 2022; 26(1):10-17. PMID: 35081039. Request Article

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Sterile compounding education is an essential curricular component across pharmacy schools. A virtual sterile intravenous compounding experience was implemented in place of traditional in-person delivery within the patient care lab course at one college of pharmacy. The objective of this manuscript is to describe student perceptions regarding student preparedness, satisfaction, and preferences after the virtual intravenous sterile compounding experience. Students reviewed a pre-recorded lecture and readings which covered sterile compounding fundamentals. Prior to the class session, students were provided with a kit that included simulated intravenous products. Each class session included approximately 33 students and three instructors via online video conferencing. The class session began with a large-group discussion to clarify questions following review of the videos and readings. Then, the class was divided into three breakout rooms with up to 11 students and one instructor. The instructor led the small group through stepwise sterile compounding procedures and provided feedback to the students. Students then completed an online multiple-choice quiz. A survey assessing student perceptions including preparedness, satisfaction, and preferences regarding the virtual experience was disseminated to students. A Mann-Whitney U analysis was performed to compare the ordinal data. A P-value of 0.05 was used to determine significance. Seventy-two (75%) second-year students and 32 (33.3%) third-year students completed the survey yielding an overall response rate of 54%. The majority of students (66%) reported satisfaction with the virtual compounding experience compared with in-person compounding experience. Fifty-seven percent of students felt the virtual experience prepared them for clinical rotation sterile compounding experiences. Overall, students indicated satisfaction with a virtual intravenous compounding experience.

Pharmacy

Morrison AR, **Jones MC**, **Makowski CT**, **Samuel LP**, **Ramadan AR**, **Alangaden GJ**, **Davis SL**, and **Kenney RM**. Evaluation of the selection of cerebrospinal fluid testing in suspected meningitis and encephalitis. *Diagn Microbiol Infect Dis* 2022; 102(1):115571. PMID: 34768207. Full Text

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Diagnostic stewardship interventions can decrease unnecessary antimicrobial therapy and microbiology laboratory resources and costs. This retrospective cross-sectional study evaluated factors associated with inappropriate initial cerebrospinal fluid (CSF) testing in patients with suspected community-acquired meningitis or encephalitis. In 250 patients, 202 (80.8%) and 48 (19.2%) were suspected meningitis and encephalitis, respectively. 207 (82.8%) patients had inappropriate and 43 (17.2%) appropriate testing. Any inappropriate CSF test was greatest in the immunocompromised (IC) group (n = 54, 91.5%), followed by non-IC (n = 109, 80.1%) and HIV (n = 44, 80%). Ordering performed on the general ward was associated with inappropriate CSF test orders (adjOR 2.81, 95% CI [1.08-7.34]). Laboratory fee costs associated with excessive testing was close to $300,000 per year. A stepwise algorithm defining empiric and add on tests according to CSF parameters and patient characteristics could improve CSF test ordering in patients with suspected meningitis or encephalitis.

Public Health Sciences

Buechler CR, **Sagher E**, **Tisack A**, **Jacobsen G**, **Lim HW**, **McHargue C**, **Friedman BJ**, **Mi QS**, **Ozog DM**, and **Veenstra J**. Demographic Factors and Disparate Outcomes in Mycosis Fungoides: Retrospective Analysis of a Racially Diverse 440 Patient Cohort from Detroit, MI, USA. *Br J Dermatol* 2022; Epub ahead of print. PMID: 35092691. Full Text

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Public Health Sciences

Darst BF, Hughley R, Pfennig A, Hazra U, Fan C, Wan P, Sheng X, Xia L, Andrews C, Chen F, Berndt SI, Kote-Jarai Z, Govindasami K, Bensen JT, Ingles SA, **Rybicki BA**, Nemesure B, John EM, Fowke JH, Huff CD, Strom SS, Isaacs WB, Park JY, Zheng W, Ostrander EA, Walsh PC, Carpten J, Sellers TA, Yamoah K, Murphy AB, Sanderson M, Crawford DC, Gapstur SM, Bush WS, Aldrich MC, Cussenot O, Petrovics G, Cullen J, **Neslund-Dudas C**, Kittles RA, Xu J, Stern MC, Chokkalingam AP, Multigner L, Parent ME, Menegaux F, Cancel-Tassin G, Kibel AS, Klein EA, Goodman PJ, Stanford JL, Drake BF, Hu JJ, Clark PE, Blanchet P, Casey G, Hennis AJM, Lubwama A, Thompson IM, Jr., Leach RJ, Gundell SM, Pooler L, Mohler JL, Fontham ETH, Smith GJ, Taylor JA, Brureau L, Blot WJ, Biritwum R, Tay E, Truelove A, Niwa S, Tettey Y, Varma R, McKean-Cowdin R, Torres M, Jalloh M, Magueye Gueye S, Niang L, Ogunbiyi O, Oladimeji Idowu M, Popoola O, Adebiyi AO, Aisuodionoe-Shadrach OI, Nwegbu M, Adusei B, Mante S, Darkwa-Abrahams A, Yeboah ED, Mensah JE, Anthony Adjei A, Diop H, Cook MB, Chanock SJ, Watya S, Eeles RA, Chiang CWK, Lachance J, Rebbeck TR, Conti DV, and Haiman CA. A Rare Germline HOXB13 Variant Contributes to Risk of Prostate Cancer in Men of African Ancestry. *Eur Urol* 2022; Epub ahead of print. PMID: 35031163. Full Text

A rare African ancestry-specific germline deletion variant in HOXB13 (X285K, rs77179853) was recently reported in Martinican men with early-onset prostate cancer. Given the role of HOXB13 germline variation in prostate cancer, we investigated the association between HOXB13 X285K and prostate cancer risk in a large sample of 22 361 African ancestry men, including 11 688 prostate cancer cases. The risk allele was present only in men of West African ancestry, with an allele frequency in men that ranged from 0.40% in Ghana and 0.31% in Nigeria to 0% in Uganda and South Africa, with a range of frequencies in men with admixed African ancestry from North America and Europe (0-0.26%). HOXB13 X285K was associated with 2.4-fold increased odds of prostate cancer (95% confidence interval [CI] = 1.5-3.9, p = 2 × 10(-4)), with greater risk observed for more aggressive and advanced disease (Gleason ≥8: odds ratio [OR] = 4.7, 95% CI = 2.3-9.5, p = 2 × 10(-5); stage T3/T4: OR = 4.5, 95% CI = 2.0-10.0, p = 2 × 10(-4); metastatic disease: OR = 5.1, 95% CI = 1.9-13.7, p = 0.001). We estimated that the allele arose in West Africa 1500-4600 yr ago. Further analysis is needed to understand how the HOXB13 X285K variant impacts the HOXB13 protein and function in the prostate. Understanding who carries this mutation may inform prostate cancer screening in men of West African ancestry. PATIENT SUMMARY: A rare African ancestry-specific germline deletion in HOXB13, found only in men of West African ancestry, was reported to be associated with an increased risk of overall and advanced prostate cancer. Understanding who carries this mutation may help inform screening for prostate cancer in men of West African ancestry.

Public Health Sciences

Fasano GA, Bayard S, **Chen Y**, Varella L, Cigler T, **Bensenhaver J**, Simmons R, Swistel A, Marti J, Moore A, Andreopoulou E, Ng J, Brandmaier A, Formenti S, **Ali H**, Davis M, and Newman L. Benefit of adjuvant chemotherapy in node-negative T1a versus T1b and T1c triple-negative breast cancer. *Breast Cancer Res Treat* 2022; Epub ahead of print. PMID: 35022867. Full Text

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PURPOSE: National comprehensive cancer network guidelines recommend delivery of adjuvant chemotherapy in node-negative triple-negative breast cancer (TNBC) if the tumor is > 1 cm and consideration of adjuvant chemotherapy for T1b but not T1a disease. These recommendations are based upon sparse data on the role of adjuvant chemotherapy in T1a and T1b node-negative TNBC. Our objective was to clarify the benefits of chemotherapy for patients with T1N0 TNBC, stratified by tumor size. METHODS: We performed a retrospective analysis of survival outcomes of TNBC patients at two academic institutions in the United States from 1999 to 2018. Primary tumor size, histology, and nodal status were based upon surgical pathology. The Kaplan-Meier plot and 5-year unadjusted survival probability were evaluated. RESULTS: Among 282 T1N0 TNBC cases, the status of adjuvant chemotherapy was known for 258. Mean follow-up was 5.3 years. Adjuvant chemotherapy was delivered to 30.5% of T1a, 64.7% T1b, and 83.9% T1c ($p < 0.0001$). On multivariable analysis, factors associated with delivery of adjuvant chemotherapy were tumor size and grade 3 disease. Improved overall survival was associated with use of chemotherapy in patients with T1c disease (93.2% vs. 75.2% $p = 0.008$) but not T1a (100% vs. 100% $p = 0.3778$) or T1b (100% vs. 95.8% $p = 0.2362$) disease. CONCLUSION: Our data support current guidelines indicating benefit from adjuvant chemotherapy in node-negative TNBC associated with T1c tumors but excellent outcomes were observed in the cases of T1a and T1b disease, regardless of whether adjuvant chemotherapy was delivered.

Public Health Sciences

Gonzalez HC, **Zhou Y**, **Nimri FM**, **Rupp LB**, **Trudeau S**, and **Gordon SC**. Alcohol-related hepatitis admissions increased 50% in the first months of the CoViD-19 pandemic in the US. *Liver Int* 2022; Epub ahead of print. PMID: 35094494. Full Text

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Early reports suggest that alcohol misuse increased in 2020 due to the CoViD-19 pandemic. Using retrospective data from Henry Ford Health System in Detroit MI-an area that experienced an early and severe CoViD-19 outbreak-to investigate the impact of the pandemic on alcohol-related liver disease (ARLD) in the summer of 2020 compared to the same period in 2016-2019. Both the number of ARLD admissions and the proportion of total admissions represented by ARLD patients increased significantly in 2020 compared to previous years. The number of ARLD admissions as a proportion of all hospitalizations was 50% higher in 2020 than in 2016-2019 (0.31% versus 0.21%; p=0.0013); by September 2020, the number of admissions was 66% higher than previous years. Despite racial and geographic disparities in direct and indirect CoViD-related stressors across the Detroit metropolitan area, the demographic profile of ARLD patients did not change compared to previous years.

Public Health Sciences

Lim S, **Bazydlo M**, **Macki M**, **Haider S**, **Schultz L**, **Nerenz D**, **Fadel H**, **Pawloski J**, **Yeh HH**, Park P, Aleem I, Khalil J, Easton R, **Schwalb JM**, **Abdulhak M**, and **Chang V**. A Matched Cohort Analysis of Drain Usage in Elective Anterior Cervical Discectomy and Fusion: A Michigan Spine Surgery Improvement Collaborative (MSSIC) Study. *Spine (Phila Pa 1976)* 2022; 47(3):220-226. PMID: 34516058. Full Text

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

Public Health Sciences

Pu CY, Lusk CM, **Neslund-Dudas C**, **Gadgeel S**, Soubani AO, and Schwartz AG. Comparison Between the 2021 USPSTF Lung Cancer Screening Criteria and Other Lung Cancer Screening Criteria for Racial Disparity in Eligibility. *JAMA Oncol* 2022; Epub ahead of print. PMID: 35024781. Full Text

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IMPORTANCE: In 2021, the US Preventive Services Task Force (USPSTF) broadened its age and smoking pack-year requirement for lung cancer screening. OBJECTIVES: To compare the 2021 USPSTF lung cancer screening criteria with other lung cancer screening criteria and evaluate whether the sensitivity and specificity of these criteria differ by race. DESIGN, SETTING, AND PARTICIPANTS: This study included 912 patients with lung cancer and 1457 controls without lung cancer enrolled in an epidemiology study (INHALE [Inflammation, Health, Ancestry, and Lung Epidemiology]) in the Detroit metropolitan area between May 15, 2012, and March 31, 2018. Patients with lung cancer and controls were 21 to 89 years of age; patients with lung cancer who were never smokers and controls who were never smokers were not included in these analyses. Statistical analysis was performed from August 31, 2020, to April 13, 2021. MAIN OUTCOMES AND MEASURES: The study assessed whether patients with lung cancer and controls would have qualified for lung cancer screening using the 2013 USPSTF, 2021 USPSTF, and 2012 modification of the model from the Prostate, Lung, Colorectal, and Ovarian Cancer

Screening Trial (PLCOm2012) screening criteria. Sensitivity was defined as the percentage of patients with lung cancer who qualified for screening, while specificity was defined as the percentage of controls who did not qualify for lung cancer screening. RESULTS: Participants included 912 patients with a lung cancer diagnosis (493 women [54%]; mean [SD] age, 63.7 [9.5] years) and 1457 control participants without lung cancer at enrollment (795 women [55%]; mean [SD] age, 60.4 [9.6] years). With the use of 2021 USPSTF criteria, 590 patients with lung cancer (65%) were eligible for screening compared with 619 patients (68%) per the PLCOm2012 criteria and 445 patients (49%) per the 2013 USPSTF criteria. With the use of 2013 USPSTF criteria, significantly more White patients than African American patients with lung cancer (324 of 625 [52%] vs 121 of 287 [42%]) would have been eligible for screening. This racial disparity was absent when using 2021 USPSTF criteria (408 of 625 [65%] White patients vs 182 of 287 [63%] African American patients) and PLCOm2012 criteria (427 of 625 [68%] White patients vs 192 of 287 [67%] African American patients). The 2013 USPSTF criteria excluded 950 control participants (65%), while the PLCOm2012 criteria excluded 843 control participants (58%), and the 2021 USPSTF criteria excluded 709 control participants (49%). The 2013 USPSTF criteria excluded fewer White control participants than African American control participants (514 of 838 [61%] vs 436 of 619 [70%]). This racial disparity is again absent when using 2021 USPSTF criteria (401 of 838 [48%] White patients vs 308 of 619 [50%] African American patients) and PLCOm2012 guidelines (475 of 838 [57%] White patients vs 368 of 619 [60%] African American patients). CONCLUSIONS AND RELEVANCE: This study suggests that the USPSTF 2021 guideline changes improve on earlier, fixed screening criteria for lung cancer, broadening eligibility and reducing the racial disparity in access to screening.

Public Health Sciences

Quist AJL, **Han X**, Baird DD, Wise LA, **Wegienka G**, Woods-Giscombe CL, and Vines AI. Life Course Racism and Depressive Symptoms among Young Black Women. *J Urban Health* 2022; 1-12. Epub ahead of print. PMID: 35031943. Full Text

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The objective of this study is to evaluate the life course effects of racism on depressive symptoms in young Black women and to identify particularly sensitive periods. Guided by life-course theory and using logistic regression, we analyzed baseline data on racism frequency and stress from racism at two time periods (before age 20 and during the 20s) and follow-up data (at approximate 20-month intervals) on depressive symptoms (using a modified 11-item Center for Epidemiologic Studies Depression Scale, CES-D) among 1612 Black women participants aged 23-34 years living in Detroit, MI. Of the 1612 women, 65% reported experiencing some racism at baseline, and 36.5% had high depressive symptoms at follow-up. Those who experienced high frequency of racism before age 20 had an increased risk for high depressive symptoms (RR = 1.26, 95% CI: 1.07, 1.46) compared to participants in the low racism frequency group. We observed similar associations for high vs. low stress from racism (RR = 1.30, 95% CI : 1.06, 1.54) and high vs. low combination of racism frequency and stress (RR = 1.38, 95% CI: 1.13, 1.64). These findings did not hold or were weaker when assessing racism during the 20s. Among women who experienced high racism across the two time periods, the risk of high depressive symptoms was higher than those who experienced low racism during both periods (RR = 1.49, 95% CI: 1.14, 1.86). The slightly stronger associations between racism and depressive symptoms in childhood and adolescence than in young adulthood suggest that early life might be a sensitive period for experiencing racism.

Public Health Sciences

Selim R, **Zhou Y**, **Rupp LB**, **Trudeau S**, **Naffouj S**, **Shamaa O**, **Ahmed A**, **Jafri SM**, **Gordon SC**, **Segal A**, and **Gonzalez HC**. Availability of PEth testing is associated with reduced eligibility for liver transplant among patients with alcohol-related liver disease. *Clin Transplant* 2022; e14595. Epub ahead of print. PMID: 35041223. Full Text

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BACKGROUND: Serum phosphatidylethanol (PEth) is a highly sensitive test to detect alcohol use. We evaluated whether the availability of PEth testing impacted rates of liver transplant evaluation terminations and delistings. METHODS: Medical record data were collected for patients who initiated transplant evaluation due to alcohol-related liver disease in the pre-PEth (2017) or PEth (2019) eras. Inverse probability weighting (IPW) was used to balance baseline patient characteristics. Outcomes included termination of evaluation or delisting due to alcohol use; patients were censored at receipt of transplant; death was considered a competing risk. The Fine-Gray method was performed to determine whether PEth testing affected risk of evaluation termination/ delisting due to alcohol use. RESULTS: Three hundred and seventy-five patients with alcohol-related indications for transplant (157 in 2017; 210 in 2019) were included. The final IPW-adjusted model for the composite outcome of terminations/delisting due to alcohol use retained two significant variables ($P < .05$): PEth era and BMI category. Patients evaluated during the PEth era were almost three times more likely to experience an alcohol-related termination/delisting than those in the pre-PEth era (sHR = 2.86; 95%CI 1.67-4.97) CONCLUSION: We found that availability of PEth testing at our institution was associated with a higher rate of exclusion of patients from eligibility for liver transplant. Use of PEth testing has significant potential to inform decisions regarding transplant candidacy for patients with alcohol-related liver disease.

Public Health Sciences

Uthoff JM, Mott SL, Larson J, **Neslund-Dudas CM**, Schwartz AG, and Sieren JC. Computed Tomography Features of Lung Structure Have Utility for Differentiating Malignant and Benign Pulmonary Nodules. *Chronic Obstr Pulm Dis* 2022; Epub ahead of print. PMID: 35021316. Full Text

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BACKGROUND: Chronic obstructive pulmonary disease (COPD) is a known co-morbidity for lung cancer independent of smoking history. Quantitative computed tomography (qCT) imaging features related to COPD have shown promise in the assessment of lung cancer risk. We hypothesize that qCT features from the lung, lobe, and airway tree related to the location of the pulmonary nodule can be used to provide informative malignancy risk assessment. METHODS: One-hundred and eighty-three qCT features were extracted from 278 subjects with a solitary pulmonary nodule of known diagnosis (71 malignant, 207 benign). These included histogram and airway characteristics of the lungs, lobe, and segmental paths. Performances of the least absolute shrinkage and selection operator (LASSO) regression analysis and an ensemble of neural networks (ENN) were compared for feature set selection and classification on a testing cohort of 49 additional subjects (15 malignant, 34 benign). RESULTS: TheThe LASSO and ENN methods produced different features sets for classification with LASSO selecting fewer (7) qCT features than the ENN (17). The LASSO model with the highest performing training AUC (0.80) incorporated automatically extracted features and reader-measured nodule diameter with a testing AUC of 0.62. The

ENN model with the highest performing AUC (0.77) also incorporated qCT and reader diameter but maintained higher testing performance (AUC = 0.79). CONCLUSIONS: Automatically extracted qCT imaging features of the lung can be informative of the differentiation between subjects with malignant pulmonary nodules and those with benign pulmonary nodules, without requiring nodule segmentation and analysis.

Pulmonary and Critical Care Medicine
Ouellette DR. The Decision to Liberate From the Ventilator: More Than Just a Number. *Chest* 2022; 161(1):6-7. PMID: 35000708. Full Text

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Pulmonary and Critical Care Medicine
Yu E, and **Kelly B**. The Next Challenge for Post-COVID-19 Clinics: Scale. *Chest* 2022; 161(1):e63. PMID: 35000722. Full Text

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Radiation Oncology
Chapman WC, Jr., Kim H, Bauer P, Makhdoom BA, Trikalinos NA, Pedersen KS, Glasgow SC, Mutch MG, Silviera ML, Roy A, **Parikh PJ**, and Hunt SR. Total Neoadjuvant Therapy With Short-Course Radiation: US Experience of a Neoadjuvant Rectal Cancer Therapy. *Dis Colon Rectum* 2022; 65(2):198-206. PMID: 34990423. Full Text

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BACKGROUND: Short-course radiation followed by chemotherapy as total neoadjuvant therapy has been investigated primarily in Europe and Australia with increasing global acceptance. There are limited data on this regimen's use in the United States, however, potentially delaying implementation. OBJECTIVE: This study aimed to compare clinical performance and oncologic outcomes of 2 rectal cancer neoadjuvant treatment modalities: short-course total neoadjuvant therapy versus standard chemoradiation. DESIGN: This is a retrospective cohort study. SETTING: This study was performed at a National Cancer Institute-designated cancer center. PATIENTS: A total of 413 patients had locally advanced rectal cancers diagnosed from June 2009 to May 2018 and received either short-course total neoadjuvant therapy or standard chemoradiation. INTERVENTIONS: There were 187 patients treated with short-course total neoadjuvant therapy (5 × 5 Gy radiation followed by consolidation oxaliplatin-based chemotherapy) compared with 226 chemoradiation recipients (approximately 50.4 Gy radiation in 28 fractions with concurrent fluorouracil equivalent). MAIN OUTCOME MEASURES: Primary end points were tumor downstaging, measured by complete response and "low" neoadjuvant rectal score rates, and progression-free survival. Secondary analyses included treatment characteristics and completion, sphincter preservation, and recurrence rates. RESULTS: Short-course total neoadjuvant therapy was associated with higher rates of complete response (26.2% vs 17.3%; $p = 0.03$) and "low" neoadjuvant rectal scores (40.1% vs 25.7%; $p < 0.01$) despite a higher burden of node-positive disease (78.6% vs 68.9%; $p = 0.03$). Short-course recipients also completed trimodal treatment more frequently (88.4% vs 50.4%; $p < 0.01$) and had fewer months with temporary stomas (4.8 vs 7.0; $p < 0.01$). Both regimens achieved comparable local control (local recurrence: 2.7% short-course total neoadjuvant therapy vs 2.2% chemoradiation, $p = 0.76$) and 2-year progression-free survival (88.2% short-course total neoadjuvant therapy (95% CI, 82.9-93.5) vs 85.6% chemoradiation (95% CI, 80.5-90.7)). LIMITATIONS:

Retrospective design, unbalanced disease severity, and variable dosing of neoadjuvant consolidation chemotherapy were limitations of this study. CONCLUSIONS: Short-course total neoadjuvant therapy was associated with improved downstaging and similar progression-free survival compared with chemoradiation. These results were achieved with shortened radiation courses, improved treatment completion, and less time with diverting ostomies. Short-course total neoadjuvant therapy is an optimal regimen for locally advanced rectal cancer.

Radiation Oncology

Hall WA, Deshmukh S, Bruner DW, Michalski JM, Purdy JA, Bosch W, Bahary JP, Patel MP, Parliament MB, Lock MI, Lau HY, Souhami L, Fisher SA, Kwok Y, Seider MJ, Vigneault E, Rosenthal SA, Gustafson GS, Gay HA, Pugh SL, Sandler HM, and **Movsas B**. Quality of Life Implications of Dose-Escalated External Beam Radiation for Localized Prostate Cancer: Results of a Prospective Randomized Phase 3 Clinical Trial, NRG/RTOG 0126. *Int J Radiat Oncol Biol Phys* 2022; 112(1):83-92. PMID: 34919884. Full Text

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University of Maryland/Greenebaum Cancer Center, Baltimore, Maryland.
University Hospitals Seidman Cancer Center, Cleveland, Ohio.
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Sutter Cancer Centers Radiation Oncology Services-accruals under Radiologic Associates of Sacramento, Sacramento, California.
Beaumont Health, Southfield, Michigan.
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PURPOSE: External beam radiation therapy (EBRT) dose escalation has been tested in multiple prospective trials. However, the impact on patient reported outcomes (PROs) associated with higher doses of EBRT remain poorly understood. We sought to assess the differences in PROs between men treated with a dose of 70.2 Gy versus 79.2 Gy of EBRT for prostate cancer. METHODS AND MATERIALS: The phase 3 clinical trial RTOG 0126 randomized 1532 patients with prostate cancer between March 2002 and August 2008 to 79.2 Gy over 44 fractions versus 70.2 Gy over 39 fractions. Eligible patients participated in the PRO data collection. PROs completed included the International Index of Erectile Function Questionnaire (IIEF), Functional Alterations due to Changes in Elimination (FACE), and the Spitzer Quality of Life Index (SQLI). The timepoints for the IIEF were collected pre-entry and at 6, 12, and 24 months. The FACE and SQLI were collected pre-entry and at 3, 6, 12, 18, and 24 months. The impact of EBRT dose to normal structures (penile bulb, rectum, and bladder) on PROs was also examined. Mixed effects models were used to analyze trends across time. RESULTS: In total, 1144 patients completed baseline IIEF forms and of these, 56%, 64%, and 61% completed the IIEF at 6, 12, and 24 months, respectively; 1123 patients completed the FACE score at baseline and 50%, 61%, 73%, 61%, and 65% completed all 15 items for the FACE metric at timepoints of 3, 6, 12, 18, and 24 months, respectively. Erectile dysfunction at 12 months based on the single question was not significantly different between arms (38.1% for the standard dose radiation therapy arm vs 49.7% for the dose escalated radiation therapy arm; P = .051). Treatment arm (70.2 vs 79.2) had no significant impact on any PRO

metrics measured across all collected domains. Comprehensive dosimetric analyses are presented and reveal multiple significant differences to regional organs at risk. CONCLUSIONS: Compliance with PRO data collection was lower than anticipated in this phase 3 trial. Examining the available data, dose escalated EBRT did not appear to be associated with any detriment to PROs across numerous prospectively collected domains. These data, notwithstanding limitations, add to our understanding of the implications of EBRT dose escalation in prostate cancer. Furthermore, these results illustrate challenges associated with PRO data collection.

Radiation Oncology

Oreiller V, Andrearczyk V, Jreige M, Boughdad S, Elhalawani H, Castelli J, Vallières M, **Zhu S**, Xie J, Peng Y, Iantsen A, Hatt M, Yuan Y, Ma J, Yang X, Rao C, Pai S, Ghimire K, Feng X, Naser MA, Fuller CD, Yousefirizi F, Rahmim A, Chen H, Wang L, Prior JO, and Depeursinge A. Head and neck tumor segmentation in PET/CT: The HECKTOR challenge. *Med Image Anal* 2021; 77:102336. PMID: 35016077. Full Text

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This paper relates the post-analysis of the first edition of the HEad and neCK TumOR (HECKTOR) challenge. This challenge was held as a satellite event of the 23rd International Conference on Medical Image Computing and Computer-Assisted Intervention (MICCAI) 2020, and was the first of its kind focusing on lesion segmentation in combined FDG-PET and CT image modalities. The challenge's task is the automatic segmentation of the Gross Tumor Volume (GTV) of Head and Neck (H&N) oropharyngeal primary tumors in FDG-PET/CT images. To this end, the participants were given a training set of 201 cases from four different centers and their methods were tested on a held-out set of 53 cases from a fifth center. The methods were ranked according to the Dice Score Coefficient (DSC) averaged across all test cases. An additional inter-observer agreement study was organized to assess the difficulty of the task from a human perspective. 64 teams registered to the challenge, among which 10 provided a paper

detailing their approach. The best method obtained an average DSC of 0.7591, showing a large improvement over our proposed baseline method and the inter-observer agreement, associated with DSCs of 0.6610 and 0.61, respectively. The automatic methods proved to successfully leverage the wealth of metabolic and structural properties of combined PET and CT modalities, significantly outperforming human inter-observer agreement level, semi-automatic thresholding based on PET images as well as other single modality-based methods. This promising performance is one step forward towards large-scale radiomics studies in H&N cancer, obviating the need for error-prone and time-consuming manual delineation of GTVs.

Rehabilitation Services/Physical Therapy/Occupational Health

Myszenski A, **Bello R**, **Melican C**, and **Pfitzenmaier N**. Patient Characteristics and Acute PT and OT Utilization During the Initial Surge of COVID-19: A Retrospective Observational Study. *J Acute Care Phys Ther* 2022; 13(1):2-7. PMID: 34925956. Full Text

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OBJECTIVE: To describe the characteristics of patients and investigate the utilization of physical (PT) and occupational therapy (OT) intervention for those with a positive coronavirus disease-2019 (COVID-19) diagnosis compared with other patient populations during the first 6 weeks of the novel coronavirus pandemic. METHODS: A retrospective, observational study of adult inpatients with a length of stay of 1 or more days at an urban hospital in Detroit, Michigan. Individuals with a COVID-19 diagnosis were compared with a cohort within similar diagnostic categories (respiratory, fever, and sepsis) but without COVID-19. Outcome measures included PT or OT intervention on 1 or more days, the timing of initial PT or OT visit, the average number of visits and units per patient, length of stay, discharge to home, and readmission within 30 days. RESULTS: Individuals with COVID-19 had lower rates of discharge to home (P = .001), higher rates of readmission within 30 days of hospital discharge (P = .01), increased hospital length of stay (P = .001), and waited an average of 3.1 days longer for therapy evaluations than subjects in the comparison group (P = .001). The percentage of subjects who had one or more PT or OT visits during their hospital stays was comparable between groups. Once therapy was initiated, the average number of visits per patient and dosing of units in 15-minute increments were similar between the 2 groups. CONCLUSIONS: Patients acutely ill with COVID-19 hospitalized with the virus during the first 6 weeks of the pandemic remained in the intensive care unit and hospital longer than their counterparts without COVID-19 and had a delay in initiation of PT and OT intervention. PT and OT are important members of the care team for patients with the novel coronavirus. Understanding the descriptive characteristics of patients and therapy services during the initial surge could help improve utilization and patient outcomes.

Sleep Medicine

Berro LF, and **Roehrs T**. Catching up on sleep: Recent evidence on the role of sleep in substance use disorders. *Pharmacol Biochem Behav* 2022; 213:173330. PMID: 34995638. Request Article

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The objective of this editorial is to summarize the findings published in the special issue on "Sleep and Drug Abuse". The manuscripts in this issue include review articles as well as original investigations, and cover topics ranging from pre-clinical investigation to epidemiological-based clinical studies. Together, these papers provide evidence that sleep and drug abuse share a bidirectional relationship, with sleep playing a prominent role in substance use disorders. The knowledge included here can inform treatment development and future research endeavors, clearly pointing to the need for attention that focuses on sleep quality in the treatment of substance use disorders.

Sleep Medicine

Dahl T, Zammit G, Ahmad M, Rosenberg R, Chen LB, and **Roth T**. Efficacy of the triple-combination SM-1 in a 5-h phase advance transient insomnia model. *Sleep Biol Rhythms* 2022; 20(1):47-52. PMID: Not assigned. Request Article

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Thomas Dahl, PO Box 404, Guilford, CT 06437 USA. Email: tadahl@outlook.com. The objectives of the study were to demonstrate the efficacy and safety of SM-1 in a circadian challenge model of transient insomnia. Randomized, double-blind, placebo-controlled cross-over study utilizing a 5-h phase advance model of transient insomnia. Subjects were 85 healthy adults reporting a history of transient insomnia, with an average age of 38.9 years. Both SM-1 and placebo were administered to all subjects in a randomly assigned sequence, with at least 1 week between treatments. The primary endpoint was total sleep time determined by polysomnography. Secondary endpoints included wakefulness after sleep onset, latency to persistent sleep, number of awakenings, subjective total sleep time and subjective sleep onset latency, total sleep time by quarters of the night, subjective number of awakenings, and sleep quality. Safety endpoints included adverse events, Karolinska Sleepiness Scale, Digit Symbol Substitution Test, and predischarge evaluation (tandem gait and Romberg tests). SM-1 provided an increase of 94.4 min in total sleep time over placebo ($p < 0.0001$). Wakefulness after sleep onset, subjective total sleep time, subjective sleep onset latency, and total sleep time in the first quarter of the night also showed significant improvement. SM-1 was well-tolerated with both type and frequency of adverse events being comparable to placebo, and no residual sleepiness upon awakening (i.e., after 8 h). SM-1 provided a robust and statistically significant increase in total sleep time compared to placebo in a circadian model of transient insomnia, without evidence of next-day impairment.

Sleep Medicine

Mignot E, Mayleben D, Fietze I, Leger D, Zammit G, Bassetti CLA, Pain S, Kinter DS, and **Roth T**. Safety and efficacy of daridorexant in patients with insomnia disorder: results from two multicentre, randomised, double-blind, placebo-controlled, phase 3 trials. *Lancet Neurol* 2022; 21(2):125-139. PMID: 35065036. Full Text

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BACKGROUND: Daytime functioning is impaired in people with insomnia disorder. Currently available dual orexin receptor antagonists have shown efficacy in insomnia disorder, but do not address all aspects of this disease. We aimed to assess safety and efficacy of daridorexant, a novel orexin receptor antagonist, on night-time and daytime symptoms of insomnia. METHODS: We did two multicentre, randomised, double-blind, placebo-controlled, phase 3 trials at 156 sites in 17 countries. Adults (aged ≥18 years) with insomnia disorder were randomly assigned using interactive response technology (1:1:1) to receive daridorexant 50 mg, 25 mg, or placebo (study 1) or daridorexant 25 mg, 10 mg, or placebo (study 2) every evening for 3 months. Participants, investigators, and site personnel were masked to treatment allocation. The primary endpoints were change from baseline in wake time after sleep onset (WASO) and latency to persistent sleep (LPS), measured by polysomnography, at months 1 and 3. The secondary endpoints were change from baseline in self-reported total sleep time and the sleepiness domain score of

the Insomnia Daytime Symptoms and Impacts Questionnaire (IDSIQ) at months 1 and 3. Study-wise type I error rate (5%) was controlled for all pairwise comparisons. Efficacy was analysed in all randomly assigned participants, and safety in all participants who received at least one dose of treatment. The studies are registered at ClinicalTrials.gov, NCT03545191 (study 1) and NCT03575104 (study 2). FINDINGS: Between June 4, 2018 and Feb 25, 2020, 930 participants were randomly assigned to receive daridorexant 50 mg (n=310), daridorexant 25 mg (n=310), or placebo (n=310) in study 1. Between May 29, 2018, and May 14, 2020, 924 participants were randomly assigned to receive daridorexant 25 mg (n=309), daridorexant 10 mg (n=307), or placebo (n=308) in study 2. In study 1, WASO and LPS were significantly reduced among participants in the daridorexant 50 mg group compared with participants in the placebo group at month 1 (least squares mean [LSM] difference -22·8 min [95% CI -28·0 to -17·6], p<0·0001 for WASO; -11·4 min [-16·0 to -6·7], p<0·0001 for LPS) and month 3 (-18·3 min [-23·9 to -12·7], p<0·0001 for WASO; -11·7 min [-16·3 to -7·0], p<0·0001 for LPS). WASO and LPS were significantly reduced among participants in the daridorexant 25 mg group compared with the placebo group at month 1 (LSM difference -12·2 min [-17·4 to -7·0], p<0·0001 for WASO; -8·3 min [-13·0 to -3·6], p=0·0005 for LPS) and month 3 (-11·9 min [-17·5 to -6·2], p<0·0001 for WASO; -7·6 min [-12·3 to -2·9], p=0·0015 for LPS). Compared with placebo, participants in the daridorexant 50 mg group had significantly improved self-reported total sleep time at month 1 (LSM difference 22·1 min [14·4 to 29·7], p<0·0001) and month 3 (19·8 min [10·6 to 28·9], p<0·0001), and IDSIQ sleepiness domain scores at month 1 (-1·8 [-2·5 to -1·0], p<0·0001) and month 3 (-1·9 [-2·9 to -0·9], p=0·0002). Compared with the placebo group, participants in the daridorexant 25 mg group had significantly improved self-reported total sleep time at month 1 (LSM difference 12·6 min [5·0 to 20·3], p=0·0013) and month 3 (9·9 min [0·8 to 19·1], p=0·033), but not IDSIQ sleepiness domain scores (-0·8 [-1·5 to 0·01], p=0·055 at month 1; -1·0 [-2·0 to 0·01], p=0·053 at month 3). In study 2, WASO was significantly reduced among participants in the daridorexant 25 mg group compared with participants in the placebo group at month 1 (LSM difference -11·6 min [-17·6 to -5·6], p=0·0001) and month 3 (-10·3 min [-17·0 to -3·5], p=0·0028), whereas no significant differences in LPS were observed at month 1 (-6·5 min [-12·3 to -0·6], p=0·030) or month 3 (-9·0 [-15·3 to -2·7], p=0·0053). Compared with the placebo group, participants in the daridorexant 25 mg group had significant improvement in self-reported total sleep time at month 1 (LSM difference 16·1 min [8·2 to 24·0], p<0·0001) and month 3 (19·1 [10·1 to 28·0], p<0·0001), but not in IDSIQ sleepiness domain scores (-0·8 [-1·6 to 0·1], p=0·073 at month 1; -1·3 [-2·2 to -0·3], p=0·012 at month 3). Compared with the placebo group, no significant differences were observed among participants in the daridorexant 10 mg group for WASO (LSM difference -2·7 min [-8·7 to 3·2], p=0·37 at month 1; -2·0 [-8·7 to 4·8], p=0·57 at month 3), LPS (-2·6 min [-8·4 to 3·2], p=0·38 at month 1; -3·2 min [-9·5 to 3·1], p=0·32 at month 3), self-reported total sleep time (13·4 min [5·5 to 21·2], p=0·0009 at month 1; 13·6 min [4·7 to 22·5], p=0·0028 at month 3), nor IDSIQ sleepiness domain scores (-0·4 [-1·3 to 0·4], p=0·30 at month 1; -0·7 [-1·7 to 0·2], p=0·14 at month 3). Overall incidence of adverse events was comparable between treatment groups (116 [38%] of 308 participants in the daridorexant 50 mg group, 117 [38%] of 310 in the daridorexant 25 mg group, and 105 [34%] of 309 in the placebo group in study 1; 121 [39%] of 308 participants in the daridorexant 25 mg group, 117 [38%] of 306 in the daridorexant 10 mg group, and 100 [33%] of 306 in the placebo group). Nasopharyngitis and headache were the most common adverse events in all groups. One death (cardiac arrest) occurred in the daridorexant 25 mg group in study 1, which was not deemed to be treatment-related. INTERPRETATION: Daridorexant 25 mg and 50 mg improved sleep outcomes, and daridorexant 50 mg also improved daytime functioning, in people with insomnia disorder, with a favourable safety profile. FUNDING: Idorsia Pharmaceuticals.

Surgery

Alrayes H, **Kabbani L**, and **Basir M**. Failed Manta Closure Device After High-Risk PCI. *J Invasive Cardiol* 2022; 34(1):E69-e70. PMID: 34982730. Request Article

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Although the collagen-based Manta closure device (Teleflex) is a safe and effective option to close large-bore arterial access sites, complications can occur in at-risk cohorts, as seen in this clinical scenario. It is important for clinicians to share these complications as new technology is introduced.

Surgery

Aquino VM, **Rock JP**, **Perry KD**, and **Barbetta BT**. Functional reconstruction of the glenoid fossa utilizing a pedicled temporal osteomuscular flap. *Oral Maxillofac Surg Cases* 2022; 8(1). PMID: Not assigned. Full Text

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Current techniques in management of end stage pathology of the temporomandibular joint (TMJ) include the use of alloplastic joint reconstruction. A polyethylene glenoid fossa prosthesis is a necessity of this treatment as it provides a stable platform for function of the metal alloy condylar head. Additionally, the fossa prosthesis limits superior and posterior movement of the reconstructed joint which prevents complications such as migration of the condylar prosthesis into the middle cranial fossa and ear, ankylosis, and pain. When a pathologic process affects the glenoid fossa alone, alloplastic joint reconstruction becomes a less desirable treatment option. Lack of osseous structure along the temporal bone and zygomatic arch can impact the surgeon's ability to fixate a glenoid fossa prosthesis. Additionally, resection of an uninvolved condylar head in situations where there is no advanced pathology would provide a functional solution, but may be overly aggressive and potentially unnecessary. The following is our experience with utilizing a pedicled temporal osteomuscular flap to reconstruct an acquired defect of the glenoid fossa in a 42-year-old male with a diffuse-type tenosynovial giant cell tumor. In this case the mandibular condyle was not affected by the pathology.

Surgery

Diaz SE, **Dandalides AM**, and **Carlin AM**. Hospital opioid use predicts the need for discharge opioid prescriptions following laparoscopic bariatric surgery. *Surg Endosc* 2022; Epub ahead of print. PMID: 35024936. Full Text

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BACKGROUND: Overprescribing of opioids after surgery increases new persistent opioid use and diversion contributing to the opioid epidemic. There is a paucity of evidence regarding discharge opioid prescribing after bariatric surgery. METHODS: We conducted a retrospective, cohort study analyzing post-operative opioid use at a single institution in patients who underwent laparoscopic sleeve gastrectomy (LSG) and laparoscopic Roux-en-Y gastric bypass (LGB) from July 2019 thru February 2020. Multimodal analgesia was used including 5 mg oxycodone pills as needed during hospitalization with five prescribed on discharge if requested after discussion. Opioid use was determined from medical record review and post-operative data collected from patients at a 2-week follow-up visit. The Michigan Automated Prescription System (MAPS) was used as an adjunct to evaluate perioperative opioid prescriptions. RESULTS: The cohort of 84 patients included those having LSG (72) and LGB (12). Fifty-five patients (65%) received a prescription for opioids on discharge and 91% filled their prescription. Only 44% (22/50) of those filling their opioid prescription took any opioids with 24% (65/275) of the total pills prescribed actually consumed. Opioid use on the surgical ward had the strongest correlation with discharge opioid use (rho = 0.65, CI 0.494, 0.770). The number of opioid pills taken on the surgical ward was positively associated with the number of pills taken after discharge. Those who took none, 1 to 3, or 4 or more opioid pills consumed 0.14 ± 0.48, 0.95 ± 1.71, and 3.14 ± 1.86 pills after discharge ($p < 0.001$). No patients required an additional opioid prescription within 90 days of surgery with MAPS confirmation. CONCLUSION: Postoperative in-hospital opioid use following laparoscopic bariatric surgery predicts opioid use after discharge. This knowledge can guide patient-specific discharge opioid prescribing with the potential to mitigate diversion and reduce chronic opioid use.

Surgery

Fasano GA, Bayard S, **Chen Y**, Varella L, Cigler T, **Bensenhaver J**, Simmons R, Swistel A, Marti J, Moore A, Andreopoulou E, Ng J, Brandmaier A, Formenti S, **Ali H**, Davis M, and Newman L. Benefit of adjuvant chemotherapy in node-negative T1a versus T1b and T1c triple-negative breast cancer. *Breast Cancer Res Treat* 2022; Epub ahead of print. PMID: 35022867. Full Text

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PURPOSE: National comprehensive cancer network guidelines recommend delivery of adjuvant chemotherapy in node-negative triple-negative breast cancer (TNBC) if the tumor is > 1 cm and consideration of adjuvant chemotherapy for T1b but not T1a disease. These recommendations are based upon sparse data on the role of adjuvant chemotherapy in T1a and T1b node-negative TNBC. Our objective was to clarify the benefits of chemotherapy for patients with T1N0 TNBC, stratified by tumor size. METHODS: We performed a retrospective analysis of survival outcomes of TNBC patients at two academic institutions in the United States from 1999 to 2018. Primary tumor size, histology, and nodal status were based upon surgical pathology. The Kaplan-Meier plot and 5-year unadjusted survival probability were evaluated. RESULTS: Among 282 T1N0 TNBC cases, the status of adjuvant chemotherapy was known for 258. Mean follow-up was 5.3 years. Adjuvant chemotherapy was delivered to 30.5% of T1a, 64.7% T1b, and 83.9% T1c ($p < 0.0001$). On multivariable analysis, factors associated with delivery of adjuvant chemotherapy were tumor size and grade 3 disease. Improved overall survival was associated with use of chemotherapy in patients with T1c disease (93.2% vs. 75.2% $p = 0.008$) but not T1a (100% vs. 100% $p = 0.3778$) or T1b (100% vs. 95.8% $p = 0.2362$) disease. CONCLUSION: Our data support current guidelines indicating benefit from adjuvant chemotherapy in node-negative TNBC associated with T1c tumors but excellent outcomes were observed in the cases of T1a and T1b disease, regardless of whether adjuvant chemotherapy was delivered.

Surgery

Hart B, and **Hans SS**. Maldeployment of Celt ACD vascular closure device. *J Vasc Surg Cases Innov Tech* 2022; 8(1):39-41. PMID: 35097246. Full Text

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Vascular closure devices have become more popular in some clinical settings because they allow for quicker hemostasis and earlier ambulation. Although these devices have several benefits compared with manual compression, errors in deployment can result in a multitude of complications. We have presented two cases in which the Celt arterial closure device was maldeployed and caused significant patient morbidity.

Surgery

Hecht LM, **Martens KM**, **Pester BD**, **Hamann A**, **Carlin AM**, and **Miller-Matero LR**. Adherence to Medical Appointments Among Patients Undergoing Bariatric Surgery: Do Health Literacy, Health Numeracy, and Cognitive Functioning Play a Role? *Obes Surg* 2022; Epub ahead of print. PMID: 35061155. Full Text

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Surgery

Markmann JF, **Abouljoud MS**, Ghobrial RM, Bhati CS, Pelletier SJ, Lu AD, Ottmann S, Klair T, Eymard C, Roll GR, Magliocca J, Pruett TL, Reyes J, Black SM, Marsh CL, Schnickel G, Kinkhabwala M, Florman SS, Merani S, Demetris AJ, Kimura S, **Rizzari M**, Saharia A, Levy M, Agarwal A, Cigarroa FG, Eason JD, Syed S, Washburn WK, Parekh J, Moon J, Maskin A, Yeh H, Vagefi PA, and MacConmara MP. Impact of Portable Normothermic Blood-Based Machine Perfusion on Outcomes of Liver Transplant: The OCS Liver PROTECT Randomized Clinical Trial. *JAMA Surg* 2022; Epub ahead of print. PMID: 34985503. Full Text

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University of Washington, Seattle.
The Ohio State University, Columbus.
Scripps Clinic and Scripps Green Hospital, San Diego, California.
University of California, San Diego, La Jolla.
Montefiore Medical Center, Bronx, New York.
Mount Sinai Health System, New York, New York.
University of Nebraska Medical Center, Omaha.
University of Pittsburgh Medical Center, Pittsburgh, Pennsylvania.
University of Texas Southwestern Medical Center, Dallas.

IMPORTANCE: Ischemic cold storage (ICS) of livers for transplant is associated with serious posttransplant complications and underuse of liver allografts. OBJECTIVE: To determine whether portable normothermic machine perfusion preservation of livers obtained from deceased donors using the Organ Care System (OCS) Liver ameliorates early allograft dysfunction (EAD) and ischemic biliary complications (IBCs). DESIGN, SETTING, AND PARTICIPANTS: This multicenter randomized clinical trial (International Randomized Trial to Evaluate the Effectiveness of the Portable Organ Care System Liver for Preserving and Assessing Donor Livers for Transplantation) was conducted between November 2016 and October 2019 at 20 US liver transplant programs. The trial compared outcomes for 300 recipients of livers preserved using either OCS (n = 153) or ICS (n = 147). Participants were actively listed for liver transplant on the United Network of Organ Sharing national waiting list. INTERVENTIONS: Transplants were performed for recipients randomly assigned to receive donor livers preserved by either conventional ICS or the OCS Liver initiated at the donor hospital. MAIN OUTCOMES AND MEASURES: The primary effectiveness end point was incidence of EAD. Secondary end points included OCS Liver ex vivo assessment capability of donor allografts, extent of reperfusion syndrome, incidence of IBC at 6 and 12 months, and overall recipient survival after transplant. The primary safety end point was the number of liver graft-related severe adverse events within 30 days after transplant. RESULTS: Of 293 patients in the per-protocol population, the primary analysis population for effectiveness, 151 were in the OCS Liver group (mean [SD] age, 57.1 [10.3] years; 102 [67%] men), and 142 were in the ICS group (mean SD age, 58.6 [10.0] years; 100 [68%] men). The primary effectiveness end point was met by a significant decrease in EAD (27 of 150 [18%] vs 44 of 141 [31%]; P = .01). The OCS Liver preserved livers had significant reduction in histopathologic evidence of ischemia-reperfusion injury after reperfusion (eg, less moderate to severe lobular inflammation: 9 of 150 [6%] for OCS Liver vs 18 of 141 [13%] for ICS; P = .004). The OCS Liver resulted in significantly higher use of livers from donors after cardiac death (28 of 55 [51%] for the OCS Liver vs 13 of 51 [26%] for ICS; P = .007). The OCS Liver was also associated with significant reduction in incidence of IBC 6 months (1.3% vs 8.5%; P = .02) and 12 months (2.6% vs 9.9%; P = .02)

after transplant. CONCLUSIONS AND RELEVANCE: This multicenter randomized clinical trial provides the first indication, to our knowledge, that normothermic machine perfusion preservation of deceased donor livers reduces both posttransplant EAD and IBC. Use of the OCS Liver also resulted in increased use of livers from donors after cardiac death. Together these findings indicate that OCS Liver preservation is associated with superior posttransplant outcomes and increased donor liver use. TRIAL REGISTRATION: ClinicalTrials.gov Identifier: NCT02522871.

Surgery

Monsell SE, Voldal EC, Davidson GH, Fischkoff K, Coleman N, Bizzell B, Price T, Narayan M, Siparsky N, Thompson CM, Ayoung-Chee P, Odom SR, Sanchez S, Drake FT, **Johnson J**, Cuschieri J, Evans HL, Liang MK, McGrane K, Hatch Q, Victory J, Wisler J, Salzberg M, Ferrigno L, Kaji A, DeUgarte DA, Gibbons MM, Alam HB, Scott J, Kao LS, Self WH, Winchell RJ, Villegas CM, Talan DA, Kessler LG, Lavallee DC, Krishnadasan A, Lawrence SO, Comstock B, Fannon E, Flum DR, and Heagerty PJ. Patient Factors Associated With Appendectomy Within 30 Days of Initiating Antibiotic Treatment for Appendicitis. *JAMA Surg* 2022; e216900. Epub ahead of print. PMID: 35019975. Full Text

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Columbia University Medical Center, New York, New York.
Rush University Medical Center, Chicago, Illinois.
Weill Cornell Medical Center, New York, New York.
Vanderbilt University Medical Center, Nashville, Tennessee.
University of Utah, Salt Lake City.
Tisch Hospital NYU Langone Medical Center, New York, New York.
Morehouse School of Medicine, Atlanta, Georgia.
Beth Israel Deaconess Medical Center, Boston, Massachusetts.
Boston University Medical Center, Boston, Massachusetts.
Henry Ford Health System, Detroit, Michigan.
Harborview Medical Center, UW Medicine, Seattle, Washington.
University of California, San Francisco.
University of South Carolina, Charleston.
Lyndon B. Johnson General Hospital, University of Texas, Houston.
University of Houston, HCA Healthcare, Kingwood, Texas.
Madigan Army Medical Center, Tacoma, Washington.
Bellevue Hospital Center, NYU School of Medicine, New York, New York.
Ohio State University Medical Center, Columbus.
UCHealth University of Colorado Hospital, Denver.
Harbor-UCLA Medical Center, West Carson, California.
Olive View-UCLA Medical Center, Los Angeles, California.
University of Michigan Medical Center, Ann Arbor.
Northwestern University, Evanston, Illinois.
McGovern Medical School, The University of Texas Health Science Center at Houston, Houston.
Ronald Reagan UCLA Medical Center, Los Angeles, California.
BC Academic Health Science Network, Vancouver, Canada.

IMPORTANCE: Use of antibiotics for the treatment of appendicitis is safe and has been found to be noninferior to appendectomy based on self-reported health status at 30 days. Identifying patient characteristics associated with a greater likelihood of appendectomy within 30 days in those who initiate antibiotics could support more individualized decision-making. OBJECTIVE: To assess patient factors associated with undergoing appendectomy within 30 days of initiating antibiotics for appendicitis. DESIGN, SETTING, AND PARTICIPANTS: In this cohort study using data from the Comparison of Outcomes of Antibiotic Drugs and Appendectomy (CODA) randomized clinical trial, characteristics among patients who initiated antibiotics were compared between those who did and did not undergo appendectomy within 30 days. The study was conducted at 25 US medical centers; participants were enrolled between May 3, 2016, and February 5, 2020. A total of 1552 participants with acute appendicitis were randomized to antibiotics (776 participants) or appendectomy (776 participants). Data were analyzed from September 2020 to July 2021. EXPOSURES: Appendectomy vs antibiotics. MAIN

OUTCOMES AND MEASURES: Conditional logistic regression models were fit to estimate associations between specific patient factors and the odds of undergoing appendectomy within 30 days after initiating antibiotics. A sensitivity analysis was performed excluding participants who underwent appendectomy within 30 days for nonclinical reasons. RESULTS: Of 776 participants initiating antibiotics (mean [SD] age, 38.3 [13.4] years; 286 [37%] women and 490 [63%] men), 735 participants had 30-day outcomes, including 154 participants (21%) who underwent appendectomy within 30 days. After adjustment for other factors, female sex (odds ratio [OR], 1.53; 95% CI, 1.01-2.31), radiographic finding of wider appendiceal diameter (OR per 1-mm increase, 1.09; 95% CI, 1.00-1.18), and presence of appendicolith (OR, 1.99; 95% CI, 1.28-3.10) were associated with increased odds of undergoing appendectomy within 30 days. Characteristics that are often associated with increased risk of complications (eg, advanced age, comorbid conditions) and those clinicians often use to describe appendicitis severity (eg, fever: OR, 1.28; 95% CI, 0.82-1.98) were not associated with odds of 30-day appendectomy. The sensitivity analysis limited to appendectomies performed for clinical reasons provided similar results regarding appendicolith (adjusted OR, 2.41; 95% CI, 1.49-3.91). CONCLUSIONS AND RELEVANCE: This cohort study found that presence of an appendicolith was associated with a nearly 2-fold increased risk of undergoing appendectomy within 30 days of initiating antibiotics. Clinical characteristics often used to describe severity of appendicitis were not associated with odds of 30-day appendectomy. This information may help guide more individualized decision-making for people with appendicitis.

Surgery

Selim R, **Zhou Y**, **Rupp LB**, **Trudeau S**, **Naffouj S**, **Shamaa O**, **Ahmed A**, **Jafri SM**, **Gordon SC**, **Segal A**, and **Gonzalez HC**. Availability of PEth testing is associated with reduced eligibility for liver transplant among patients with alcohol-related liver disease. *Clin Transplant* 2022; e14595. Epub ahead of print. PMID: 35041223. Full Text

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BACKGROUND: Serum phosphatidylethanol (PEth) is a highly sensitive test to detect alcohol use. We evaluated whether the availability of PEth testing impacted rates of liver transplant evaluation terminations and delistings. METHODS: Medical record data were collected for patients who initiated transplant evaluation due to alcohol-related liver disease in the pre-PEth (2017) or PEth (2019) eras. Inverse probability weighting (IPW) was used to balance baseline patient characteristics. Outcomes included termination of evaluation or delisting due to alcohol use; patients were censored at receipt of transplant; death was considered a competing risk. The Fine-Gray method was performed to determine whether PEth testing affected risk of evaluation termination/ delisting due to alcohol use. RESULTS: Three hundred and seventy-five patients with alcohol-related indications for transplant (157 in 2017; 210 in 2019) were included. The final IPW-adjusted model for the composite outcome of terminations/delisting due to alcohol use retained two significant variables ($P < .05$): PEth era and BMI category. Patients evaluated during the PEth era were almost three times more likely to experience an alcohol-related termination/delisting than those in the pre-PEth era (sHR = 2.86; 95%CI 1.67-4.97) CONCLUSION: We found that availability of PEth testing at our institution was associated with a higher rate of exclusion of patients from eligibility for liver transplant. Use of PEth testing has significant potential to inform decisions regarding transplant candidacy for patients with alcohol-related liver disease.

Surgery

Varban OA, Cain-Nielsen AH, Wood MH, **Carlin AM**, Ghaferi AA, and Telem DA. Adopt or Abandon? Surgeon-Specific Trends in Robotic Bariatric Surgery Utilization Between 2010 and 2019. *J Laparoendosc Adv Surg Tech A* 2022; Epub ahead of print. PMID: 35041519. Full Text

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Background: It is unknown if surgeons are more likely to adopt or abandon robotic techniques given that bariatric procedures are already performed by surgeons with advanced laparoscopic skills. Methods: We used a statewide bariatric-specific data registry to evaluate surgeon-specific volumes of robotic bariatric cases between 2010 and 2019. Operative volume, procedure type, and patient characteristics were compared between the highest utilizers of robotic bariatric procedures (adopters) and surgeons who stopped performing robotic cases, despite demonstrating prior use (abandoners). Results: A total of 44 surgeons performed 3149 robotic bariatric procedures in Michigan between 2010 and 2019. Robotic utilization peaked in 2019, representing 7.24% of all bariatric cases. We identified 7 surgeons (16%) who performed 95% of the total number of robotic cases (adopters) and 12 surgeons (27%) who stopped performing bariatric cases during the study period (abandoners). Adopters performed a higher proportion of gastric bypass both robotically (22.9% versus 3.1%, P < .001) and laparoscopically (27.5% versus 15.1%, P < .001), when compared with abandoners. Surgeon experience (no. of years in practice), type of practice (teaching versus nonteaching hospital), and patient populations were similar between groups. Conclusions: Robotic bariatric utilization increased during the study period. The majority of robotic cases were performed by a small number of surgeons who were more likely to perform more complex cases such as gastric bypass in their own practice. Robotic adoption may be influenced by surgeon-specific preferences based upon procedure-specific volumes and may play a greater role in performing more complex surgical procedures in the future.

Urology

Agarwal A, Gupta S, Sharma RK, Finelli R, Kuroda S, Vij SC, Boitrelle F, Kavoussi P, **Rambhatla A**, Saleh R, Chung E, Mostafa T, Zini A, Ko E, Parekh N, Martinez M, Arafa M, Tadros N, de la Rosette J, Le TV, Rajmil O, Kandil H, Blecher G, Liguori G, Caroppo E, Ho CCK, Altman A, Bajic P, Goldfarb D, Gill B, Zylbersztejn DS, Molina JMC, Gava MM, Cardoso JPG, Kosgi R, Çeker G, Zilaitiene B, Pescatori E, Borges E, Duarsa GWK, Pinggera GM, Busetto GM, Balercia G, Franco G, Çalik G, Sallam HN, Park HJ, Ramsay J, Alvarez J, Khalafalla K, Bowa K, Hakim L, Simopoulou M, Rodriguez MG, Sabbaghian M, Elbardisi H, Timpano M, Altan M, Elkhouly M, Al-Marhoon MS, Sadighi Gilani MA, Soebadi MA, Nasr-Esfahani MH, Garrido N, Vogiatzi P, Birowo P, Patel P, Javed Q, Ambar RF, Adriansjah R, AlSaid S, Micic S, Lewis SE, Mutambirwa S, Fukuhara S, Parekattil S, Ahn ST, Jindal S, Takeshima T, Puigvert A, Amano T, Barrett T, Toprak T, Malhotra V, Atmoko W, Yumura Y, Morimoto Y, Lima TFN, Kunz Y, Kato Y, Umemoto Y, Colpi GM, Durairajanayagam D, and Shah R. Post-Vasectomy Semen Analysis: Optimizing Laboratory Procedures and Test Interpretation through a Clinical Audit and Global Survey of Practices. *World J Mens Health* 2022; Epub ahead of print. PMID: 35021311. Full Text

PURPOSE: The success of vasectomy is determined by the outcome of a post-vasectomy semen analysis (PVSA). This article describes a step-by-step procedure to perform PVSA accurately, report data from patients who underwent post vasectomy semen analysis between 2015 and 2021 experience, along with results from an international online survey on clinical practice. MATERIALS AND METHODS: We present a detailed step-by-step protocol for performing and interpretating PVSA testing, along with recommendations for proficiency testing, competency assessment for performing PVSA, and clinical and laboratory scenarios. Moreover, we conducted an analysis of 1,114 PVSA performed at the Cleveland Clinic's Andrology Laboratory and an online survey to understand clinician responses to the PVSA results in various countries. RESULTS: Results from our clinical experience showed that 92.1% of patients passed PVSA, with 7.9% being further tested. A total of 78 experts from 19 countries participated in the survey, and the majority reported to use time from vasectomy rather than the number of ejaculations as criterion to request PVSA. A high percentage of responders reported permitting unprotected intercourse only if PVSA samples show azoospermia while, in the presence of few non-motile sperm, the majority of responders suggested using alternative contraception, followed by another PVSA. In the presence of motile sperm, the majority of participants asked for further PVSA testing. Repeat vasectomy was mainly recommended if motile sperm were observed after multiple PVSA's. A large percentage reported to recommend a second PVSA due to the possibility of legal actions. CONCLUSIONS: Our results

highlighted varying clinical practices around the globe, with controversy over the significance of non-motile sperm in the PVSA sample. Our data suggest that less stringent AUA guidelines would help improve test compliance. A large longitudinal multi-center study would clarify various doubts related to timing and interpretation of PVSA and would also help us to understand, and perhaps predict, recanalization and the potential for future failure of a vasectomy.

Urology
Butaney M, **Chan EM**, and **Rambhatla A**. Editorial Comment. *J Urol* 2022; 207(1):51. PMID: Not assigned. Full Text

Urology
Chen I, **Perkins SQ**, **Schwartz SE**, and **Leavitt D**. Nephrolithiasis associated with embolization material, Lipiodol®, following embolization of large renal angiomyolipoma. *Urol Case Rep* 2022; 40:101910. PMID: 34786344. Full Text

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Angiomyolipoma (AML) is a benign renal mass that can be treated with nephron sparing surgery or transarterial embolization. Embolization has been favored due to efficacy and safety profile. This case demonstrates a previously undocumented phenomenon of AML treated with transarterial embolization using Lipiodol® (Guerbet LLC, Princeton, NJ) resulting in nephrolithiasis and retention of Lipiodol® two years after original embolization. Although Lipiodol®-based embolization has not been shown to cause nephrolithiasis, it may have been the nidus for stone formation, and this is an important potential complication worthy of further study.

Urology
Gupta S, Sharma R, Agarwal A, Boitrelle F, Finelli R, Farkouh A, Saleh R, Abdel-Meguid TA, Gül M, Zilaitiene B, Ko E, **Rambhatla A**, Zini A, Leisegang K, Kuroda S, Henkel R, Cannarella R, Palani A, Cho CL, Ho CCK, Zylbersztejn DS, Pescatori E, Chung E, Dimitriadis F, Pinggera GM, Busetto GM, Balercia G, Salvio G, Colpi GM, Çeker G, Taniguchi H, Kandil H, Park HJ, Maldonado Rosas I, de la Rosette J, Cardoso JPG, Ramsay J, Alvarez J, Molina JMC, Khalafalla K, Bowa K, Tremellen K, Evgeni E, Rocco L, Rodriguez Peña MG, Sabbaghian M, Martinez M, Arafa M, Al-Marhoon MS, Tadros N, Garrido N, Rajmil O, Sengupta P, Vogiatzi P, Kavoussi P, Birowo P, Kosgi R, Bani-Hani S, Micic S, Parekattil S, Jindal S, Le TV, Mostafa T, Toprak T, Morimoto Y, Malhotra V, Aghamajidi A, Durairajanayagam D, and Shah R. Antisperm Antibody Testing: A Comprehensive Review of Its Role in the Management of Immunological Male Infertility and Results of a Global Survey of Clinical Practices. *World J Mens Health* 2022; Epub ahead of print. PMID: 35021297. Full Text

Antisperm antibodies (ASA), as a cause of male infertility, have been detected in infertile males as early as 1954. Multiple causes of ASA production have been identified, and they are due to an abnormal exposure of mature germ cells to the immune system. ASA testing (with mixed anti-globulin reaction, and immunobead binding test) was described in the WHO manual 5th edition and is most recently listed among the extended semen tests in the WHO manual 6th edition. The relationship between ASA and infertility is somewhat complex. The presence of sperm agglutination, while insufficient to diagnose immunological infertility, may indicate the presence of ASA. However, ASA can also be present in the absence of any sperm agglutination. The andrological management of ASA depends on the etiology and individual practices of clinicians. In this article, we provide a comprehensive review of the causes of ASA production, its role in immunological male infertility, clinical indications of ASA testing, and the available therapeutic options. We also provide the details of laboratory procedures for assessment of ASA together with important measures for quality control. Additionally, laboratory and clinical scenarios are presented to guide the reader in the management of ASA and immunological male infertility. Furthermore, we report the results of a recent worldwide survey, conducted to gather information about clinical practices in the management of immunological male infertility.

Urology
Majdalany S, and **Abdollah F**. Editorial Comment. *J Urol* 2022; 207(2):384. PMID: 34689605. Full Text

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Urology
Veccia A, Carbonara U, Djaladat H, Mehrazin R, Eun D, Reese AC, Meng X, Uzzo R, Srivastava A, Porter JR, Farrow J, Jamil M, Rosiello G, Tellini R, Mari A, Al-Qathani A, Rha KH, Wang L, Mastroianni R, Ferro M, De Cobelli O, Hakimi K, Crocerossa F, Ghoreifi A, Cacciamani G, Amit SBA, Mottrie A, **Abdollah F**, Minervini AM, Wu Z, Simone G, Derweesh IH, Gonzalgo ML, Margulis V, Sundaram CP, and Autorino R. Robotic vs laparoscopic nephroureterectomy for upper tract urothelial carcinoma: a multicenter propensity-score matched pair "tetrafecta" analysis (ROBUUST collaborative group). *J Endourol* 2022; Epub ahead of print. PMID: 35019760. Full Text

PURPOSE: To compare the outcomes of robotic radical nephroureterectomy (RRNU) and laparoscopic radical nephroureterectomy (LRNU) within a large multi-institutional worldwide dataset. MATERIAL AND METHODS: The ROBotic surgery for Upper tract Urothelial cancer STudy (ROBUUST) includes data from 17 centers worldwide regarding 877 RRNU and LRNU performed between 2015 and 2019. Baseline features, perioperative and oncological outcomes, were included. A 2:1 nearest-neighbor propensity-score matching with a 0.001 caliper was performed. An univariable and a multivariable logistic regression model were built to evaluate the predictors of a composite "tetrafecta" outcome defined as occurrence of bladder cuff excision + LND + no complications + negative surgical margins. RESULTS: After matching, 185 RRNU and 91 LRNU were assessed. Patients in the RRNU group were more likely to undergo bladder cuff excision (81.9% vs 63.7%; p<0.001) compared to the LRNU group. A statistically significant difference was found in terms of overall postoperative complications (p=0.003) and length of stay (p<0.001) in favor of RRNU. Multivariable analysis demonstrated that LRNU was an independent predictor negatively associated with achievement of "tetrafecta" (OR: 0.09; p=0.003). CONCLUSIONS: In general, RRNU and LRNU offer comparable outcomes. While the rate of overall complications is higher for LRNU in this study population, this is mostly related to low grade complications, and therefore with more limited clinical relevance. RRNU seems to offer shorter hospital stay but this might also be related to the different geographical location of participating centers. Overall, the implementation of robotics might facilitate achievement of a "tetrafecta" outcome as defined in the present study.

Urology
Yaguchi G, Swavely N, **Perkins SQ**, and **Kachroo N**. Kidney stone depiction on fictional television: how accurate are they? *Urolithiasis* 2022; Epub ahead of print. PMID: 35050414. Full Text

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Fictional portrayals of medical conditions on television have been shown to significantly shape understanding and management expectations of the viewing public. Given the high prevalence of kidney stone disease, we aimed to assess the frequency of its portrayal on US television and assess whether its depiction was reflective of the current epidemiology or management of urolithiasis in the US. A detailed search was conducted for English language depictions of kidney stones in fictional television using internet, movie and television database search engines. Television episodes with characters depicting a kidney stone occurrence were independently reviewed by two reviewers and analyzed for genre, initial air date on US television, character age, gender, race and management strategy. Seventeen episodes from 13 different television series portrayed a character with a symptomatic kidney stone. The majority were male (88%). Surgical intervention was performed in 7/17 cases (shockwave lithotripsy n = 1, ureteroscopy

n = 2, nephrectomy n = 1, transurethral removal n = 1, unknown n = 2), spontaneous passage or medical expulsive therapy in 7/17 cases and no treatment or resolution portrayed in 3/17 cases. The only surgical complication shown was ureteral avulsion during ureteroscopy. Inpatient management was seen in 9/14 (64%) cases with event resolution. This study identified a number of kidney stone depictions that may be misleading or misrepresent the presentation and management of this condition. Although likely portrayed for plot development and dramatic effect, this could potentially reinforce inaccurate beliefs or misconceptions and future depictions should be mindful of this.

Conference Abstracts

Administration

Peahl A, Moniz M, Heisler M, Doshi A, Daniels G, **Caldwell M**, De Roo A, Dalton V, and Byrnes M. Designing prenatal care for low-income, black patients in urban settings using human centered design. *Am J Obstet Gynecol* 2022; 226(1):S222. Full Text

Objective: Black and low-income pregnant patients face significant inequities in health care access and outcomes in the United States. Yet, these patients' voices have been largely absent from designing improved prenatal care models. Our objective was to use Human Centered Design to examine patients' and health care workers' experiences with prenatal care delivery in a largely low-income, Black population, to inform future care innovations to improve access, quality, and outcomes. Study Design: Using snowball sampling, we conducted Human Centered Design-informed interviews with low-income, Black patients and health care workers in a large, urban setting. Interview questions addressed the first two Human Centered Design phases: 1) observation: understanding the problem from the end-user's perspective, and 2) ideation: generating novel potential solutions. We assessed these questions for the three key components of prenatal care: medical care, anticipatory guidance, and psychosocial support. Results: Nineteen patients and 19 health care workers were interviewed. All patients were Black, and the majority had public insurance (17/19, 89.5%). Health care workers included doctors, midwives, breastfeeding counselors, doulas, and social workers. Participants affirmed the three goals of prenatal care. Participants reported failures of current prenatal care delivery and potential solutions for each of the three goals (medical care, anticipatory guidance, and psychosocial support) and two overarching categories: maternity care professionals and care structure. Participants reported in an ideal model, patients would have strong relationships with their maternity care professional who would be at the center of all prenatal care services. Additionally, care would be tailored to individual patients and use care navigators, flexible models, and colocation of services, to reduce barriers. Conclusion: Current prenatal care delivery fails to meet low-income, Black patients' needs. Ideal prenatal care delivery includes more comprehensive, integrated services tailored to patients' medical needs and preferences.

Anesthesiology

Mohamed A, **Kitajima T**, **Angappan S**, **Delvecchio K**, **Yeddula S**, **Shamaa MT**, **Collins K**, **Rizzari M**, **Yoshida A**, **Abouljoud M**, **El-Bashir J**, and **Nagai S**. Thromboelastography and Liver Transplantation: A Target Group. *Am J Transplant* 2022; 22:74-75. Full Text

[Mohamed, Adhnan; Kitajima, Toshihiro; Angappan, Santhalakshmi; Delvecchio, Khortnal; Yeddula, Sirisha; Shamaa, Mdh Tayseer; Collins, Kelly; Rizzari, Michael; Yoshida, Atsushi; Abouljoud, Marwan; El-Bashir, Jaber; Nagai, Shunji] Henry Ford Hlth Syst, Detroit, MI USA.

Hematology-Oncology

Wang D, Lance Cowey C, Pisick E, Kirkwood J, Corum D, Morris SR, Kelly AT, Sorrentino J, Mixson L, Dickinson A, Garrett Nichols W, and Najjar YG. LUMINOS-102: PVSRIPO with or without immune checkpoint blockade in unresectable anti-PD-1 refractory melanoma. *Pigment Cell Res* 2022; 35(1):150-151. Full Text

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PVSRIPO, a novel viral immunotherapy, infects solid tumors and antigen-presenting cells (APCs) via CD155. Infection is lethal in malignant cells, but nonlethal infection of local APCs yields type I/III interferon-dominant induction with subsequent anti-tumor T-cell priming and activation. A phase 1 dose-escalation study (Beasley 2021, JITC) showed PVSRIPO was well tolerated and demonstrated anti-tumor activity in both injected and noninjected lesions in patients (pts) with αPD-1-refractory melanoma. In preclinical models, PVSRIPO-mediated immune activation upregulated the PD-1/L1 pathway, leading to greater anti-tumor response with PVSRIPO and αPD-1 combination therapy. Taken together, these data suggest PVSRIPO is active in αPD-1-refractory melanoma and that PVSRIPO±αPD-1 therapy warrants further clinical investigation. LUMINOS-102 (NCT04577807) is an ongoing multi-center, open-label, randomized phase 2 study investigating the efficacy, safety, and pharmacodynamic effects in the tumor microenvironment following PVSRIPO±αPD-1 therapy in pts with αPD-1-resistant, unresectable, non-uveal melanoma. A safety run-in cohort of 6 pts to characterize PVSRIPO injection in ≥6 lesions/cycle or maximum dose of 6x108TCID50 has fully enrolled; 1:1 randomization of 50 participants to receive PVSRIPO (Arm 1) or PVSRIPO+αPD-1 (Arm 2) is ongoing. Stratification factors include time since last αPD-1 dose and baseline LDH level. Crossover (Arm 1 to 2) is allowed upon confirmed progression, SD at 26 weeks, or PR ≥6 mos. Primary endpoints include safety, ORR per RECIST 1.1, and change from baseline in CD8+ tumor-infiltrating lymphocytes and PD-L1 expression. Key secondary endpoints include DOR, DCR, PFS, and OS. Exploratory endpoints include ORR via iRECIST and additional biomarker analysis evaluating the immune activation phenotype of PVSRIPO.

Obstetrics, Gynecology and Women's Health Services

Ayyash M, **Goyert G**, **Garcia R**, **Khangura R**, **Pitts DS**, and **Shaman M**. Efficacy and Safety of Aspirin 162 mg Prophylaxis for Preeclampsia Prevention in High Risk Women. *Am J Obstet Gynecol* 2022; 226(1):S509. Full Text

Objective: Numerous studies have evaluated the efficacy and safety of low dose aspirin for preeclampsia prevention in high risk women. Most studies were European based demonstrating efficacy and safety with aspirin 150 mg, with studies in the United States supporting aspirin 81 mg for preeclampsia prevention. There is limited data from the United States evaluating aspirin 162 mg; the aim of this study was to examine the efficacy and safety of aspirin 162 mg vs 81 mg vs no aspirin for preeclampsia prevention. Study Design: A retrospective cohort study was performed at Henry Ford Health System (HFHS) between 2013 and 2020. The 'no aspirin' group was composed of women who met high risk criteria prior to October 2015, when aspirin was implemented at HFHS. The 'aspirin 81 mg' and 'aspirin 162 mg' groups were composed of women who met high risk criteria prophylaxed with the respective aspirin doses after October 2015. Exclusion was made for women with bleeding disorders, sensitivity to aspirin, and covid-19 infection (as applicable). Results: A total of 2,266 women met high risk criteria prior to October 2015 and received no treatment. A total of 944 women received aspirin 81 mg and 387 women received aspirin 162 mg. 322 women (14.2%) without treatment developed preeclampsia, compared to 134 women (14.2%) in the aspirin 81 mg group and 39 (10.1%) in the aspirin 162 mg group. The difference in preeclampsia rates between aspirin 81 mg and aspirin 162 mg was statistically significant ($p = 0.043$). The risks for postpartum hemorrhage, postpartum hematoma, and intraventricular hemorrhage of the newborn were not statistically different between women in the aspirin 162 mg group compared to the aspirin 81 mg group ($p > 0.05$). Conclusion: We found a 29% reduction in the rate of preeclampsia for high risk women with aspirin 162 mg vs aspirin 81 mg without an increased risk for bleeding. Our study demonstrates that aspirin 162 mg should be recommended for preeclampsia prophylaxis in high risk women. Further studies by other groups are needed to confirm these findings.

Obstetrics, Gynecology and Women's Health Services

Ayyash M, **Goyert G**, **Pitts DS**, **Khangura R**, **Garcia R**, and **Shaman M**. Provider Adherence to Aspirin Prophylaxis Prescription Guidelines for Preeclampsia Prevention - A Quality Improvement Project. *Am J Obstet Gynecol* 2022; 226(1):S428. Full Text

Objective: Preeclampsia affects 2-8% of pregnancies leading to significant maternal and neonatal morbidity and mortality. The Society for Maternal-Fetal Medicine supports the use of low dose aspirin for the prevention of preeclampsia in women at risk. The aim of this study was to evaluate provider adherence to aspirin prophylaxis prescription guidelines for women at risk. Study Design: A retrospective

chart review was performed at Henry Ford Health System (HFHS) between October 2015 and December 2020. In October 2015, aspirin 81 mg was recommended for women who met high risk criteria for preeclampsia at HFHS; in February 2019, aspirin 162 mg was recommended for women who met moderate or high risk criteria for preeclampsia. Providers prescribing aspirin included attending physicians, physician residents, and certified midwives. Results: A total of 46,016 pregnancies occurred between Oct 2015 and Dec 2020. 15,167 (33.0%) met high and moderate risk criteria and had no contraindication to aspirin administration. From the population at risk, 1,255 (8.3%) had a history of preeclampsia, 2,534 (16.7%) had a history of chronic hypertension, 1,418 (9.3%) had a history of diabetes, 7,470 (49.3%) were nulliparous, 4,038 (26.6%) were 35 years of age or older, 6,395 (42.2%) had a body mass index greater than 30 kg/m2, and 8,174 (53.9%) were African Americans. Only 630 out of 3,584 (17.6%) of women meeting the high risk criteria for preeclampsia between Oct 2015 and Jan 2019 received aspirin. Only 891 out of 5,874 (15.2%) of women meeting the high or moderate risk criteria for preeclampsia between Feb 2019 and Dec 2020 received aspirin. Conclusion: Adherence to aspirin prophylaxis guidelines for women at moderate or high risk for preeclampsia was low. Most urban healthcare systems serve diverse, high risk populations with multiple comorbidities rendering many women at moderate or high risk for preeclampsia. Educational efforts to improve provider knowledge regarding this important preventative measure are indicated.

Obstetrics, Gynecology and Women's Health Services

Ayyash M, **McNitt M**, **Khangura R**, **Goyert G**, **Pitts DS**, **Shaman M**, **Garcia R**, **Keerthy M**, and **Swain M**. Black-White Disparities and Preterm Births Comparisons Following the COVID-19 Pandemic in Michigan. *Am J Obstet Gynecol* 2022; 226(1):S152. Full Text

Objective: Racial and ethnic disparities in health care have been documented throughout decades in the United States. The COVID-19 pandemic has further shown a disproportionate burden on racial and minority groups. Black women have been disproportionately impacted among other races in terms of pregnancy outcomes. The aim of this study was to compare preterm birth outcomes between black vs white women after the COVID-19 pandemic. Study Design: A population-based retrospective cohort study was performed using the state of Michigan's birth registry data. The timeline of interest was after the emergence of the pandemic in Michigan from March 2020 until December 2020. The pre-pandemic cohort was from March 2019 until December 2019. The main outcome of interest was preterm birth rates comparison between White and Blacks in the post-pandemic vs pre-pandemic period. Results: Of 91,068 women in the pre-pandemic cohort, 65,420 (71.8%) identified as White, compared to 16,997 (18.7%) who identified as Black. The post-pandemic cohort included 83,240 women with 57,836 (69.5%) identifying as White, compared to 16,160 (19.4%) identifying as Black. The overall preterm birth rate decreased from 10.4% to 9.9% post-pandemic. In the pre-pandemic cohort, the preterm birth rate was 9.0% for White women compared to 16.3% for Black women, the extreme preterm birth rate (< 28 weeks gestation) was 0.42% for White women compared to 1.4% for Black women. In the post-pandemic cohort, the preterm birth rate was 8.6% for White women compared to 15.1% for Black women and the extreme preterm birth rate was 0.39% for White women compared to 1.2% for Black women. Conclusion: Although disparities continue to persist in preterm birth rates between White vs Black women, we found no increased racial disparities in changes in preterm birth or extreme preterm birth rates between both races in the pre vs post-pandemic periods. More data in the upcoming years post-pandemic can help further confirm these findings.

Obstetrics, Gynecology and Women's Health Services

Hasbini YG, **Goyert G**, Tarca AL, Keerthy M, Jones T, Thiel L, Green PM, Youssef Y, Townsel C, Vengalil S, Paladino P, Wright A, **Ayyash M**, **Vadlamudi G**, Szymanska M, Sajja S, Sterenberg G, Baracy M, Grace K, Houston K, Norman J, Gudicha DW, Sokol RJ, Bahado-Singh R, and Hassan SS. COVID-19 is associated with early emergence of preeclampsia: results from a large regional collaborative. *Am J Obstet Gynecol* 2022; 226(1):S594-S595. Full Text

Objective: To examine the relationship between COVID-19 and preeclampsia (PreE) in a large, diverse population. Study Design: The COVID-19 in Pregnancy and The Newborn: State of Michigan Collaborative established a database of pregnant patients admitted to 14 institutions in Southern Michigan. Patients with COVID-19 (cases) were matched to 2 or 3 non-COVID patients (controls) on the

same unit within 30 days of each case. Relative Risks (RR) were calculated using robust Poisson regression models with adjustment for covariates. Chi-squared test for trend was used to assess the increase in risk with the severity of disease. Results: 369 cases and 1,090 controls were delivered between March - October 2020. An increased risk of PreE (RR=1.8), driven almost entirely by an increase in preterm PreE (pretermPreE) (RR=2.85) was observed in COVID pregnancies (Table 1), with a dose-response relationship with symptomatology and severity (Table 2). The associations between COVID-19 disease and PreE or pretermPreE were independent of other risk factors, as demonstrated by the minimal changes in RR after adjustment for confounders (Table 1). However, African American (AA) COVID patients experienced pretermPreE 1.9 times more than COVID patients of other races (10.1 vs 5.3), an increase not observed in control patients. The strength of the association for COVID with PreE was comparable to the association of PreE with chronic hypertension and nulliparity (data not shown). Increasing symptoms and severity of COVID-19 were associated with an increased risk for PreE with placental lesions, even after adjustment for relevant covariates (Tables 1 & 2). Non-PreE COVID patients had an increased trend of placental lesions compared to non-COVID patients, reaching significance for intravillous thrombin. Conclusion: COVID-19 is significantly associated with early emergence of PreE, independent of known risk factors other than AA race. Our study shows that among patients predisposed to PreE, COVID-19 impacts PreE severity in that it leads to pretermPreE. Further studies on COVID-19 and PreE, with a focus on racial disparities, is warranted. [Formula presented] [Formula presented]

Obstetrics, Gynecology and Women's Health Services

Ismailova I, Sokol RJ, Gudicha DW, Hasbini YG, Tarca AL, Green PM, Jones T, **Goyert G**, Thiel L, Youssef Y, Townsel C, Vengalil S, Paladino P, Wright A, **Ayyash M**, **Vadlamudi G**, Szymanska M, Sajja S, Sterenberg G, Baracy Jr M, Grace K, Houston K, Norman J, Bahado-Singh R, and Hassan SS. Racial Disparities and Risk for COVID-19 Among Pregnant Patients: Results from the Michigan Statewide Collaborative. *Am J Obstet Gynecol* 2022; 226(1):S192. Full Text

Objective: Previous studies have looked at COVID-19 outcomes in pregnancy and racial disparities among patients with COVID-19, but few have studied racial disparities among pregnant patients with COVID-19. Our goal in this study is to analyze the relationship between race and disparate COVID-19 risk in pregnancy. Study Design: A retrospective cohort analysis was performed on data collected as part of the COVID-19 in Pregnancy and The Newborn: State of Michigan Collaborative, a database of pregnant patients admitted to 14 institutions in Southern Michigan. Cases were defined as patients with a positive SARS-CoV-2 test result. Controls, those with suspicion of COVID-19 prior to universal screening or a negative PCR test, were matched to cases on the same unit within 30 days of each case. For this analysis, the two primary groups of interest were non-Hispanic Black (Black) vs. non-Hispanic White (White) patients. Potential covariates were age, body mass index (BMI), chronic hypertension, diabetes, asthma, substance use, and smoking; the dependent variable was COVID/non-COVID in a robust Poisson regression model. In addition, 18 symptoms and disease severity (mild/moderate/severe) were compared between the Black and White groups using the same statistical method. Results: Of 1,131 gravidas, 42.9%(n=485) were Black. These patients were at two-fold greater risk for COVID-19 compared with their White counterparts [35.9% vs. 18.3%, RR=1.96(1.6-2.4)]. After adjusting for obesity and diabetes, the risk of COVID-19 in Black patients remained higher compared to the risk among White patients (aRR=2.46 [1.87-3.24]). There were no differences in symptoms nor severity of disease presentation between the groups. Conclusion: In our population, Black patients are more likely to be diagnosed with COVID-19 infection during pregnancy. This finding is not explained by a range of covariates. Other factors, such as social determinants of health, may be important to understand this disparity and warrant further examination.

Obstetrics, Gynecology and Women's Health Services

Vadlamudi G, **Goyert G**, and **Shaman M**. Growth outcomes associated with prenatal diagnosis of partial and complete circumvallate placenta. *Am J Obstet Gynecol* 2022; 226(1):S632. Full Text

Objective: Prior studies have shown higher rates of fetal growth restriction associated with circumvallate placenta based on placental pathology. However, none have assessed growth outcomes associated with sonographic diagnosis alone. The objective of this study is to assess the accuracy of ultrasound diagnosis of circumvallate placenta and to compare the association of partial and complete circumvallate

placenta on ultrasound with fetal growth restriction (FGR) and small for gestational age (SGA) birthweight. Study Design: Patients with the sonographic diagnosis of circumvallate placenta (partial or complete) were identified. Confirmation of circumvallate placenta was noted if pathologic examination of the placenta was performed. Findings of antenatal FGR and neonatal SGA were recorded. Results: Placental pathology was available for 117 of 222 cases of sonographically diagnosed circumvallate placenta; 25 were confirmed to be circumvallate (21.4%). In patients with circumvallate placenta diagnosed on ultrasound, FGR was identified in 9.5% and SGA in 10.8%. FGR and SGA occurred in 7.3 and 8.0% in patients with partial circumvallate placenta, and in 10.6% and 17.0% of patients with complete circumvallate placenta, respectively. None of these values were significantly different from the baseline population rate of 10%. In cases of circumvallate placenta confirmed on pathology, FGR and SGA occurred in 12.0%. Conclusion: The accuracy of sonographic diagnosis of circumvallate placenta remains poor. Strategies to improve sonographic diagnosis of circumvallate placenta are needed. Patients with circumvallate placenta identified on ultrasound did not have higher rates of FGR or SGA than the general population, even when partial and complete circumvallate placenta were evaluated separately. This information can be used to guide counseling for patients with circumvallate placenta identified on prenatal ultrasound and to re-evaluate recommendations for antenatal surveillance. [Formula presented] [Formula presented]

Obstetrics, Gynecology and Women's Health Services

Vadlamudi G, **Goyert G**, and **Shaman M**. Growth outcomes of marginal cord insertion stratified by distance from placental margin. *Am J Obstet Gynecol* 2022; 226(1):S245. Full Text

Objective: To compare the rates of fetal growth restriction (FGR) and small for gestational age (SGA) birthweight for patients with the sonographic diagnosis of marginal cord insertion at 1.0 cm or less, versus 1.01 to 2.0 cm, between the placental margin and cord insertion. Study Design: Patients sonographically diagnosed with marginal placental cord insertion (cord insertion 2.0 cm or less from the placental margin) were identified. The distance was further classified as ≤1.0 cm or 1.01 to 2.0 cm. The presence of absence of FGR (estimated fetal weight less than 10%ile) and the presence or absence of SGA (birth weight less than 10%ile) were recorded. Results: Marginal cord insertion was diagnosed in 163 cases; 70 cases had a placental cord insertion distance of ≤1.0 cm, and 93 cases had a distance of 1.01 to 2.0 cm. All cases of marginal cord insertion had significantly higher rates of FGR (16.0%) and SGA (15.8%) than the baseline population. In the group with a placental cord insertion distance of 1.0 cm or less, the rates of FGR (18.6%) and SGA (30.0%) were also higher than the general population. In cases with a distance between 1.0 and 2.0 cm, the rate of FGR (14.0%) was not significantly different than the general population; however, there was a higher rate of SGA (22.6%). Conclusion: Marginal cord insertion of ≤1.0 cm is a significant risk factor for FGR and SGA; when 1.01 to 2 cm, marginal cord insertion remains a significant risk factor for SGA. This calls for continued antenatal surveillance with serial growth assessments for patients with marginal cord insertion defined as placental cord insertion 2.0 cm or less from the placental margin. [Formula presented]

Ophthalmology and Eye Care Services

Miller DJ, Niziol LM, Elam AR, Heisler M, Lee PP, Resnicow K, Musch DC, **Darnley-Fisch D**, Mitchell J, and Newman-Casey PA. Demographic, Clinical, and Psychosocial Predictors of Change in Medication Adherence in the Support, Educate, Empower Program. *Ophthalmol Glaucoma* 2022; 5(1):47-57. Request Article

P.A. Newman-Casey, University of Michigan, Kellogg Eye Center, 1000 Wall Street, Ann Arbor, MI, United States

Purpose: To investigate whether demographic, clinical, or psychosocial factors act as moderators of change in medication adherence in the Support, Educate, Empower (SEE) program. Design: Prospective, single-arm pilot study with a pre–post design. Participants: Patients with glaucoma aged ≥ 40 years and taking ≥ 1 glaucoma medication were recruited from the University of Michigan Kellogg Eye Center. Those who had electronically measured adherence ≤ 80% in the 3-month eligibility monitoring period were enrolled in the SEE program. Methods: Medication adherence was monitored electronically during the 7-month intervention and calculated as the percentage of doses taken correctly. Change in adherence

at different points in the SEE program and cumulative change in adherence were modeled with linear regression, and baseline demographic, clinical, and psychosocial factors were investigated for significant associations. Main Outcome Measures: Demographic, clinical, and psychosocial variables associated with change in medication adherence in the SEE program. Results: Thirty-nine participants completed the SEE program. These participants were on average 63.9 years old (standard deviation [SD], 10.7 years), 56% (n = 22) were male, 44% (n = 17) were White, and 49% (n = 19) were Black. Medication adherence improved from an average of 59.9% (SD, 18.5%) at baseline to 83.6% (SD, 17.5%) after the final SEE session, for an increase of 23.7% (SD, 17.5%). Although participants with lower income (< $25 000 and $25 000–50 000 vs. >$50 000) had lower baseline adherence (48.4% and 64.1% vs. 70.4%), these individuals had greater increases in adherence during the first month of medication reminders (19.6% and 21.6% vs. 10.2%; P = 0.05 and P = 0.007, respectively). Participants taking fewer glaucoma medications also had significantly greater increases in adherence with medication reminders (P < 0.001). Those with higher levels of glaucoma-related distress (GD) had lower baseline adherence and greater increases in adherence with glaucoma coaching (P = 0.06). Conclusions: Patient-level factors associated with relatively greater improvements in medication adherence through the SEE Program included lower income, fewer glaucoma medications, and increased GD. These findings demonstrate that the SEE program can improve glaucoma self-management even among participants with social and psychological barriers to medication adherence.

Pulmonary and Critical Care Medicine

Shamaa TM, **Allenspach L**, **Kitajima T**, **Shamaa O**, **Crombez C**, **Hage-Hassan O**, **Shimada S**, **Yeddula S**, **Francis I**, **Malinzak L**, **Denny J**, **Kim D**, **Abouljoud M**, and **Nagai S**. Measurement of physical activity and frailty in the early post-operative period after kidney transplant; Single-center prospective pilot study using Fitbit watch. *Am J Transplant* 2022; 22:52-53. Full Text

[Shamaa, Omar] Henry Ford Hosp, Detroit, MI USA. [Shamaa, Tayseer M.; Allenspach, Lisa; Crombez, Catherine; Hage-Hassan, Omar; Shimada, Shingo; Yeddula, Sirisha; Francis, Iman; Malinzak, Lauren; Denny, Jason; Kim, Dean; Abouljoud, Marwan; Nagai, Shunji] Henry Ford Transplant Inst, Detroit, MI USA.

Surgery

Kitajima T, **Ivanics T**, **Shamaa T**, **Shimada S**, **Collins K**, **Rizzari M**, **Yoshida A**, **Abouljoud M**, and **Nagai S**. Favorable waitlist and transplant outcomes in transplant centers with a rapid increase in center volume. *Am J Transplant* 2022; 22:44-44. Full Text

[Kitajima, Toshihiro; Ivanics, Tommy; Shamaa, Tayseer; Shimada, Shingo; Collins, Kelly; Rizzari, Michael; Yoshida, Atsushi; Abouljoud, Marwan; Nagai, Shunji] Henry Ford Hosp, Detroit, MI 48202 USA.

Surgery

Shamaa TM, **Allenspach L**, **Kitajima T**, **Shamaa O**, **Crombez C**, **Hage-Hassan O**, **Shimada S**, **Yeddula S**, **Francis I**, **Malinzak L**, **Denny J**, **Kim D**, **Abouljoud M**, and **Nagai S**. Measurement of physical activity and frailty in the early post-operative period after kidney transplant; Single-center prospective pilot study using Fitbit watch. *Am J Transplant* 2022; 22:52-53. Full Text

[Shamaa, Omar] Henry Ford Hosp, Detroit, MI USA. [Shamaa, Tayseer M.; Allenspach, Lisa; Crombez, Catherine; Hage-Hassan, Omar; Shimada, Shingo; Yeddula, Sirisha; Francis, Iman; Malinzak, Lauren; Denny, Jason; Kim, Dean; Abouljoud, Marwan; Nagai, Shunji] Henry Ford Transplant Inst, Detroit, MI USA.

Surgery

Loseth C, Qin C, Zeiser L, Segev D, Dageforde LA, Watkins A, **Collins K**, Glorioso J, Quillin RC, Garonzik-Wang J, and Tevar A. Perception of Transplant Surgery and the Pursuit of a Career in Transplant Surgery Among US General Surgery Residents. *Am J Transplant* 2022; 22:70-71. Full Text

[Collins, Kelly] Henry Ford Hosp, Detroit, MI USA. [Segev, Dorry] Johns Hopkins Sch Med, Baltimore, MD USA. [Qin, Caroline; Zeiser, Laura; Garonzik-Wang, Jacqueline] Johns Hopkins Univ, Sch Med,

Baltimore, MD USA. [Dageforde, Leigh Anne] Harvard Med Sch, Massachusetts Gen Hosp, Boston, MA USA. [Watkins, Anthony] NYU Langone Hlth, New York, NY USA. [Glorioso, Jaime] Thomas Jefferson Univ, Philadelphia, PA USA. [Quillin, R. Cutler, III] Univ Cincinnati, Cincinnati, OH USA. [Tevar, Amit] Univ Pittsburgh, Med Ctr, Pittsburgh, PA USA.

Surgery
Mohamed A, **Kitajima T**, **Angappan S**, **Delvecchio K**, **Yeddula S**, **Shamaa MT**, **Collins K**, **Rizzari M**, **Yoshida A**, **Abouljoud M**, **El-Bashir J**, and **Nagai S**. Thromboelastography and Liver Transplantation: A Target Group. *Am J Transplant* 2022; 22:74-75. Full Text

[Mohamed, Adhnan; Kitajima, Toshihiro; Angappan, Santhalakshmi; Delvecchio, Khortnal; Yeddula, Sirisha; Shamaa, Mdh Tayseer; Collins, Kelly; Rizzari, Michael; Yoshida, Atsushi; Abouljoud, Marwan; El-Bashir, Jaber; Nagai, Shunji] Henry Ford Hlth Syst, Detroit, MI USA.

Surgery
Potti C, **Natour AK**, **Woodward A**, and **Kabbani L**. Primary aortoesophageal fistula from metallic bristle ingestion. *J Vasc Surg Cases Innov Tech* 2022; 8(1):77-80. Full Text

L. Kabbani, Division of Vascular Surgery, Henry Ford Hospital, 2799 W Grand Blvd, Detroit, MI, United States

Although many patients are treated for the removal of ingested foreign objects each year, ingestions that perforate the esophagus and lead to intra-abdominal complications are rare. Aortoesophageal fistulas and aortic pseudoaneurysms are deadly complications of esophageal foreign body impaction. However, the surgical approach to aortic repair from foreign object damage has not been standardized. We have described the diagnostic, open surgical, and therapeutic approach to treating a man who had accidentally ingested a 3-cm metallic bristle that lodged in his aortic wall. The patient recovered after excision of the aortic pseudoaneurysm with CryoGraft (CryoLife, Inc, Kennesaw, Ga) replacement, drainage of abscesses, and antibiotic treatment for multiple infections.

Surgery
Shamaa TM, **Allenspach L**, **Shamaa O**, **Kitajima T**, **Crombez C**, **Hage-Hassan O**, **Shimada S**, **Yeddula S**, **Francis I**, **Collins K**, **Rizzari M**, **Yoshida A**, **Abouljoud M**, and **Nagai S**. Measurement of physical activity and frailty in the early post-operative period after liver transplant; Single-center prospective pilot study using Fitbit watch. *Am J Transplant* 2022; 22:86-87. Full Text

[Shamaa, Tayseer M.; Shamaa, Omar] Henry Ford Hosp, Detroit, MI 48202 USA. [Allenspach, Lisa; Kitajima, Toshihiro; Crombez, Catherine; Hage-Hassan, Omar; Shimada, Shingo; Yeddula, Sirisha; Francis, Iman; Collins, Kelly; Rizzari, Michael; Yoshida, Atsushi; Abouljoud, Marwan; Nagai, Shunji] Henry Ford Transplant Inst, Detroit, MI USA.

Surgery
Shimada S, **Kitajima T**, **Shamaa T**, **Ivanics T**, **Adhnan M**, **Moonka D**, **Collins K**, **Rizzari M**, **Yoshida A**, **Abouljoud M**, and **Nagai S**. The impact of pre-transplant treatment on post-transplant outcomes in liver transplant patients with hepatocellular carcinoma. *Am J Transplant* 2022; 22:87-87. Full Text

[Shimada, Shingo; Kitajima, Toshihiro; Shamaa, Tayseer; Ivanics, Tommy; Adhnan, Mohamed; Moonka, Dilip; Collins, Kelly; Rizzari, Michael; Yoshida, Atsushi; Abouljoud, Marwan; Nagai, Shunji] Henry Ford Hosp, Detroit, MI 48202 USA.

Books and Book Chapters

Emergency Medicine
Forbes J, and **Cronovich H**. Romberg Test. In: *StatPearls*. StatPearls Publishing; 2022. PMID: 33085334. Full Text

Nova Southeastern College
Henry Ford Macomb

The Romberg's sign or Romberg's test is a phenomenon named by 19th-century European neurologist, Mortiz Romberg. Initially, this sign was tethered specifically with tertiary syphilis patients who exhibited neurologic signs of late-stage disease referred to as locomotor ataxia, or tabes dorsalis. When examining a patient's neurological effects from sequelae involving late-stage syphilis, the Romberg sign became a precise test to determine the integrity of the dorsal column pathway of the brain and spinal cord, which controls proprioception. Proprioception is the sense of awareness of the position and movement of the body. Romberg described this sign as a severe postural impairment in a darkroom setting or with eyes closed of patients who had severe damage to the posterior dorsal columns of the spinal cord. Used as a precise clinical tool, the Romberg test is positive if a patient is unable to maintain an upright stance with vision eliminated or in the darkness. Often the Romberg test can be confused as a sign of cerebellar disease, but instead, this test demonstrates the effects of posterior column disease. The ability to gage true proprioception status can be confounded by the vestibular and vision somatosensory system, which may compensate with vestibular function and vision. The Romberg sign removes the visual and vestibular components that contribute to maintaining balance, and can thus identify specifically a proprioception-related neurologic disease.

Emergency Medicine
Kostiuk M, and Burns B. Trauma Assessment. In: *StatPearls*. StatPearls Publishing; 2022. PMID: 32310373. Full Text

Henry Ford Macomb hospital
East Tennessee State University (ETSU)

Trauma is the leading cause of death worldwide. In the United States, trauma is the leading cause of death in young adults and accounts for ten percent of death in all men and women. In the U.S., there are approximately 50 million visits to the emergency department annually related to trauma. The most common causes of mortality in trauma victims include hemorrhage, cardiopulmonary arrest, and multiple organ dysfunction syndromes. The assessment of trauma victims requires an organized and systematic approach. When caring for a trauma victim, physicians, nurses, and support staff must work together and communicate effectively. The goal of assessing trauma victims is identifying immediate life threats and stabilizing the patient.

Neurology
Chebl AA, **Alsrouji OK**, and Jumaa MA. Endovascular Treatment of Extracranial Disease. In: *Neurointervention in the Medical Specialties.* Elsevier B.V. 2022**:** 37-55. Request Book Chapter

A.A. Chebl, Harris Comprehensive Stroke Center, Division of Vascular Neurology, Henry Ford Health System, Detroit, MI, United States

Endovascular therapy for cerebrovascular occlusive disease is perhaps the most exciting of the new and still developing therapies for the management of cerebrovascular disease. This treatment modality is appealing because it is less invasive compared with conventional surgery, e.g., carotid endarterectomy (CEA) or extracranial-intracranial bypass, and it can benefit patients who are not surgical candidates.

Rehabilitation Services/Physical Therapy/Occupational Health
Bux A, and **Chopra P**. Intrathecal Drug Delivery Trialing. In: *Medical Radiology*. Elsevier B.V. 2022**:** 35-51. Request Book Chapter

A. Bux, Bux Pain Management, Danville, KY, United States

Intrathecal drug delivery has been used since the 1980s to treat spasticity as well as chronic malignant and nonmalignant pain symptoms. Patients that are considered for intrathecal drug delivery systems are those with chronic pain or severe spasticity that have failed all conservative treatments including interventional and non-interventional methods. Additionally, these patients have either failed previous surgery or they are not candidates for surgical intervention. Intrathecal drug delivery systems deliver medication to the CSF to provide better relief of pain or spasticity symptoms than systemic medications with less side effects than the other more conventional routes of administration. In order to qualify for implantation of an intrathecal drug delivery system, patients most often will undergo a psychological evaluation and should have successful intrathecal medication trial. This chapter will focus on trialing methods along with the different medications used for spasticity and chronic pain and their side effects and complications. In addition, we will examine patient risk factors and comorbidities and their effect on trialing techniques and medication administration location.

Rehabilitation Services/Physical Therapy/Occupational Health
Bux A, and **Chopra P**. Intrathecal Pump and Catheter Troubleshooting. In: *Medical Radiology*. Elsevier B.V. 2022**:** 147-156. Request Book Chapter

A. Bux, Bux Pain Management, Danville, KY, United States

Intrathecal drug delivery has been widely used for over four decades to treat symptoms of spasticity as well as those related to chronic malignant and nonmalignant pain. Intrathecal drug delivery systems safely and effectively deliver medication to the cerebrospinal fluid, allowing for better relief of pain or spasticity symptoms with less side effects than other routes of administration. Despite the safety of these pumps, there are complications that can occur, leading to serious morbidity and even mortality for the patient. The morbidity and mortality associated with pump therapy can result from several sources including complications from implant procedures, drug reactions or side effects, device malfunction, programming errors, or pump refill errors (Deer et al. 2012). Device registration and social security analyses from 2009 showed an intrathecal opioid mortality rate of 0.088% at 3 days after implantation, 0.39% at 1 month, and 3.89% at 1 year (Coffey et al. 2009). Physicians that are managing these pumps should be knowledgeable in the potential complications of this system and how to manage them. This chapter will focus on troubleshooting device-related complications and the appropriate management of catheter and pump-related issues.

Surgery
Kowalski A, Kashyap S, Mathew G, and **Pfeifer C**. Clostridial Cholecystitis. *StatPearls*. StatPearls Publishing; 2022. PMID: 28846291. Full Text

Mclaren Macomb
Easton Hospital
University of Pelita Harapan
Henry Ford Allegiance Health

Emphysematous cholecystitis is a fulminant variety of acute cholecystitis that differs in its pathology and epidemiology from cholecystitis induced by gallstones. The characteristic feature of this sinister variant of cholecystitis is the presence of gas in the lumen and wall of the gallbladder. The presence of gas may be detected elsewhere in the biliary tract or adjacent structures in addition to gas in the gallbladder wall. Emphysematous cholecystitis occurs in about 1% of all cases of acute cholecystitis but carries significantly higher morbidity and mortality. Individuals most susceptible to emphysematous cholecystitis are people with diabetes mellitus and those with a weak immune system.

Surgery
Seeras K, **Qasawa RN**, Ju R, and **Prakash S**. Anatomy, Abdomen and Pelvis, Anterolateral Abdominal Wall. *StatPearls*. StatPearls Publishing; 2022. PMID: 30247850. Full Text

Henry Ford Hospital
Henry Ford Macomb Hospital
Philadelphia College of Osteopathic Medicine

The abdominal wall is a complex organ with many functions that contribute to a patient's quality of life. The anatomical core of the anterolateral abdominal wall is mainly comprised of 4 paired symmetrical muscles. Classically the anterolateral abdominal wall has been described as separate layers from superficial to deep as follows: : Skin. Subcutaneous tissues (further divided into the more superficial Camper's fascia and the deeper Scarpa's fascia). External oblique muscle. Internal oblique muscle. Transversus abdominis muscle. Transversalis fascia. Parietal peritoneum. Each component has its unique contribution to the abdominal wall and will be further described in this review.

Surgery
Seeras K, Sankararaman S, and Lopez PP. Sleeve Gastrectomy. *StatPearls*. StatPearls Publishing ;2022. PMID: 30085577. Full Text

Henry Ford Hospital
University Hospitals Rainbow Babies & Children's Hospital, Cleveland
Msu
Obesity in the United States has been increasing at an alarming rate in the past 50 years, and presently over 98.7 million US residents are affected. In 2014, obesity and its related co-morbidities accounted for 14.3% of U.S. heal care expenditure. Weight loss surgery is considered a safe and durable treatment option for obesity. The applied techniques have been continually evolving and yielding better outcomes. Sleeve gastrectomy, one of the most popular bariatric surgeries in the modern era, was first performed in 1990 as the first of a two-stage operation for biliopancreatic diversion with duodenal switch (BPD-DS). The first laparoscopic sleeve gastrectomy was performed in 1999. The original indication for a sleeve gastrectomy was in patients with super obesity (BMI>60) to induce weight loss to more safely undergo the second stage BPD-DS. While following these patients, it was noted that they were having excellent reductions in excess body weight and in 2008 the indications for laparoscopic sleeve gastrectomy (LSG) were published. When compared to other weight-loss surgeries, sleeve gastrectomy is technically easier with relatively less morbidity and thus has become the most common weight loss surgery performed in the United States.

Surgery
Stauffer CM, Meshida K, Bernor RL, Granite GE, and Boaz NT. Anatomy, Thorax, Pericardiacophrenic Vessels. *StatPearls*. StatPearls Publishing; 2022. PMID: 32644668. Full Text

Henry Ford Allegiance health
Uniformed Services University of Health Sciences
Howard University
Uniformed Services University of the Health Sciences
Carilion Clinic CME

The pericardiacophrenic artery and vein make up, with the phrenic nerve, the pericardiacophrenic neurovascular bundle. The vessels pass through the superior thoracic aperture into the superior mediastinum and course along the pathway of the phrenic nerve anterior to the lung roots. The vessels are located between the fibrous pericardium and the parietal pleura in the middle mediastinum and extend inferiorly onto the dome of the diaphragm. The pericardiacophrenic artery supplies blood to the pericardium, diaphragm, and phrenic nerve. While the pericardiacophrenic arteries supply blood to these various tissues, they are also a non-coronary arterial collateral blood supply to the heart. Their most important role clinically is to supply the phrenic nerve with blood when harvesting or surgically anastomosing the internal thoracic artery, as in CABG procedures, preserving blood flow in the

pericardiacophrenic artery is important to prevent any ischemic damage to the phrenic nerve. The pericardiacophrenic veins are variable tributaries of the right and left brachiocephalic veins (also formerly known as the innominate veins) or internal thoracic veins. The pericardiacophrenic veins are a minor portocaval anastomosis connecting splenic vein and superior vena cava and can become engorged in portal hypertension. Imaging the pericardiacophrenic veins (or arteries) is a reliable aid in clinical procedures that require locating the phrenic nerve.

Surgery

Stauffer CM, and **Pfeifer C**. Colonoscopy. *StatPearls*. StatPearls Publishing;2022. PMID: 32644700. Full Text

Henry Ford Allegiance health

Colonoscopy is a diagnostic as well as a therapeutic procedure performed to evaluate the large intestine (i.e., colon, rectum, and anus) as well as the distal portion of the small intestine (terminal ileum). It is performed using a hand-held flexible tube-like device called the colonoscope, which has a high definition camera mounted at the tip of the scope, as well as accessory channels that allow insertion of equipment and fluids to cleanse the colonoscope lense and colonic mucosa. The visual data that the camera feeds to the screen helps to detect abnormalities as well as overgrowth of the colonic wall and, in turn, allows us to evaluate, biopsy, and remove mucosal lesions using different types of biopsy instruments through these accessory channels. With such immense utility, colonoscopy has moved at the forefront of making colorectal cancer an easily preventable and early detected disease over the last few decades.

HFHS Publications on COVID-19

Center for Health Policy and Health Services Research

Gonzalez HC, **Zhou Y**, **Nimri FM**, **Rupp LB**, **Trudeau S**, and **Gordon SC**. Alcohol-related hepatitis admissions increased 50% in the first months of the CoViD-19 pandemic in the US. *Liver Int* 2022; Epub ahead of print. PMID: 35094494. Full Text

Diagnostic Radiology

Poyiadji N, **Tassopoulos A**, **Myers DT**, **Wolf L**, and **Griffith B**. COVID-19 Vaccine Mandates: Impact on Radiology Department Operations and Mitigation Strategies. *J Am Coll Radiol* 2021; Epub ahead of print. PMID: 34863775. Full Text

Dermatology

Szeto MD, Kokoska RE, **Maghfour J**, Rundle CW, Presley CL, Harp T, Hamp A, Wegener V, Hugh J, and Dellavalle RP. An Analysis of Public Sunscreen Distribution in the United States During the COVID-19 Pandemic. *J Am Acad Dermatol* 2022; Epub ahead of print. PMID: 35090999. Full Text

Emergency Medicine

Joshi S, **Smith Z**, **Soman S**, **Jain S**, **Yako A**, **Hojeij M**, **Massoud L**, **Alsaadi A**, **Williams J**, **Kenney R**, **Miller J**, **Alangaden G**, and **Ramesh M**. Low- Versus High-Dose Methylprednisolone in Adult Patients With Coronavirus Disease 2019: Less Is More. *Open Forum Infect Dis* 2022; 9(1):ofab619. PMID: 35024376. Full Text

Emergency Medicine

Peacock WF, Soto-Ruiz KM, House SL, Cannon CM, Headden G, Tiffany B, Motov S, Merchant-Borna K, Chang AM, Pearson C, Patterson BW, Jones AE, **Miller J**, Varon J, Bastani A, Clark C, Rafique Z, Kea B, Eppensteiner J, Williams JM, Mahler SA, Driver BE, Hendry P, Quackenbush E, Robinson D, Schrock JW, D'Etienne JP, Hogan CJ, Osborne A, Riviello R, and Young S. Utility of COVID-19 antigen testing in the emergency department. *J Am Coll Emerg Physicians Open* 2022; 3(1):e12605. PMID: 35072154. Full Text

Gastroenterology

Gonzalez HC, **Zhou Y**, **Nimri FM**, **Rupp LB**, **Trudeau S**, and **Gordon SC**. Alcohol-related hepatitis admissions increased 50% in the first months of the CoViD-19 pandemic in the US. *Liver Int* 2022; Epub ahead of print. PMID: 35094494. Full Text

Hematology-Oncology

Hawley JE, Sun T, Chism DD, Duma N, Fu JC, Gatson NTN, Mishra S, Nguyen RH, Reid SA, Serrano OK, **Singh SRK**, Venepalli NK, Bakouny Z, Bashir B, Bilen MA, Caimi PF, Choueiri TK, Dawsey SJ, Fecher LA, Flora DB, Friese CR, Glover MJ, Gonzalez CJ, Goyal S, Halfdanarson TR, Hershman DL, Khan H, Labaki C, Lewis MA, McKay RR, Messing I, Pennell NA, Puc M, Ravindranathan D, Rhodes TD, Rivera AV, Roller J, Schwartz GK, Shah SA, Shaya JA, Streckfuss M, Thompson MA, Wulff-Burchfield EM, Xie Z, Yu PP, Warner JL, Shah DP, French B, and **Hwang C**. Assessment of Regional Variability in COVID-19 Outcomes Among Patients With Cancer in the United States. *JAMA Netw Open* 2022; 5(1):e2142046. PMID: 34982158. Full Text

Infectious Diseases

Joshi S, **Smith Z**, **Soman S**, **Jain S**, **Yako A**, **Hojeij M**, **Massoud L**, **Alsaadi A**, **Williams J**, **Kenney R**, **Miller J**, **Alangaden G**, and **Ramesh M**. Low- Versus High-Dose Methylprednisolone in Adult Patients With Coronavirus Disease 2019: Less Is More. *Open Forum Infect Dis* 2022; 9(1):ofab619. PMID: 35024376. Full Text

Internal Medicine
Joshi S, **Smith Z**, **Soman S**, **Jain S**, **Yako A**, **Hojeij M**, **Massoud L**, **Alsaadi A**, **Williams J**, **Kenney R**, **Miller J**, **Alangaden G**, and **Ramesh M**. Low- Versus High-Dose Methylprednisolone in Adult Patients With Coronavirus Disease 2019: Less Is More. *Open Forum Infect Dis* 2022; 9(1):ofab619. PMID: 35024376. Full Text

Internal Medicine
Yu E, and **Kelly B**. The Next Challenge for Post-COVID-19 Clinics: Scale. *Chest* 2022; 161(1):e63. PMID: 35000722. Full Text

Obstetrics, Gynecology and Women's Health Services
Ayyash M, **McNitt M**, **Khangura R**, **Goyert G**, **Pitts DS**, **Shaman M**, **Garcia R**, **Keerthy M**, and **Swain M**. Black-White Disparities and Preterm Births Comparisons Following the COVID-19 Pandemic in Michigan. *Am J Obstet Gynecol* 2022; 226(1):S152. Conference Abstract. Full Text

Obstetrics, Gynecology and Women's Health Services
Hasbini YG, **Goyert G**, Tarca AL, Keerthy M, Jones T, Thiel L, Green PM, Youssef Y, Townsel C, Vengalil S, Paladino P, Wright A, **Ayyash M**, **Vadlamudi G**, Szymanska M, Sajja S, Sterenberg G, Baracy M, Grace K, Houston K, Norman J, Gudicha DW, Sokol RJ, Bahado-Singh R, and Hassan SS. COVID-19 is associated with early emergence of preeclampsia: results from a large regional collaborative. *Am J Obstet Gynecol* 2022; 226(1):S594-S595. Conference Abstract. Full Text

Obstetrics, Gynecology and Women's Health Services
Ismailova I, Sokol RJ, Gudicha DW, Hasbini YG, Tarca AL, Green PM, Jones T, **Goyert G**, Thiel L, Youssef Y, Townsel C, Vengalil S, Paladino P, Wright A, **Ayyash M**, **Vadlamudi G**, Szymanska M, Sajja S, Sterenberg G, Baracy Jr M, Grace K, Houston K, Norman J, Bahado-Singh R, and Hassan SS. Racial Disparities and Risk for COVID-19 Among Pregnant Patients: Results from the Michigan Statewide Collaborative. *Am J Obstet Gynecol* 2022; 226(1):S192. Conference Abstract. Full Text

Neurology
Matar RH, Than CA, Nakanishi H, Daniel RS, Smayra K, Sim BL, Beran A, and **Danoun OA**. Outcomes of patients with thromboembolic events following coronavirus disease 2019 AstraZeneca vaccination: a systematic review and meta-analysis. *Blood Coagul Fibrinolysis* 2022; Epub ahead of print. PMID: 34980833. Full Text

Pharmacy
Joshi S, **Smith Z**, **Soman S**, **Jain S**, **Yako A**, **Hojeij M**, **Massoud L**, **Alsaadi A**, **Williams J**, **Kenney R**, **Miller J**, **Alangaden G**, and **Ramesh M**. Low- Versus High-Dose Methylprednisolone in Adult Patients With Coronavirus Disease 2019: Less Is More. *Open Forum Infect Dis* 2022; 9(1):ofab619. PMID: 35024376. Full Text

Public Health Sciences
Gonzalez HC, **Zhou Y**, **Nimri FM**, **Rupp LB**, **Trudeau S**, and **Gordon SC**. Alcohol-related hepatitis admissions increased 50% in the first months of the CoViD-19 pandemic in the US. *Liver Int* 2022; Epub ahead of print. PMID: 35094494. Full Text

Rehabilitation Services/Physical Therapy/Occupational Health
Myszenski A, **Bello R**, **Melican C**, and **Pfitzenmaier N**. Patient Characteristics and Acute PT and OT Utilization During the Initial Surge of COVID-19: A Retrospective Observational Study. *J Acute Care Phys Ther* 2022; 13(1):2-7. PMID: 34925956. Full Text