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HENRY FORD HEALTH

Henry Ford Health Publication List – April 2025

This bibliography aims to recognize the scholarly activity and provide ease of access to journal articles, meeting abstracts, book chapters, books and other works published by Henry Ford Health personnel. Searches were conducted in biomedical databases PubMed, Embase, Web of Science, CINAHL, and PsycINFO, as well as Google Books during the month, and then imported into EndNote for formatting. There are 156 unique citations listed this month: 133 articles, 22 conference abstracts, and 1 book chapter.

Articles are listed first, followed by conference abstracts and books and book chapters. Due to various limitations, this does not represent an exhaustive list of all published works by Henry Ford Health authors.

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Articles

Conference Abstracts

Books and Book Chapters

Articles

Allergy and Immunology

Finkel KA, Patadia R, **Baptist AP**, and Cardet JC. Controversies in Allergy: Should I Combine an ICS with a SABA or with Formoterol for Reliever Therapy? *J Allergy Clin Immunol Pract* 2025; Epub ahead of print. PMID: 40250558. Full Text

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Multiple approaches with inhaler therapies can be utilized when treating asthma. Inhaled corticosteroids (ICS) reduce airway inflammation while bronchodilators relax airway smooth muscle. Anti-inflammatory reliever (AIR) therapy combines an ICS with quick-onset bronchodilators for use as a rescue therapy. Several AIR strategies have demonstrated efficacy in reducing asthma exacerbations. There are currently two inhalers that combine an ICS with a quick onset bronchodilator into a single inhaler: one which combines an ICS with short-acting beta(2)-agonist (ICS-SABA) and one which combines an ICS with the long-acting beta(2)-agonist formoterol (ICS-formoterol). Alternatively, AIR therapy can be provided with the ICS and the SABA in two separate inhalers. The provider may come across challenges when choosing a specific therapy best suited for each patient, including insurance and regulatory issues. This article reviews the literature on AIR therapy in adult and pediatric populations with asthma along with implementation considerations when choosing a specific AIR strategy.

Anesthesiology

Baribeau V, Sane MP, Sharkey A, Murugappan KR, Walsh DP, Wong VT, and **Mitchell JD**. Objective Assessment of Skill Retention 7 Months Post-Training: Motion Analysis of Central Venous Catheter Placement. *J Educ Perioper Med* 2025; 27(1):E742. PMID: 40248587. Full Text

is a Medical Student at Dartmouth Geisel School of Medicine, Hanover, NH. Miheer P. Sane is a Clinical Fellow in Anesthesiology at Harvard Medical School, Boston, MA, and a Pediatric Anesthesia Fellow at Boston Children's Hospital, Boston, MA. Aidan Sharkey is an Assistant Professor of Anaesthesia at Harvard Medical School, Boston, MA, and the Associate Director (Clinical) of the Center for Education Research, Technology, and Innovation (CERTAIN) at Beth Israel Deaconess Medical Center, Boston, MA. Daniel P. Walsh is an Assistant Professor of Anaesthesia at Harvard Medical School, Boston, MA; an Associate Anesthesia Residency Program Director at Beth Israel Deaconess Medical Center, Boston, MA; and the Director of the Intensive Care Unit at Beth Israel Deaconess Hospital, Plymouth, MA. Kadhiresan R. Murugappan is an Assistant Professor at RUSH University, Chicago, IL, and an Associate Anesthesiology Residency Program Director at RUSH University Medical Center, Chicago, IL. Vanessa T. Wong is an Anesthesia Critical Care Project Manager at Beth Israel Deaconess Medical Center, Boston, MA. John D. Mitchell is a Professor in the College of Human Medicine at Michigan State University, East Lansing, MI, and the Vice Chair for Academic Affairs at Henry Ford Health, Detroit, MI.

BACKGROUND: Central venous catheter (CVC) placement is a technically challenging skill. Routine assessment tools, including checklists and global rating scales, require subjective expert evaluation. We hypothesized that motion analysis could be used to objectively assess skill retention in CVC placement by comparing the performance of anesthesiology residents immediately after training and 7 months later. METHODS: After learning to perform CVC placement on a mannikin, 12 first-year anesthesiology residents each performed a "baseline" trial with electromagnetic motion sensors on the dorsum of their dominant hand and base of their ultrasound probe. Seven months later, they each performed a "follow-up" mannikin trial with an identical setup. For each trial, sensors recorded participants' path length, translational motions, and rotational sum. Time was recorded for each trial as well. We defined skill retention as performance within 1 standard deviation or less of the entire cohort's average at baseline (threshold). We compared the number of residents who met the threshold, which indicated less excessive

motion and therefore better performance, at baseline with the number at follow-up using McNemar's test across each metric for each sensor. RESULTS: For path length, translational motions, and rotational sum of the probe, significantly more residents met the threshold at baseline than at follow-up ($P < .04$). No significant differences were detected for any metrics of the dorsum or time. CONCLUSIONS: Motion analysis can objectively assess skill decay in anesthesiology residents performing CVC placement. Residents exhibited skill retention in tasks involving their dominant hand and skill decay in tasks involving the ultrasound probe (nondominant hand).

Anesthesiology
Guerra-Londono CE, Schreck A, **Muthukumar A**, and **Guerra-Londono JJ**. Return to intended oncologic treatment: Definitions, perioperative prognostic factors, and interventions. *Best Pract Res Clin Anaesthesiol* 2025. PMID: Not assigned. Full Text

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In the cancer survivorship journey, many patients require both medical and surgical oncologic treatments to improve survival. The return to intended oncologic treatment (RIOT) is a relatively new concept addressing the continuity of cancer treatment after surgery. While general definitions have been published, thresholds and minimal clinically important differences (MCID) have not been standardised. For many cancers, a threshold for delayed RIOT is 6–8 weeks, while the MCID in colorectal cancer may approximate 4 weeks. Studies addressing RIOT have shown multiple demographics, socioeconomic, institutional, surgical, and postoperative factors associated with a difference in rate and time to RIOT. The most influential of these variables is the surgical approach. While research on the effect of enhanced recovery after surgery on RIOT has increased, the literature is still in its early stages. Finally, the effect of anaesthetic interventions on RIOT has been largely unexplored.

Anesthesiology
Guerra-Londono CE, Vasquez ET, Riveros E, Noori E, Greiver D, Pillai S, Schiff T, Soetedjo J, Wu M, and **Serrano JG**. Development and validation of a prognostic model for postoperative hypotension in patients receiving epidural analgesia. *J Anaesthesiol Clin Pharmacol* 2025; 41(2):286-291. PMID: 40248788. Full Text

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BACKGROUND AND AIMS: Postoperative hypotension is common in adults receiving epidural analgesia. Although risk factors have been reported in the literature, prognostic models have not been developed or validated. We aimed to develop and validate a multivariable, prognostic model for postoperative hypotension in patients receiving epidural analgesia. MATERIAL AND METHODS: We retrieved retrospective cohort data of adults undergoing abdominal or thoracic surgery at five hospitals between 2014 and 2023 who received epidural analgesia for at least 24 hours after surgery. A systematic literature search helped define a priori candidate exposures. The primary outcome was postoperative hypotension during the first 72 hours after surgery. Multiple logistic regression was performed to evaluate a multivariable model. Exposures identified as statistically significant were used for logistic regression, linear discriminant analysis, and decision-tree model of random forest. Classification error was used to compare models, and variable importance was used for random forest analysis. RESULTS: In total, 829 participants were included. The incidence of postoperative hypotension was 38.8%. Multivariable analysis identified the following independent prognostic factors: male sex, white race, body mass index,

intraoperative hypotension, use of arterial line, bupivacaine concentration of 0.125% (vs. lower concentrations), and anesthesia duration. The error misclassification rate was 67% for multiple logistic regression, 27% for linear discriminant analysis, and 33.4% for random forest model. CONCLUSION: Using retrospective cohort data, a prognostic model of hypotension produced the best performance results using linear discriminant analysis, with an error misclassification rate of 27%. Further studies are required to perform model optimization for future clinical use.

Behavioral Health Services/Psychiatry/Neuropsychology

Abusuliman M, **Dawod S**, **Nimri F**, **Jamali T**, **Jacobsen G**, **Khan MZ**, **Arwani R**, **Shamaa O**, **Ali SA**, **Alluri S**, **Youssef R**, **Saleem A**, **Alomari A**, **Faisal MS**, **Omeish H**, **Faisal MS**, Abusuliman A, **Singla S**, **Piraka C**, **Elatrache M**, and **Zuchelli T**. Predictive Factors of Post-ERCP Hepatic Decompensation in Patients with Cirrhosis: A Retrospective Case-Control Study. *Dig Dis Sci* 2025; Epub ahead of print. PMID: 40274678. Full Text

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BACKGROUND AND AIM: Endoscopic retrograde cholangiopancreatography (ERCP) is a crucial diagnostic and therapeutic procedure in patients with cirrhosis; however, it carries the risk of post-procedural hepatic decompensation. This study aims to identify predictive factors associated with post-ERCP hepatic decompensation in patients with cirrhosis to better inform clinical decision-making and minimize adverse outcomes. METHODS: A retrospective analysis was conducted on patients with cirrhosis undergoing ERCP. Clinical, biochemical, and procedural variables were evaluated to determine their association with hepatic decompensation. Multivariate analysis was performed to identify independent predictors. RESULTS: A total of 277 patients with cirrhosis who underwent an ERCP were included. The cohort had a mean age of 63.4 years, with a male predominance (65.3%) and various etiologies of cirrhosis, including alcohol-related (39.3%) and hepatitis C (11.4%). Post-ERCP complications occurred in 26.7% of patients. The most common complications were hepatic decompensation events (18.4%), sepsis (10.8%), and cholangitis (6.1%). Patients with complications had significantly higher baseline MELD scores, INR, chronic kidney disease (CKD) and history of ascites, hepatic encephalopathy, and hepatorenal syndrome (HRS). A Multivariate analysis revealed that factors such as higher MELD score, ascites, hepatic encephalopathy, and stent placement were associated with post-ERCP complications. Subgroup analyses indicated that patients who developed hepatic decompensation events (ascites, SBP, or HRS) had a more severe liver dysfunction at baseline, as reflected by a higher MELD score and INR, and prior episodes of ascites and hepatic encephalopathy. CONCLUSION: Pre-procedural liver function parameters and procedural factors are crucial predictors of post-ERCP hepatic decompensation in patients with cirrhosis. Key risk factors include higher MELD score, CKD, history of ascites, and hepatic encephalopathy. Careful pre-procedural evaluation and management are essential to reduce these risks.

Behavioral Health Services/Psychiatry/Neuropsychology

Ahmedani BK, Penfold RB, **Frank C**, Richards JE, Stewart C, Boggs JM, Coleman KJ, Sterling S, Yarborough BJH, Clarke G, Schoenbaum M, Aguirre-Miyamoto EM, Barton LJ, **Yeh HH**, **Westphal J**, McDonald S, Beck A, Beidas RS, Richardson L, Ryan JM, Buckingham ETt, Buttlaire S, Bruschke C, Flores J, and Simon GE. Zero Suicide Model Implementation and Suicide Attempt Rates in Outpatient Mental Health Care. *JAMA Netw Open* 2025; 8(4):e253721. PMID: 40193074. Full Text

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IMPORTANCE: Suicide is a major public health concern, and as most individuals have contact with health care practitioners before suicide, health systems are essential for suicide prevention. The Zero Suicide (ZS) model is the recommended approach for suicide prevention in health systems, but more evidence is needed to support its widespread adoption. OBJECTIVE: To examine suicide attempt rates associated with implementation of the ZS model in outpatient mental health care within 6 US health systems. DESIGN, SETTING, AND PARTICIPANTS: This quality improvement study with an interrupted time series design used data collected from January 2012 through December 2019, from patients aged 13 years or older who received mental health care at outpatient mental health specialty settings within 6 US health systems located in 5 states: California, Oregon, Washington, Colorado, and Michigan. Analyses were conducted from January through December 2024. EXPOSURE: The ZS model was implemented in 4 health systems at different points during the observation period (2012-2019) and compared with health systems that implemented the model before the observation period (postimplementation). Implementation included suicide risk screening, assessment, brief intervention (safety plan, means safety protocol), and behavioral health treatment. MAIN OUTCOMES AND MEASURES: The primary outcome was a measure of standardized monthly suicide attempt rates captured using health system records and government mortality records. Suicide death rates were also measured as a secondary outcome. RESULTS: There was a median of 309 107 (range, 55 354-451 837) unique patients per month. In 2017, there were 317 939 eligible individuals (63.2% female). Baseline suicide attempt rates were at least 30 to 40 per 100 000 individuals at each implementation site and decreased to less than 30 per 100 000 individuals at 3 sites by 2019. Decreases in suicide attempt rates were observed at 3 intervention health systems after site-specific implementation: health systems A and B had decreases of 0.7 per 100 000 individuals per month and C, 0.1 per 100 000 individuals per month. System D evidenced a similar suicide attempt rate after implementation (before implementation: median rate: 35.0 [range, 11.0-50.3] per 100 000 patients per month; after implementation: median rate: 34.3 [range, 18.5-42.0] per 100 000 patients per month). The 2 postimplementation health systems maintained low or declining suicide attempt rates throughout the observation period. The rate at system Y decreased by 0.3 per 100 000 individuals per month across the observation period. The rate at system Z began at 11 per 100 000 individuals per month and declined by 0.03 per 100 000 individuals per month during the observation period. Two systems evidenced reductions in the suicide death rate after implementation: system B declined by 0.2 per 100 000 individuals per month and system C by 0.1 per 100 000 individuals per month. CONCLUSIONS AND RELEVANCE: In this quality improvement study, ZS model implementation was associated with a reduction in suicide attempt rates among patients accessing outpatient mental health care at most study sites, which supports widespread efforts to implement the ZS model in these settings within US health systems.

Behavioral Health Services/Psychiatry/Neuropsychology

Ma Q, Xie M, **Llamocca E**, Luo Y, Xiao L, Tang Y, Tao S, Wu Y, Huang Y, Yin Y, Liu Y, Liu S, Deng R, Qiao C, Wei M, Chen Y, Cai J, **Gui H**, and Wang Q. Impact of post-traumatic stress disorder symptoms, childhood adversities and stressful life events on depressive and anxiety symptoms: insights from the UK Biobank. *Front Psychiatry* 2025; 16:1488320. PMID: 40191111. Full Text

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BACKGROUND: Childhood adversities (CAs) and stressful life events (SLEs) are linked to depressive, anxiety, and PTSD symptoms. However, their interrelationships are not well studied. We aimed to examine the potential role of PTSD symptoms as risk factors for both outcomes, test the stress sensitization hypothesis, and investigate the pathways linking CAs, stressful life events (SLEs) and PTSD symptoms, and depressive and anxiety symptoms. METHODS: We conducted a cross-sectional study using data from adult participants at baseline (2006-2010) and online follow-up (2016) in the UK Biobank. Data analysis was performed from February 24, 2023, to July 12, 2023. Linear regression and serial mediation analyses were performed. RESULTS: PTSD symptoms was significantly associated with depressive (β = 0.567, p<.001) and anxiety symptoms (β = 0.558, p<.001). The interaction between CAs and SLEs was still significantly associated with depressive symptoms when accounting for those of PTSD as covariates (β = 0.017, p<.001), but not for anxiety symptoms. The serial mediation analyses revealed that SLEs and PTSD symptoms were both significant sequential mediators between CAs and symptoms of depression and anxiety (proportion mediated: 75.14% and 84.27%, respectively, p< 0.05). CONCLUSIONS: Our study provided further evidence for stress sensitization hypothesis only among participants with depressive symptoms and found that SLEs and PSTD symptoms partly mediated the association between CAs and depressive and anxiety symptoms. These findings may provide new evidence to better understand the pathogenesis of depression and anxiety and will help to guide future prevention and intervention for both diseases.

Behavioral Health Services/Psychiatry/Neuropsychology

Reffi AN, **Kalmbach DA**, **Cheng P**, **Moore DA**, **Jennings MB**, **Mahr GC**, Seymour GM, **Jankowiak L**, and **Drake CL**. Nightmares and insomnia within the acute aftermath of trauma prospectively predict suicidal ideation. *J Clin Sleep Med* 2025; Epub ahead of print. PMID: 40265245. Full Text

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STUDY OBJECTIVE: Acute trauma patients are vulnerable to suicidality following hospitalization. Research suggests nightmares and insomnia may interact to potentiate suicidality, possibly due to nightmares worsening co-occurring insomnia. Nightmares and insomnia are common stress reactions to acute trauma and might compound suicide risk within acutely traumatized patients. We tested the prospective relationship between nightmares and insomnia immediately after trauma on future suicidal ideation (SI). METHODS: Patients hospitalized in Detroit, MI following traumatic injury (M (age) = 39.53 ± SD 14.31 years, 67.0% male, 67.0% Black) completed surveys at three post-trauma timepoints: one week (T1; N = 88), one month (T2; n = 61), and two months (T3; n = 59). RESULTS: Patients with clinically significant nightmares and comorbid insomnia symptoms at T2 reported the highest rates of SI at T3 (42.9%), whereas patients with insomnia alone (8.0%) or neither sleep disturbance (6.7%) had the lowest SI rates (ps < .05). We observed an interaction effect wherein insomnia symptoms at T2 predicted increased SI at T3, but only among patients with comorbid nightmares at T2. This interaction remained after accounting for acute stress symptoms at T2. Post-hoc analyses showed nighttime awakenings and total wake time at T2 predicted increased SI at T3 with nightmares also moderating this prospective effect. CONCLUSIONS: These novel results suggest clinically significant nightmares strengthen the association between insomnia and suicidality after trauma. As nearly half of acute trauma patients with nightmares and insomnia experience SI two months after trauma, early interventions that target both may curb SI rates.

Cardiology/Cardiovascular Research

Brilakis ES, Sandoval Y, Azzalini L, Leibundgut G, Garbo R, Hall AB, Davies R, Mashayekhi K, Yamane M, Avran A, Khatri J, **Alaswad K**, Jaffer FA, and Rinfret S. Chronic Total Occlusion Percutaneous Coronary Intervention: Present and Future. *Circ Cardiovasc Interv* 2025; e014801. Epub ahead of print. PMID: 40223600. Full Text

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Chronic total occlusion percutaneous coronary intervention has evolved into a subspecialty of interventional cardiology. Using a variety of antegrade and retrograde techniques, experienced operators currently achieve success rates of 85% to 90%, with an incidence of major periprocedural complications of ≈2% to 3%. Several developments in equipment (new microcatheters and guidewires, novel reentry devices), imaging (computed tomography angiography guidance, intravascular imaging for reentry), techniques (intraocclusion contrast injection, advanced subintimal tracking and reentry), and artificial intelligence (automated computed tomography image analysis and prediction of the likelihood of crossing success with various techniques) could further improve outcomes. Global collaboration and rapid dissemination of new developments accelerate the pace of progress. While innovation is exciting and necessary, adhering to the basic principles of chronic total occlusion percutaneous coronary intervention (such as continual assessment of risks and benefits, meticulous angiographic review, and use of dual injection) remains critical for achieving optimal patient outcomes.

Cardiology/Cardiovascular Research

Ellauzi R, and **Aronow HD**. Intravascular Ultrasound and Infrapopliteal Arterial Interventions: Helping the Blind Squirrel Find a Nut? *J Soc Cardiovasc Angiogr Interv* 2025; 4(3Part A):102561. PMID: 40231062. Full Text

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Cardiology/Cardiovascular Research

Fang JX, **Al Jebaje Z**, **Alaswad K**, **Giustino G**, **Lee JC**, **O'Neill BP**, **Engel Gonzalez P**, **Frisoli TM**, **Alrayes H**, **Lai LKL**, Wang DD, **O'Neill WW**, and **Villablanca PA**. Fish and CHIP: Concurrent Percutaneous Left Ventricular Thrombus Retrieval and Complex Coronary Intervention With Hemodynamic Support. *JACC Cardiovasc Interv* 2025; 18(7):942-945. PMID: 40240088. Full Text

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Cardiology/Cardiovascular Research

Gramegna M, Vandenbriele C, Tavazzi G, **Basir MB**, Bleakley C, Iannaccone M, Kretzschmar D, Maisano F, Scandroglio AM, Schrage B, Schultze PC, Serrao G, Tomey M, Trimlett R, Westermann D, Montorfano M, Dangas G, Price S, and Chieffo A. Percutaneous mechanical circulatory support for acute right heart failure: A practical approach. *ESC Heart Fail* 2025; Epub ahead of print. PMID: 40254772. Full Text

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Acute right heart failure (RHF) represents a critical entity with significant morbidity and mortality. This review examines the role of percutaneous right ventricular assist devices (pRVADs) as a cornerstone of therapy in cases refractory to conventional management. Devices such as the Impella RP and dual-lumen cannulas provide targeted haemodynamic support, with indications in various clinical scenarios, including acute myocardial infarction, post-cardiac surgery, myocarditis, and after left ventricular assist device (LVAD) implantation. Successful implementation requires meticulous haemodynamic assessment, including parameters derived from pulmonary artery catheterization and echocardiography, to guide patient selection, optimize device placement, and monitor therapeutic response. The manuscript highlights contemporary weaning strategies, emphasizing recovery of right ventricular function, stabilization of systemic haemodynamics, and restoration of end-organ perfusion. While no universal protocols exist, this review presents a pragmatic framework informed by available evidence and expert consensus. Furthermore, the potential complications of pRVAD use-ranging from thromboembolism and haemolysis to device-specific issues such as migration and tricuspid valve damage-are discussed alongside preventive and management strategies. Key challenges in RHF management, including the interplay between right and left ventricular function, the impact of pulmonary vascular resistance, and the use of adjunctive pulmonary vasodilators, are addressed. The review underscores the absence of durable right ventricular assist devices and the need for innovation to close this therapeutic gap. Multidisciplinary

collaboration among intensivists, cardiologists, and cardiac surgeons is critical to optimizing outcomes. This review provides actionable insights to assist clinicians in navigating the complexities of acute RHF, fostering a tailored and evidence-based approach to this high-risk population.

Cardiology/Cardiovascular Research
Jakob P, Lansky AJ, **Basir MB**, Schonning MJ, Falah B, Zhou Z, Batchelor WB, Abu-Much A, Grines CL, **O'Neill WW**, and Stähli BE. Characteristics and Outcomes of Older Patients Undergoing Protected Percutaneous Coronary Intervention With Impella. *J Am Heart Assoc* 2025; e038509. Epub ahead of print. PMID: 40240978. Full Text

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BACKGROUND: In patients undergoing high-risk percutaneous coronary intervention, Impella has become an important adjunctive tool to support revascularization. The impact of age on the outcomes of patients undergoing high-risk percutaneous coronary intervention is limited. The aim of this study is to describe the characteristics and outcomes of patients ≥75 years of age undergoing Impella-supported high-risk percutaneous coronary intervention. METHODS AND RESULTS: Baseline characteristics and outcomes of patients ≥75 years of age versus those of patients <75 years of age in patients enrolled in the cVAD PROTECT III (Catheter-Based Ventricular Assist Device Prospective, Multi-Center, Randomized Controlled Trial of the IMPELLA RECOVER LP 2.5 System Versus Intra Aortic Balloon Pump in Patients Undergoing Non Emergent High Risk Percutaneous Coronary Intervention) study (NCT04136392). Major adverse cardiovascular and cerebral events (composite of all-cause death, nonfatal myocardial infarction, stroke/transient ischemic attack, and repeat revascularization) were assessed at 30 and 90 days and all-cause death at 1 year. Out of 1237 patients, 493 (39.9%) patients were ≥75 years of age. Patients ≥75 years of age had less diabetes and prior myocardial infarction, more hypertension and dyslipidemia, worse renal function, more severe valvular heart disease, but higher left ventricular ejection fraction (P<0.05 for all comparisons). Baseline Synergy Between Percutaneous Coronary Intervention With Taxus and Cardiac Surgery scores were similar between groups. Older patients underwent more left main percutaneous coronary intervention (58% versus 39%; P<0.0001), atherectomy (32% versus 22%; P<0.0001), and femoral access (87% versus 79%, P=0.0003) as compared with younger patients. In-hospital vascular complications did not differ, but rates of respiratory failure, pericardial tamponade, and cardiogenic shock were higher in older patients. Rates of all-cause death and major adverse cardiovascular and cerebral events did not differ between groups at 30 and 90 days. Rates of all-cause death at 1 year were higher in patients ≥75 years (adjusted hazard ratio, 1.99 [95% CI, 1.24-3.18], P=0.004). CONCLUSIONS: Impella-supported high-risk percutaneous coronary intervention in older patients is feasible with an acceptable safety profile. However, age ≥75 years remained a statistically significant predictor for all-cause death at 1 year. REGISTRATION: URL: https://clinicaltrials.gov; Unique Identifier: NCT04136392.

Cardiology/Cardiovascular Research
Kirtane AJ, Généreux P, Lewis B, Shlofmitz RA, Dohad S, Choudary J, Dahle T, Pineda AM, Shunk K, Maehara A, Popma A, Redfors B, Ali ZA, Krucoff M, Armstrong E, Kandzari DE, **O'Neill W**, Kraemer C, Stiefel KM, Jones DE, Chambers J, and Stone GW. Orbital atherectomy versus balloon angioplasty before drug-eluting stent implantation in severely calcified lesions eligible for both treatment strategies (ECLIPSE): a multicentre, open-label, randomised trial. *Lancet* 2025; 405(10486):1240-1251. PMID: 40174596. Full Text

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BACKGROUND: Coronary artery calcification is common among patients undergoing percutaneous coronary intervention (PCI), and severe coronary artery lesion calcification is associated with increased procedural complexity, stent under-expansion, and high rates of intraprocedural complications and out-of-hospital adverse events. Whether calcium ablation before stent implantation can mitigate these adverse events is not currently established. We aimed to prospectively compare orbital atherectomy with a balloon angioplasty-based strategy before stent implantation for the treatment of severely calcified coronary lesions. METHODS: In this multicentre, open-label, randomised controlled trial conducted at 104 medical centres in the USA, patients (aged ≥18 years) with severely calcified coronary lesions were randomly assigned (1:1) to orbital atherectomy or balloon angioplasty before PCI with drug-eluting stents using a web-based system (block sizes of four and six) and stratified by intended treatment of single versus multiple lesions and enrolling site. Randomly assigned lesions were deemed by operators to be eligible for both treatment strategies. Operators and patients were not masked to treatment. The two powered coprimary study endpoints were target vessel failure at 1 year (a composite of cardiac death, target vessel myocardial infarction, or ischaemia-driven target vessel revascularisation) and post-procedural minimal stent area at the site of maximal calcification, as assessed by intravascular optical coherence tomography in an imaging patient cohort. Primary analyses were by intention-to-treat. The trial is registered at ClinicalTrials.govNCT03108456, and 2-year follow-up is ongoing. FINDINGS: From March 27, 2017, to April 13, 2023, 2005 patients with 2492 lesions were randomly assigned to lesion preparation with orbital atherectomy (1008 patients with 1250 lesions) or balloon angioplasty (997 with 1242 lesions) before stent implantation. Median patient age was 70·0 years (IQR 64·0-76·0). 541 (27·0%) of 2005 patients were female and 1464 (73·0%) were male. Angiographically severe calcium was confirmed by the core laboratory in 1088 (97·1%) of 1120 lesions assigned to orbital atherectomy and 1068 (97·0%) of 1101 lesions assigned to balloon angioplasty. PCI was guided by intravascular imaging in 627 (62·2%) of 1008 patients in the orbital atherectomy group and 619 (62·1%) of 997 in the balloon angioplasty group. Target vessel failure events within 1 year occurred in 113 of 1008 patients in the orbital atherectomy group (1-year target vessel failure 11·5% [95% CI 9·7 to 13·7]) and in 97 of 997 patients in the balloon angioplasty group (10·0% [8·3 to 12·1]; absolute difference 1·5% [96% CI -1·4 to 4·4]; hazard ratio 1·16 [96% CI 0·87 to 1·54], p=0·28). Among those in the optical coherence tomography substudy cohort (276 patients with 286 lesions in the orbital atherectomy group and 279 patients with 292 lesions in the balloon angioplasty group), the mean minimal stent area at the site of maximal calcification was 7·67 mm(2) (SD 2·27) in the orbital atherectomy group and 7·42 mm(2) (2·54) in the balloon angioplasty group (mean difference 0·26 [99% CI -0·31 to 0·82]; p=0·078). Cardiac death events within 1 year occurred in 39 of 1008 patients in the orbital atherectomy group and in 26 of 997 in the balloon angioplasty group.

INTERPRETATION: Routine treatment with orbital atherectomy before drug-eluting stent implantation did not increase minimal stent area or reduce the rate of target vessel failure at 1 year compared with a balloon angioplasty-based approach in severely calcified lesions deemed eligible for both treatment strategies. These data support a balloon-first approach for most calcified coronary artery lesions that can be crossed and dilated before stent implantation, guided by intravascular imaging. FUNDING: Abbott Vascular (Abbott).

Cardiology/Cardiovascular Research

Mahmood A, Ang SP, **Qadeer YK**, Wang Z, Alam M, Jneid H, Sharma S, and Krittanawong C. Outcomes of Percutaneous Coronary Intervention in Nonagenarians in the United States. *Catheter Cardiovasc Interv* 2025; Epub ahead of print. PMID: 40241276. Full Text

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BACKGROUND: Although Percutaneous Coronary Intervention (PCI) is the cornerstone treatment acute myocardial infarction (AMI), its use in the elderly, specifically nonagenarians patients, is not well studied. This study sought to compare the outcomes and complications of nonagenarian patients who experienced AMI between those who underwent PCI and those who underwent medical treatment only. METHODS: We evaluated 301,440 nonagenarian (ages 90-99) patients who presented to the hospital with AMI who were listed in the National Inpatient Sample from 2016 to 2021. AMI was defined according to the ICD-10 Diagnostic Codes. Multivariable logistic regression analysis was used to examine the association of PCI with primary outcomes of mortality and secondary outcomes. The temporal trend of both the incidence of PCI in nonagenarian patients as well as the mortality rate between 2016 and 2021 were expressed as percentages over time. RESULTS: Of the total (n = 301,440) nonagenarian patients with AMI, 33,035 patients underwent PCI while 268,406 did not undergo PCI and rather, just utilized optimized medical therapy (OMT). Of these, 3290 (9.96%) died in the PCI group, and 43580 (16.24%) died in the OMT group. All of the secondary outcomes were significantly different between the PCI and OMT groups. Comparing the two groups, the PCI group was associated with decreased mortality (OR 0.63 [95% CI, 0.58-0.69]; $p < 0.001$), acute heart failure (OR 0.88 [95% CI, 0.82-0.95] $p < 0.001$), and AKI (OR 0.75 [95% CI, 0.70-0.79]; $p < 0.001$), and increased cardiogenic shock (OR 3.06 [95% CI, 2.77-3.38]. The temporal of PCI in nonagenarian patients showed an increase in frequency from about 8.3 in 2016 to about 13.7% in 2021. Furthermore, comparing the mortality between the PCI and OMT groups showed a significant difference with a decreased mortality in the PCI group. CONCLUSIONS: Nonagenarian patients experiencing AMI who underwent PCI is associated with a significant mortality decrease compared to those who underwent OMT only. The PCI group was also associated with a significant decrease in multiple secondary complications including acute heart failure, AKI, acute stroke, and an increase in cardiogenic shock. Temporally, we have seen an increase in PCI being used in nonagenarian patients over the interval.

Cardiology/Cardiovascular Research

Mannozzi J. Swimming Induced Cardioprotection and Cardiac Remodeling are a Multi Organ Affair. *Am J Physiol Regul Integr Comp Physiol* 2025; Epub ahead of print. PMID: 40279210. Full Text

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Cardiology/Cardiovascular Research
Mansoor T, Jabbar ABA, Agarwal S, Ismayl M, Abramov D, **Parikh S**, Brubaker A, Misra A, Virani S, Gupta V, Minhas AMK, and Koshy SKG. Racial and ethnic disparities in the prevalence, outcomes, and management of infective endocarditis in the United States. *Cardiovasc Revasc Med* 2025; Epub ahead of print. PMID: 40254531. Full Text

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INTRODUCTION: Racial/ethnic differences in the prevalence, outcomes, and management of infective endocarditis (IE) remain unclear. METHODS: We assessed racial/ethnic differences in the prevalence, baseline characteristics, surgical intervention (valve replacement/repair), and clinical outcomes of hospitalizations for IE from 2016 to 2021 using the National Inpatient Sample (NIS). A multivariable regression model was used to adjust for potential confounders. RESULTS: A total of 78,600 hospitalizations for IE were identified, of which 76.7 % included White race, 10.7 % Black race, 7.7 % Hispanic ethnicity, and 4.9 % from other races/ethnicities. The median age was 51 (Interquartile Range [IQR] 34-67), and 41.1 % were female. Black race, Hispanic ethnicity, and other races/ethnicities were not associated with a significant difference in odds of receiving cardiac valve intervention when compared to White race. Black race (aOR 1.40; CI 1.08-1.80) was associated with higher odds of in-hospital mortality compared to White race. Black race, Hispanic ethnicity, and patients of other races/ethnicities were associated with higher odds of acute kidney injury requiring dialysis compared to White patients. Black race and patients of other races/ethnicities were associated with higher odds of cardiogenic shock when compared to White race. Black race was associated with lower odds of spleen infarction when compared to White patients. CONCLUSION: Racial/ethnic disparities exist in the prevalence, outcomes, and management of patients hospitalized for IE in the US. Further studies are warranted to identify the reasons for such disparities and to guide policy initiatives to achieve equity.

Cardiology/Cardiovascular Research
Megaly M, Zakhour S, **Maki M**, **Albusoul L**, **Nakhle A**, Karacsonyi J, Mashayekhi K, Rinfret S, Brilakis ES, and **Alaswad K**. Impact of Chronic Total Occlusion PCI in Non-LAD Coronary Arteries on Patients with Cardiomyopathy. *Am J Cardiol* 2025; Epub ahead of print. PMID: 40221124. Full Text

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OBJECTIVES: To evaluate the impact of left circumflex artery (LCX) or right coronary artery (RCA) chronic total occlusion percutaneous coronary intervention (CTO PCI) on left ventricular ejection fraction (LVEF) in heart failure patients with reduced ejection fraction (HFrEF). BACKGROUND: The effect of RCA or LCX CTO PCI on HFrEF patients remains understudied. METHODS: We conducted a retrospective analysis of patients with HFrEF (EF <40%) who underwent LCX or dominant RCA CTO PCI at a high-volume center. The primary outcome was LVEF change, while secondary outcomes included in-hospital and long-term major adverse cardiovascular events (MACE). Subgroup analyses assessed the influence of myocardial viability testing and optimal heart failure therapy (OHFT) on LVEF change. RESULTS: From December 2014 to February 2022, 111 HFrEF patients underwent non-LAD CTO PCI, with a 93.6% technical success rate and 5.4% in-hospital MACE rate. At a median 27.4-month follow-up, LVEF significantly improved by 8.2% (95% CI 5.9%-10.7%, p<0.001). RCA CTO PCI led to a 9.6% LVEF increase (95% CI 6.7%-12.6%, p<0.001), while LCX PCI resulted in a 5.6% improvement (95% CI 1.3%-9.8%, p=0.011). Pre-procedure viability testing (p=0.310) and post-procedural OHFT (defined as three classes of guideline-directed medical therapy, p=0.673) were not significantly associated with LVEF changes. CONCLUSION: Non-LAD CTO PCI significantly improved LVEF (8.2%) in HFrEF patients over two years, regardless of pre-procedure viability testing or post-procedural medical therapy.

Cardiology/Cardiovascular Research

Miller J, **Cook B**, **Gunaga S**, **Fadel R**, **Gandolfo C**, **Emakhu J**, Mills NL, Mahler S, Levy P, **Parikh S**, **Krupp S**, **Hawatian K**, **Nour K**, **Klausner H**, **Gindi R**, **Hudson M**, **Perrotta G**, **Zweig B**, **Lanfear D**, **Kim H**, Danagoulian S, Keerie C, Nassereddine H, **Morton T**, Affas Z, **Husain A**, and **McCord J**. Health Care Resource Utilization for Patients With Suspected Myocardial Infarction: A Secondary Analysis of the RACE-IT Randomized Clinical Trial. *JAMA Netw Open* 2025; 8(4):e256930. PMID: 40279128. Full Text

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IMPORTANCE: Evaluation for myocardial infarction (MI) in emergency departments (EDs) is a common, resource-intensive process. High-sensitivity cardiac troponin I (hs-cTnI) assays have become a key tool in rapidly ruling out MI, with the potential to reduce health care resource utilization. OBJECTIVE: To determine whether a 0-hour and 1-hour (hereafter referred to as 0/1-hour) hs-cTnI accelerated protocol reduces health care resource utilization compared with a traditional 0/3-hour standard care protocol for MI exclusion in the ED. DESIGN, SETTING, AND PARTICIPANTS: This is a prespecified secondary analysis of the RACE-IT trial, a stepped-wedge randomized clinical implementation trial conducted across 9 EDs in Michigan. The trial enrolled 32 608 consecutive ED patients evaluated for suspected MI between July 8, 2020, and April 3, 2021. Statistical analysis was conducted from July 10 to September 5, 2024. INTERVENTIONS: The 0/1-hour hs-cTnI accelerated protocol for MI exclusion was compared with the traditional 0/3-hour standard care protocol. MAIN OUTCOMES AND MEASURES: Main outcomes were ED discharge to home, ED length of stay, rates of cardiac stress testing, cardiology consultation, left heart catheterization, and cardiac revascularization within 30 days. RESULTS: A total of 32 608 patients (median age, 59 years [IQR, 45-71 years]; 18 705 women [57.4%]) were included in the analysis. The rate

of ED discharge to home was 58.0% for the accelerated protocol group (11 082 of 19 103) and 59.8% for the standard care group (8070 of 13 505) (adjusted odds ratio [AOR], 1.05; 95% CI, 0.95-1.15). The accelerated protocol group showed significant reductions in the odds of cardiac stress testing (3.3% [623 of 19 103] vs 3.9% [526 of 13 505]; AOR, 0.62; 95% CI, 0.49-0.78), cardiology consultations (8.6% [1640 of 19 103] vs 12.2% [1651 of 13 505]; AOR, 0.57; 95% CI, 0.49-0.67), and left heart catheterization rates (1.0% [198 of 19 103] vs 1.2% [167 of 13 505]; AOR, 0.65; 95% CI, 0.43-0.99) compared with the standard protocol group. The median ED length of stay decreased by 20 minutes (IQR, 18-24 minutes) in the accelerated protocol group, with no significant change in revascularization rates. CONCLUSIONS AND RELEVANCE: This secondary analysis of a randomized clinical trial of a 0/1-hour hs-cTnI protocol to rule out MI in the ED found that there was a reduction in cardiac evaluations and ED length of stay without increasing revascularization rates compared with the standard 0/3-hour hs-cTnI protocol. This approach could optimize health care resources in EDs. TRIAL REGISTRATION: ClinicalTrials.gov Identifier: NCT04488913.

Cardiology/Cardiovascular Research

Sabbah HN, Alder NN, Sparagna GC, Bruce JE, Stauffer BL, Chao LH, Pitceathly RDS, Maack C, and Marcinek DJ. Contemporary insights into elamipretide's mitochondrial mechanism of action and therapeutic effects. *Biomed Pharmacother* 2025; 187:118056. PMID: 40294492. Full Text

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Mitochondria are cellular hubs integral for metabolism, signaling, and survival. Mitochondrial dysfunction is centrally involved in the aging process and an expansive array of disease states. Elamipretide is a novel mitochondria-targeting peptide that is under investigation for treating several disorders related to mitochondrial dysfunction. This review summarizes recent data that expand our understanding of the mechanism of action (MOA) of elamipretide. Elamipretide is a potential first-in-class therapeutic that targets the inner mitochondrial membrane. Despite initial descriptions of elamipretide's MOA involving reactive oxygen species scavenging, the last ten years have provided a significant expansion of how this peptide influences mitochondrial bioenergetics. The cardiolipin binding properties of elamipretide have been corroborated by different investigative teams with new findings about the consequences of elamipretide-cardiolipin interactions. In particular, new studies have shown elamipretide-mediated modulation of mitochondrial membrane electrostatic potentials and assembly of cardiolipin-dependent proteins that are centrally involved in mitochondrial physiology. These effects contribute to elamipretide's ability to improve mitochondrial function, structure, and bioenergetics. In animal studies, elamipretide-mediated amelioration of organ dysfunction has been observed in models of cardiac and skeletal muscle myopathies as well as ocular pathologies. A number of clinical trials with elamipretide have been recently completed, and a summary of the results focusing on Barth syndrome, primary mitochondrial myopathy, and age-related macular degeneration, is also provided herein. Elamipretide continues to show promise

as a potential therapy for mitochondrial disorders. New basic science advances have improved understanding of elamipretide's MOA, enabling a better understanding of the molecular consequences of elamipretide-cardiolipin interactions.

Cardiology/Cardiovascular Research

Ser OS, Mutlu D, Alexandrou M, Carvalho PEP, Strepkos D, Choi JW, Poommipanit P, **Alaswad K**, **Basir MB**, Davies R, Jaffer FA, Dattilo P, Doing AH, Azzalini L, Avgul N, Chandwaney RH, Jefferson BK, Gorgulu S, Khatri JJ, Young LD, Krestyaninov O, Khelimski D, Frizzell J, Goktekin O, Flaherty JD, Schimmel DR, Benzuly KH, Uluganyan M, Ozdemir R, Ahmad Y, Kumar S, Rangan BV, Mastrodemos OC, Burke MN, Jalli S, Voudris K, Sandoval Y, and Brilakis ES. Obstructive Sleep Apnea Syndrome in Chronic Total Occlusion Percutaneous Coronary Intervention; Insights from the PROGRESS-CTO registry. *Hellenic J Cardiol* 2025; Epub ahead of print. PMID: 40185330. Full Text

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BACKGROUND: The outcomes of chronic total occlusion (CTO) percutaneous coronary intervention (PCI) in patients with obstructive sleep apnea syndrome (OSAS) have received limited study. METHODS: We compared the procedural characteristics and outcomes of CTO PCIs in patients with and without OSAS in a multicenter registry. RESULTS: Of 7,403 patients who underwent 7,408 CTO PCIs between 2012 and 2024 at 47 centers, 942 (13%) had OSAS. Compared with patients without OSAS, patients with OSAS were older; more likely to be men; and had higher prevalence of diabetes, hypertension, dyslipidemia, cerebrovascular disease, previous heart failure, coronary artery bypass graft surgery, and previous PCI. They had higher J-CTO (2.73±1.20 vs. 2.30±1.25; p<0.001) and PROGRESS-CTO (1.35±1.01 vs. 1.16±0.96; p<0.001) scores, longer lesion length, and more complex angiographic characteristics. Compared with patients without OSAS, patients with OSAS had similar technical success (87.6% vs. 88.3%, p = 0.552) and procedural success (85.9% vs. 87.2%, p = 0.260). There were no differences in terms of in hospital MACEs and death. After a median follow-up of 71 days, the incidence of MACEs (3.9% vs 1.6%, p = 0.026) and death (2.6% vs 0.6%, p=0.003) was higher in patients with OSAS than in patients without OSAS. In the multivariable analysis, OSAS was independently associated with higher follow-up MACEs (hazard ratio 2.32, 95% confidence intervals 1.22-3.26, p=0.006). CONCLUSIONS: OSAS is common in patients undergoing CTO PCI. Compared with patients without OSAS, patients with OSAS had more comorbidities and more complex CTOs, similar rates of periprocedural success and complications, and higher rates of follow-up MACEs.

Cardiology/Cardiovascular Research

Strepkos D, Rempakos A, Alexandrou M, Mutlu D, Carvalho PEP, Ser OS, **Alaswad K**, **Basir MB**, Khelimskii D, Krestyaninov O, Khatri JJ, Young L, Goktekin O, Poommipanit P, Jaffer F, Gorgulu S, ElGuindy AM, Abi Rafeh N, Mastrodemos O, Rangan BV, Jalli S, Voudris K, Sandoval Y, Burke MN, and Brilakis ES. Can iodixAnol ReducE the incidence of adverse renal or cardiac events in chronic total occlusion interventions (CARE-CTO): a substudy of the PROGRESS-CTO registry. *J Invasive Cardiol* 2025; Epub ahead of print. PMID: 40198823. Full Text

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OBJECTIVES: The impact of contrast type in chronic total occlusion (CTO) percutaneous coronary intervention (PCI) remains controversial. The authors sought to evaluate the impact of contrast medium selection on patients undergoing CTO PCI. METHODS: The authors examined the outcomes of patients who underwent CTO PCI using iso-osmolar (iodixanol) vs pooled low-osmolar contrast media (LOCM) using data from the PROGRESS-CTO registry. RESULTS: Iodixanol was used in 1007 (18.1%) of 5558 CTO PCIs. Compared with pooled LOCM, iodixanol-treated patients were more likely to be women, were older, and more likely to have diabetes, dyslipidemia, hypertension, history of heart failure, myocardial infarction, coronary artery bypass graft surgery, and stroke. Iodixanol cases had higher complexity, with longer lesion length (35.25 ± 25.16 vs 28.91 ± 19.46 mm, P less than .001), higher prevalence of moderate or severe calcification (43% vs 37%, P less than .001) and moderate or severe proximal tortuosity (30% vs 24%, P less than .001), and higher Japanese-CTO (2.52 vs 2.17, P less than .001) and PROGRESS-CTO scores (1.30 vs 1.16, P less than .001). Iodixanol cases required longer procedure times but similar contrast volumes. Technical (85.3% vs 89.2%, P = .001) and procedural success (83.4% vs 87.3%, P = .001) were lower in iodixanol cases. Acute kidney injury (AKI) occurred in 6.4% of cases. After propensity score matching, the patients who received iodixanol had lower incidence of AKI (odds ratio [OR]: 0.67; 95% CI, 0.47, 0.97; P = .032) and a trend for lower incidence of major adverse renal or cardiovascular events (OR: 0.75; 95% CI, 0.56, 1.0; P = .061). CONCLUSIONS: AKI occurred in approximately 6% of CTO PCI cases. Iodixanol use was associated with a lower incidence of AKI, despite being used in more complex patients.

Cardiology/Cardiovascular Research

Vijayakumar S, Louis DW, Corneau E, Erqou S, Waldo SW, Plomondon ME, Gokhale M, Sheikh W, Has P, Marwan S, Abbott JD, Jankowich M, **Aronow HD**, Wu WC, and Choudhary G. Association between pre-existing Pulmonary Hypertension and COVID-19 related outcomes in inpatient and ambulatory care settings. *PLoS One* 2025; 20(4):e0321964. PMID: 40273140. Full Text

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BACKGROUND: Afflicting up to 1% of population, pulmonary hypertension (PH) is commonly associated with cardiopulmonary and metabolic diseases, but the effect of COVID-19 in patients with pre-existing PH remains unclear. METHODS: We conducted a retrospective cohort study in patients who had undergone right-heart-catheterization within the VA Healthcare system and had a subsequent hospital admission with COVID-19 (inpatient cohort, n=1204) or had COVID-19 positivity but not admitted (outpatient cohort, n=6576). Inpatient findings were confirmed in a non-VA validation cohort (n=656) who had undergone echocardiography with subsequent admission. PH was defined invasively as mean pulmonary artery pressure (mPAP) >20 mmHg and non-invasively as estimated right ventricular systolic pressure (RVSP) >30 mmHg. In-hospital outcomes (inpatient cohort) and 1-year mortality (outpatient cohort) were assessed using multivariable logistic or Cox regression adjusting for confounders. RESULTS: Pre-existing PH was independently associated with greater in-hospital mortality (PH using mPAP: adjusted odds ratio [aOR] 1.60, 95%CI: 1.04-2.46; PH using RVSP: aOR 2.12, 95% CI 1.18-3.82). Among outpatients, those with COVID-19 had >8-fold higher 90-day and 2.8 fold higher 91-365 day adjusted hazard of mortality irrespective of PH status. Hazards of 90-day hospitalization were similarly driven by COVID-19. The findings were comparable for patient subgroup with normal pulmonary capillary wedge pressures. CONCLUSION: Pre-existing PH is independently associated with higher in-hospital COVID-19 mortality. In outpatients, COVID-19 positivity was associated with increased mortality over 1 year irrespective of PH status, with highest risk within the first 90 days.

Cardiology/Cardiovascular Research

Zordok M, Buda KG, Etiwy M, **Basir MB**, **Alaswad K**, Beckmann E, Brilakis ES, and Megaly M. Revascularization strategies for coronary artery aneurysms: A systematic review. *Cardiovasc Revasc Med* 2025; Epub ahead of print. PMID: 40263016. Full Text

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Center for Health Policy and Health Services Research

Adjei Boakye E, **Nair M**, **Al-Antary N**, **Wilson C**, **Kerr K**, **Zatirka TM**, Hirko KA, **Elsiss F**, **Chang SS**, **Movsas B**, **Ryan M**, and **Tam S**. Exploratory analysis of electronic patient-reported outcomes collection: comparing online and in-clinic modalities in cancer care. *Qual Life Res* 2025; Epub ahead of print. PMID: 40237928. Full Text

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PURPOSE: Patient reported outcome measures (PROMs) have been shown to improve cancer survival but are generally underutilized in cancer care. It is unclear whether electronic-PROMS (ePROMs) modality (online vs. in-clinic) may address barriers to completion. We examined whether patient sociodemographic and clinical factors differed by completion modality. METHODS: Patients with cancer who had an oncologic provider visit from January 2021 to March 2023 at a tertiary cancer center were assigned the National Institute of Health's computer adaptive technology Patient-Reported Outcomes Measurement Information System instruments. Patients completed ePROMs either through online patient portal (online) up to 7 days before the visit or used a tablet at the clinic visit (in-clinic) if not completed online. Multivariable logistic regression model estimated associations between patient sociodemographic and clinical factors and completion modality. RESULTS: A total of 8556 patients completed ePROMs (43.3% completed in-clinic). Females were less likely than males to complete ePROMs in-clinic (aOR = 0.89, 0.84-0.93) as were patients with commercial insurance (aOR = 0.83, 0.77-0.89) vs. Medicare; or saw radiation oncologist (aOR = 0.89, 0.83-0.96) vs. medical oncologist. However, patients were more likely to complete ePROMs in-clinic if they identified as Black race (aOR = 1.41, 1.33-1.49) vs. White; were single (aOR = 1.21, 1.14-1.29) or divorced/separated/widowed (aOR = 1.11, 1.04-1.18) vs. married; or saw a provider located in rural (aOR = 1.33, 1.25-1.42) vs. urban area. CONCLUSIONS: Patients who were males, Blacks, unmarried, Medicare insured or saw providers located in rural area were more likely to complete ePROMs in-clinic. Given the preference for online completion before visits for real-time symptom monitoring, targeted efforts are needed to boost online PROMs completion. PLAIN MESSAGE: This is a cross-sectional analysis of the associations between sociodemographic and clinical factors with two electronic patient reported outcome measures completion modalities. The results indicate that about half of patients completed online and half completed in-clinic, with males, Blacks, patients who were divorced/separated/widowed, had Medicare insurance and saw a medical oncologist completing electronic patient reported outcome measures in-clinic. We support offering both options while addressing barriers to either modality.

Center for Health Policy and Health Services Research

Ahmedani BK, Penfold RB, **Frank C**, Richards JE, Stewart C, Boggs JM, Coleman KJ, Sterling S, Yarborough BJH, Clarke G, Schoenbaum M, Aguirre-Miyamoto EM, Barton LJ, **Yeh HH**, **Westphal J**, McDonald S, Beck A, Beidas RS, Richardson L, Ryan JM, Buckingham ETt, Buttlaire S, Bruschke C, Flores J, and Simon GE. Zero Suicide Model Implementation and Suicide Attempt Rates in Outpatient Mental Health Care. *JAMA Netw Open* 2025; 8(4):e253721. PMID: 40193074. Full Text

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IMPORTANCE: Suicide is a major public health concern, and as most individuals have contact with health care practitioners before suicide, health systems are essential for suicide prevention. The Zero Suicide (ZS) model is the recommended approach for suicide prevention in health systems, but more evidence is needed to support its widespread adoption. OBJECTIVE: To examine suicide attempt rates associated with implementation of the ZS model in outpatient mental health care within 6 US health systems. DESIGN, SETTING, AND PARTICIPANTS: This quality improvement study with an interrupted time series design used data collected from January 2012 through December 2019, from patients aged 13 years or older who received mental health care at outpatient mental health specialty settings within 6 US health systems located in 5 states: California, Oregon, Washington, Colorado, and Michigan. Analyses were conducted from January through December 2024. EXPOSURE: The ZS model was implemented in 4 health systems at different points during the observation period (2012-2019) and compared with health systems that implemented the model before the observation period (postimplementation). Implementation included suicide risk screening, assessment, brief intervention (safety plan, means safety protocol), and behavioral health treatment. MAIN OUTCOMES AND MEASURES: The primary outcome was a measure of standardized monthly suicide attempt rates captured using health system records and government mortality records. Suicide death rates were also measured as a secondary outcome. RESULTS: There was a median of 309 107 (range, 55 354-451 837) unique patients per month. In 2017, there were 317 939 eligible individuals (63.2% female). Baseline suicide attempt rates were at least 30 to 40 per 100 000 individuals at each implementation site and decreased to less than 30 per 100 000 individuals at 3 sites by 2019. Decreases in suicide attempt rates were observed at 3 intervention health systems after site-specific implementation: health systems A and B had decreases of 0.7 per 100 000 individuals per month and C, 0.1 per 100 000 individuals per month. System D evidenced a similar suicide attempt rate after implementation (before implementation: median rate: 35.0 [range, 11.0-50.3] per 100 000 patients per month; after implementation: median rate: 34.3 [range, 18.5-42.0] per 100 000 patients per month). The 2 postimplementation health systems maintained low or declining suicide attempt rates throughout the observation period. The rate at system Y decreased by 0.3 per 100 000 individuals per month across the observation period. The rate at system Z began at 11 per 100 000 individuals per month and declined by 0.03 per 100 000 individuals per month during the observation period. Two systems evidenced reductions in the suicide death rate after implementation: system B declined by 0.2 per 100 000 individuals per month and system C by 0.1 per 100 000 individuals per month. CONCLUSIONS AND RELEVANCE: In this quality improvement study, ZS model implementation was associated with a reduction in suicide attempt rates among patients accessing outpatient mental health care at most study sites, which supports widespread efforts to implement the ZS model in these settings within US health systems.

Center for Health Policy and Health Services Research

Felton JW, Cinader M, Spencer J, **Hampton T**, Mulheron M, Key K, Johnson JE, and Yi R. Teens train your brain! A mixed-methods feasibility trial of a working memory training program for adolescents from an economically disadvantaged community. *Appl Neuropsychol Child* 2025; 1-11. Epub ahead of print. PMID: 40215208. Full Text

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Exposure to early socioeconomic disadvantage impacts the development of working memory, a component of executive functions underlying engagement in risky behaviors including substance misuse. Given that working memory develops across adolescence, coinciding with increases in the onset and

rapid escalation of substance use and other risky behaviors, interventions designed to improve working memory may have promise for supporting behavioral health for youth from low-resource areas. However most working memory programs have been developed for adults from higher-resource contexts and may not be feasible for youth from socioeconomically distressed communities. The current study (n = 23) uses a mixed methods approach to evaluate the implementation potential and preliminary effectiveness of a computer-based working memory training program among youth ages 12 to 16 from a very low-resource community. Participants (48% female; 100% Black) were administered tests of working memory before and after completing a working memory program or a control computer program. Results suggest youth in the active condition found the intervention to be acceptable, appropriate and enjoyable and evidenced statistically significant increases in working memory. No improvement was seen among youth in the comparison condition. Findings suggest preliminary support for implementation of this program in an impoverished urban setting.

Center for Health Policy and Health Services Research
Gelino BW, Stone BM, **Kahn GD**, Strickland JC, **Felton JW**, Maher BS, Yi R, and Rabinowitz JA. From error to insight: Removing non-systematic responding data in the delay discounting task may introduce systematic bias. *J Exp Child Psychol* 2025; 256:106239. PMID: 40186956. Full Text

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Delay discounting (DD), which reflects a tendency to devalue rewards as the time to their receipt increases, is associated with health behaviors such as sleep disturbances, obesity, and externalizing behavior among adolescents. Response patterns characterized by inconsistent or unexpected reward valuation, called non-systematic responding (NSR), may also predict health outcomes. Many researchers flag and exclude NSR trials prior to analysis, which could lead to systematic bias if NSR (a) varies by demographic characteristics or (b) predicts health outcomes. Thus, in this study we characterized NSR and examined its potential beyond error by comparing it against DD with a secondary data analysis of the Adolescent Brain Cognitive Development (ABCD) Study-a population-based study that tracked youths (N = 11,948) annually from 8 to 11 years of age over 4 years. We assessed DD and NSR using the Adjusting Delay Discounting Task when youths were approximately 9.48 years old (SD = 0.51). We also examined three maladaptive health outcomes annually: sleep disturbances, obesity, and externalizing psychopathology. Our analysis revealed variations in NSR across races, ethnicities, and body mass index categories, with no significant differences observed by sex or gender. Notably, NSR was a stronger predictor of obesity and externalizing psychopathology than DD and inversely predicted the growth trajectory of obesity. These findings suggest that removing NSR patterns could systematically bias analyses given that NSR may capture unexplored response variability. This study demonstrates the significance of NSR and underscores the necessity for further research on how to manage NSR in future DD studies.

Center for Health Policy and Health Services Research
Hsu JY, Shuman CJ, and **Vance AJ**. Parent Satisfaction With Neonatal Care: A Secondary Analysis. *Adv Neonatal Care* 2025; Epub ahead of print. PMID: 40239222. Full Text

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BACKGROUND: Understanding parent satisfaction with care is an integral part of ensuring care delivery is family-focused and responsive to family needs, preferences, and values. PURPOSE: The purposes of the study were to describe parental satisfaction with neonatal care, assess differences between satisfaction scores and identify areas for care improvement. METHODS: A secondary analysis of data collected from an online survey of the neonatal intensive care unit (NICU) parent experiences during the early months of the COVID-19 Pandemic in the United States was used. Parent satisfaction with NICU care was measured using the EMpowerment of PArents in THe Intensive Care (EMPATHIC) scale. Descriptive statistics described individual items, domain scores, and total score. Independent t-tests with Bonferroni correction compared this study to previously published results. RESULTS: 159 mothers and 5 fathers responded to the EMPATHIC scale. The overall mean and all domain scores were significantly different from a pre-pandemic sample where scores were consistently higher. Parents indicated their desire for more cultural competence, emotional support, acknowledgement, and space to discuss their experience, guidance for discharge, better medication information and quicker response to an infant's condition. IMPLICATIONS FOR PRACTICE AND RESEARCH: Our study identified statistically significant differences between our sample and a pre-pandemic sample and found the absolute mean difference in 3 domain scores to be > 1, suggesting clinical significance. We were able to offer more clarity about what factors were contributing to higher or lower satisfaction scores.

Center for Health Policy and Health Services Research

Kim E, Kagithala D, **Hu J**, **Jarabek K**, Brennan M, **Chaker AN**, **Pawloski J**, **Telemi E**, **Mansour T**, Robles MC, **Fadel HA**, **Springer K**, **Schultz L**, **Nerenz DR**, **Khalil JG**, Easton R, Perez-Cruet M, Aleem I, Park P, Soo T, Tong D, **Abdulhak M**, **Schwalb JM**, and **Chang V**. Risk Factors of Long-Term Opioid Use After Elective Cervical and Lumbar Spine Surgery: A Michigan Spine Surgery Improvement Collaborative Study. *Neurosurgery* 2025; Epub ahead of print. PMID: 40243311. Full Text

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BACKGROUND AND OBJECTIVES: Given the current opioid epidemic and its impact on public health, long-term opioid use after elective spine surgery is a significant concern. Identifying risk factors of long-term opioid use after spine surgery is crucial for developing effective interventions to reduce opioid dependence in this patient population. The objective of this study was to identify risk factors associated with long-term opioid use after elective lumbar and cervical spine surgeries. METHODS: A retrospective analysis of patient data was conducted using the Michigan Spine Surgery Improvement Collaborative data registry. Patients who underwent elective lumbar or cervical spine surgery between March 2018 and September 2021 were included. Poisson generalized estimating equation models were used for multivariate analyses. RESULTS: A total of 5301 and 3992 lumbar surgery patients at 1 and 2 years, respectively, and a total of 2074 and 1451 cervical surgery patients at 1 and 2 years, respectively, were included for analysis. Preoperative opioid use, opioid use at 90 days postoperatively, and poor functional status were the strongest predictors of long-term opioid use. Among all patients, preoperative opioid use most strongly predicted long-term use at 1 and 2 years for lumbar and cervical patients. Among opioid-naïve patients (preoperative nonusers), opioid use at 90 days postoperatively strongly predicted continued use at 1 and 2 years in both lumbar and cervical patients. The inability to achieve a minimal

clinically important difference in Patient-Reported Outcomes Measurement Information System physical function was also associated with opioid use at 1-year and 2-year follow-up in lumbar and cervical patients. CONCLUSION: Preoperative opioid use, opioid use at 90 days postoperatively, and failure to reach minimal clinically important difference of Patient-Reported Outcomes Measurement Information System Physical Function were the strongest predictors of long-term opioid use after elective lumbar and cervical spine surgeries.

Center for Health Policy and Health Services Research

Kovesdy CP, Ebert N, Vizcaya D, Walsh M, Kosiborod MN, Layton JB, Ziemiecki R, Johannes CB, **Pladevall-Vila M**, Gee PO, Jefferson N, Chicoye A, Lopes M, Thapa BB, Curhan G, Rangel L, Bhartia M, Liu F, Farjat AE, and Oberprieler NG. Change in Urine Albumin-Creatinine Ratio and Occurrence of Hyperkalemia in Patients Initiating Finerenone in the USA: A Cohort Study from the FOUNTAIN Platform. *Nephron* 2025; 1-13. Epub ahead of print. PMID: 40015260. Full Text

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INTRODUCTION: In 2021, finerenone - a novel, selective nonsteroidal mineralocorticoid receptor antagonist - was approved in the USA to treat adults with chronic kidney disease (CKD) and type 2 diabetes (T2D). This study aimed to describe characteristics and short-term outcomes of patients prescribed finerenone since regulatory approval. METHODS: This was a retrospective cohort study using claims and electronic health records data from the OM1 Real-World Data Cloud™. A total of 15,948 US adults with a previous diagnosis of CKD and T2D who initiated 10 mg or 20 mg finerenone between July 2021 and August 2023 were included. Dosing was evaluated at baseline and over up to 12-month follow-up. Change from baseline in urine albumin-to-creatinine ratio (UACR) was evaluated at 4 and 12 months (among 913 and 443 patients, respectively, with available repeat UACR values). Hyperkalemia occurrence was determined at 12 months and over total follow-up. RESULTS: Median follow-up was 7.2 months. Mean age was 70.3 years, and 44.1% were female. At baseline (-365; 0 days), 70% had CKD stage 3; for patients with UACR measurements, 80.8% had moderate/severe albuminuria (≥30 mg/g). Median UACR was 203 mg/g. Co-medication use was ACE inhibitors/ARBs (51%), SGLT2is (38%), and GLP-1 RAs (26%). 86% of patients initiated 10 mg finerenone, and among 2,212 patients still under

observation at 12 months, 70% were on 10 mg. For finerenone initiators with available UACR data, UACR was reduced by 33% at 4 months and 38% at 12 months. Hyperkalemia occurred in 1.2% of the cohort by 12 months (incidence 2.0 per 100 person-years). CONCLUSION: Patients who initiated finerenone had a notable reduction in median UACR at 4 months, sustained at 12 months; hyperkalemia occurrence appeared to be low. These initial findings from US clinical practice should be complemented by results from other real-world cohorts of patients started on finerenone.

Center for Health Policy and Health Services Research
Ma Q, Xie M, **Llamocca E**, Luo Y, Xiao L, Tang Y, Tao S, Wu Y, Huang Y, Yin Y, Liu Y, Liu S, Deng R, Qiao C, Wei M, Chen Y, Cai J, **Gui H**, and Wang Q. Impact of post-traumatic stress disorder symptoms, childhood adversities and stressful life events on depressive and anxiety symptoms: insights from the UK Biobank. *Front Psychiatry* 2025; 16:1488320. PMID: 40191111. Full Text

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BACKGROUND: Childhood adversities (CAs) and stressful life events (SLEs) are linked to depressive, anxiety, and PTSD symptoms. However, their interrelationships are not well studied. We aimed to examine the potential role of PTSD symptoms as risk factors for both outcomes, test the stress sensitization hypothesis, and investigate the pathways linking CAs, stressful life events (SLEs) and PTSD symptoms, and depressive and anxiety symptoms. METHODS: We conducted a cross-sectional study using data from adult participants at baseline (2006-2010) and online follow-up (2016) in the UK Biobank. Data analysis was performed from February 24, 2023, to July 12, 2023. Linear regression and serial mediation analyses were performed. RESULTS: PTSD symptoms was significantly associated with depressive ($\beta = 0.567$, $p<.001$) and anxiety symptoms ($\beta = 0.558$, $p<.001$). The interaction between CAs and SLEs was still significantly associated with depressive symptoms when accounting for those of PTSD as covariates ($\beta = 0.017$, $p<.001$), but not for anxiety symptoms. The serial mediation analyses revealed that SLEs and PTSD symptoms were both significant sequential mediators between CAs and symptoms of depression and anxiety (proportion mediated: 75.14% and 84.27%, respectively, $p< 0.05$). CONCLUSIONS: Our study provided further evidence for stress sensitization hypothesis only among participants with depressive symptoms and found that SLEs and PSTD symptoms partly mediated the association between CAs and depressive and anxiety symptoms. These findings may provide new evidence to better understand the pathogenesis of depression and anxiety and will help to guide future prevention and intervention for both diseases.

Center for Health Policy and Health Services Research
Rabinowitz JA, Thomas N, Strickland JC, Meredith JJ, Hung IT, Cupertino RB, **Felton JW**, Gelino B, Stone B, Maher BS, Dick D, Yi R, Flores-Ocampo V, García-Marín LM, Rentería ME, Palmer AA, and Sanchez-Roige S. Genetic Propensity for Delay Discounting and Educational Attainment in Adults Are Associated With Delay Discounting in Preadolescents: Findings From the Adolescent Brain Cognitive Development Study. *Genes Brain Behav* 2025; 24(2):e70020. PMID: 40147852. Full Text

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Higher delay discounting (DD) (i.e., propensity to devalue larger, delayed rewards over immediate, smaller rewards) is a transdiagnostic marker underpinning multiple health behaviors. Although genetic influences account for some of the variability in DD among adults, less is known about the genetic contributors to DD among preadolescents. We examined whether polygenic scores (PGS) for DD, educational attainment, and behavioral traits (i.e., impulsivity, inhibition, and externalizing behavior) were associated with phenotypic DD among preadolescents. Participants included youth (N = 8982, 53% male) from the Adolescent Brain Cognitive Development Study who completed an Adjusting Delay Discounting Task at the 1-year follow-up and had valid genetic data. PGS for DD, educational attainment, impulsivity, inhibition, and externalizing behaviors were created based on the largest GWAS available. Separate linear mixed effects models were conducted in individuals most genetically similar to European (EUR; n = 4972), African (AFR; n = 1769), and Admixed American (AMR; n = 2241) reference panels. After adjusting for age, sex, income, and the top ten genetic ancestry principal components, greater PGS for DD and lower educational attainment (but not impulsivity, inhibition, or externalizing) were associated with higher rates of DD (i.e., preference for sooner, smaller rewards) in participants most genetically similar to EUR reference panels. Findings provide insight into the influence of genetic propensity for DD and educational attainment on the discounting tendencies of preadolescents, particularly those most genetically similar to European reference samples, thereby advancing our understanding of the etiology of choice behaviors in this population.

Center for Health Policy and Health Services Research
Rossom RC, **Yeh HH**, **Ma L**, Penfold RB, Hooker SA, **Miller-Matero LR**, Simon G, Owen-Smith A, Borgert-Spaniol CM, and **Ahmedani B**. Changes in utilization of in-person and virtual outpatient mental health visits before and during the COVID-19 pandemic: An observational cohort study. *Medicine (Baltimore)* 2025; 104(17):e42305. PMID: 40295248. Full Text

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While depression and anxiety increased with the COVID-19 pandemic, mental health (MH) care access plummeted. This accelerated the uptake of virtual visits, but the degree to which these supplanted in-person visits is unknown. This study aims to assess in-person and virtual MH visits prior to and during the pandemic. Visits from HealthPartners (Minnesota, Wisconsin), Henry Ford (Michigan) and Kaiser Washington (Washington, Oregon) from 2018 to 2022 were stratified by site and study period in this observational cohort study. Segmented linear regression analysis identified changes in the trend over time by detecting optimal breakpoints. A total of 1333,966 patients received MH care. Average monthly MH service utilization was 11% higher from September 2020 to December 2022 compared to calendar year 2019, driven by more patients seeking care. At their peak in mid-2020, virtual visits accounted for 25.6% of visits compared to 1.8% pre-pandemic. MH care utilization increased by the end of 2022 compared to pre-pandemic levels, driven by more people seeking care and supported in part by an increase in virtual visits.

Center for Health Policy and Health Services Research
Stumbo SP, Hooker SA, Rossom RC, Miley K, **Ahmedani BK**, **Lockhart E**, **Yeh HH**, and Yarborough BJH. Study protocol for a stepped-wedge, randomized controlled trial to evaluate implementation of a suicide risk identification model among behavioral health patients in three large health systems. *BMC Psychiatry* 2025; 25(1):344. PMID: 40200191. Full Text

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BACKGROUND: Age-adjusted suicide rates have increased in the U.S. over the past 25 years. Algorithm-based methods for identifying individuals at risk for suicide based on electronic health record and claims data have been validated but few studies have evaluated implementation or effects on population-level suicide attempt rates. METHODS: This hybrid type I effectiveness-implementation pragmatic clinical trial will test a suicide risk identification model in behavioral health clinics at three large health systems. Local decision-makers will determine implementation specifics at each site. Clinics within each health system will be randomized to determine order of implementation. A stepped-wedge design using repeated measures pre/post-implementation maximizes statistical efficiency and power with fewer participants compared to a parallel design while allowing all clinics to participate. A pre-implementation period will serve as the baseline. The primary outcome will be the rate of suicide attempt per 1000 visits at 90- and 180-days following a behavioral health visit in which an individual was identified by the suicide risk model compared with the baseline period (no use of suicide risk model). Secondary outcomes include identification of suicide risk and recognition of individuals at risk for suicide (e.g., completed risk assessment), both compared to the baseline period. Generalized linear mixed models will be used to account for clustering within clinics and repeated measures over time, adjusting for relevant covariates to estimate the effect of the suicide risk model on outcomes. Implementation outcomes, including system-level determinants and clinician acceptance and use of the suicide risk model, will also be measured. CONCLUSIONS: Few suicide risk models derived from administrative and clinical data have been tested in real world care settings. This trial will determine whether the use of such a risk model reduces suicide attempts compared to usual care. By describing important implementation factors, use of such risk models, if effective, may be accelerated for other health care systems. TRIAL REGISTRATION: ClinicalTrials.gov NCT06060535.

Clinical Quality and Safety

Ezell GJ, **Smith N**, **Condon M**, **Joyce K**, **Joseph J**, **Springer K**, and **Pitts DAS**. Time to Diagnosis and Treatment of Postpartum Hypertensive Disorders in the Emergency Department—A Single Retrospective Cohort Study. *Reproductive Medicine* 2025; 6(1):2. PMID: Not assigned. Full Text

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Background/Objectives: In the postpartum period, approximately 12% of patients seek care in the emergency department (ED), with a higher representation of Black patients. Hypertension is a common reason for ED visits during this period, often leading to dangerously delayed diagnosis and treatment. Objective: This study aims to assess the time to diagnosis and treatment of hypertensive disorders in the postpartum period in the ED, focusing on potential disparities in care, to identify areas for quality improvement. Design: Retrospective cohort study. Setting: A multi-centered large medical institution in the metro Detroit area. Methods: Postpartum patients (day 2 through day 28) presenting to the ED from November 2015 to December 2022. Exposures: none. Main Outcome Measures: Primary analysis assessed the time elapsed between severe-range blood pressure readings (greater than/equal to 160 systolic and/or 110 diastolic) and the administration of antihypertensives. Secondary analyses assessed the presence of essential laboratory workups such as complete blood counts, complete metabolic panels, and urine protein and creatinine. Results: Among the 430 women who presented to the ED during the postpartum period with hypertension, 372 (86.5%) exhibited severe-range blood pressure (greater than/equal to 160 systolic and/or 110 diastolic). Patients presented on average on postpartum day 6. Of the patients with severe hypertension, only 72% received a complete blood count, 66% underwent evaluation of creatinine and liver profile, and 4% had a urine protein and creatinine test ordered. The

average time from severe-range blood pressure reading to antihypertensive administration was 189 min for Black patients and 370 min for White patients. There were no statistically significant differences in the time of the first blood pressure reading, laboratory evaluation, or treatment of severe-range blood pressure between racial groups. Conclusions: This study identifies the most significant area for improvement in the timely administration of antihypertensive medication following severe-range blood pressure readings. Additional areas for improvement were observed in ordering essential laboratory tests to assess the severity of preeclampsia. The institution demonstrated delayed yet equitable care for White and Black patients, contrary to the existing literature indicating potential racial disparities. A targeted quality improvement plan has been implemented to improve the identified areas of concern to adhere to the ACOG's treatment recommendations for hypertensive disorders of pregnancy. The impact on patient care will be reassessed at the 1-year mark.

Dermatology

Alvarez GV, Kang BY, Richmond AM, Hoss E, Sulewski R, Minkis K, Rozenberg SS, Antonovich D, **Boucher A**, Bernstein EF, Bertucci V, Chapas AM, Cohen JL, Council ML, Dover JS, Geronemus R, Given KM, Goldbach HS, Goldman MP, Hooper D, Kaufman J, Munavalli G, Pacheco TR, Rossi AM, Wilson S, and Alam M. Skincare Ingredients Recommended by Cosmetic Dermatologists: A Delphi Consensus Study. *J Am Acad Dermatol* 2025; Epub ahead of print. PMID: 40233838. Full Text

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BACKGROUND: There is ambiguity regarding the topical cosmetic ingredients preferred for common skin complaints. OBJECTIVE: To determine which topical ingredients are frequently recommended by cosmetic dermatologists for fine lines and wrinkles, acne, redness, dark spots, large pores, dry skin, and oily skin. METHODS: Literature review to develop long list of ingredients. Reduced by expert panel to most salient ingredients. Two rounds of Delphi consensus survey with second expert panel of clinicians and teachers. Comparative literature review to summarize published evidence supporting each consensus ingredient. RESULTS: List of 318 ingredients reduced by a panel of 17 dermatologists to 83. Two Delphi rounds completed by 62 dermatologists at 43 centers. Consensus achieved for 23 ingredients, including: azelaic acid (acne, dark spots); benzoyl peroxide (acne, oily skin); glycolic acid (acne, dark spots); mineral sunscreen (fine lines and wrinkles, redness); niacinamide (redness, dark spots); retinoids (fine lines and wrinkles, acne, dark spots, large pores, oily skin); salicylic acid (acne, oily skin); vitamin C (fine lines and wrinkles, dark spots). Most consensus ingredients supported by level 1b or 2b evidence. LIMITATIONS: Some ingredients based on expert opinion. CONCLUSION: Consensus exists among expert cosmetic dermatologists regarding ingredients most useful for common dermatologic concerns.

Dermatology

Duponselle J, Herbelet S, Delbaere L, De Schryver Z, Forman M, Terwee CB, Wolkerstorfer A, Seneschal J, Spuls PI, Garg A, **Hamzavi I**, Speeckaert R, and Geel NV. A Quality Analysis of the Measurement Properties of the Clinician-Reported Outcome Measures for Vitiligo and of the Studies Assessing Them: A Systematic Review. *J Clin Med* 2025; 14(8). PMID: 40283378. Full Text

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Background/Objective: Evaluating the measurement properties (MPs) of Clinician-Reported Outcome Measures (ClinROMs) is crucial for selecting appropriate instruments for vitiligo assessment. This review critically appraises the existing evidence on the MPs of the ClinROMs used in vitiligo. Methods: A systematic search was conducted in PubMed, Embase, and the Cochrane Library up to 20 February 2024, identifying validated ClinROMs in vitiligo. Studies were included if they provided original data on ClinROM development or analysis, excluding those solely validating other instruments. The assessment of ClinROM quality and risk of bias analysis followed COSMIN guidelines, and ClinROMs with the highest number of sufficiently rated MPs supported by a moderate/high Quality of Evidence (QoE) were identified per construct category (extent/repigmentation and evolution/activity). Results: This review included 22 studies evaluating 12 ClinROMs. For extent/repigmentation, the Vitiligo Area and Severity Index (VASI), Vitiligo Extent Score (VES), and VESplus each had four MPs rated sufficient with a moderate/high QoE. For evolution, the Vitiligo Disease Improvement Score (VDIS) and Vitiligo Disease Activity Score (VDAS) similarly had four MPs rated sufficient with a moderate/high QoE. For activity evaluated based on a single time point, the Vitiligo Signs of Activity Score (VSAS), the only validated ClinROM for visible signs of disease activity, had three MPs rated sufficient with a moderate/high QoE. Conclusions: Six ClinROMs demonstrated the highest quality ratings across two key constructs. However, none underwent a complete evaluation of all their MPs, highlighting the need for further validation and refinement.

Dermatology

Ghannoum M, Gamal A, Kadry A, Del Rosso JQ, **Stein Gold L**, Kircik LH, and Harper JC. Criticality of Benzoyl Peroxide and Antibiotic Fixed Combinations in Combating Rising Resistance in Cutibacterium acnes. *Clin Cosmet Investig Dermatol* 2025; 18:755-766. PMID: 40190474. Full Text

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BACKGROUND: Antibiotic resistance is growing globally, with multiple countries reporting resistance in >50% of Cutibacterium acnes (C. acnes) strains. Combination formulations of an antibiotic and the antimicrobial benzoyl peroxide (BPO) may reduce this resistance risk, especially with prolonged use. This 4-part study tested susceptibility of 31 C. acnes clinical strains and development of resistance to antibiotics alone or combined with BPO. METHODS: C. acnes susceptibility to single-drug antibiotics was assessed via minimum inhibitory concentration (MIC) values obtained from epsilometer tests, with lower MIC indicating higher susceptibility. Susceptibility to fixed-dose antibiotic/BPO combination products was determined by measuring the zone of inhibition using the agar diffusion method, with larger diameter indicating increased bacterial inhibition. The effect (synergistic, additive, antagonistic, or indifferent [no interaction]) of combining clindamycin with BPO on C. acnes inhibition was evaluated using a checkerboard assay, wherein 2 test compounds are combined in varying concentrations. Resistance development was assessed using serial passage of bacterial cultures in increasing concentrations of clindamycin alone or in combination with BPO. RESULTS: All tested antibiotics (clindamycin, doxycycline, erythromycin, and minocycline) exhibited similar activity. C. acnes susceptibility was variable, with some strains having elevated MIC values-an indication of resistance-against different antibiotics. For 6 strains resistant to clindamycin alone (inhibitory zone=0 cm), formulations with BPO enhanced activity against the same isolates (range: 0.8-2.2 cm). Of 7 acne-associated strains, combining clindamycin and BPO had an additive effect against 4, and no interaction against 3. Bacterial cultures repeatedly exposed to the combination of clindamycin and BPO did not develop antibiotic resistance, which occurred with exposure to clindamycin alone. CONCLUSION: Overall, antibiotic susceptibility was highly dependent on the C. acnes strain, and antibiotic formulations with BPO exhibited enhanced activity against less susceptible strains. Fixed combinations of BPO with an antibiotic may improve antimicrobial activity and protect against resistance development.

Dermatology

Lim HW, Piquero-Casals J, Schalka S, Leone G, Trullàs C, Brown A, Foyaca M, Gilaberte Y, Krutmann J, and Passeron T. Photoprotection in pregnancy: addressing safety concerns and optimizing skin health. *Front Med (Lausanne)* 2025; 12:1563369. PMID: 40212279. Full Text

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Pregnancy is associated with physiological skin changes, altered response to UV exposure and increased risk of pigmentary disorders such as melasma and linea nigra, which can impact quality of life. This review explores the effects of photoprotection during pregnancy, focusing on safety, efficacy, and the role of sunscreens in preventing pregnancy-associated hyperpigmentation and UV-induced skin damage. Sunscreen use in pregnant women is generally low, despite evidence supporting the benefits of broad-spectrum sunscreens to mitigate pigmentation changes and prevent DNA damage from UV exposure. Physiological changes during pregnancy influence sunscreen selection; ideally, sunscreens should be mineral-based, cosmetically acceptable, potentially supplemented with safe organic filters to optimize cosmetic acceptability and adherence, and free from ingredients associated with potential risks during pregnancy. Tinted sunscreens, which provide protection against high-energy visible light (HEVL), may offer enhanced prevention of hyperpigmentary disorders, and are recommended due to their added camouflage benefits, though shade options should ideally match diverse skin tones. Photoprotection strategy should include the use of wide-brimmed hats, sun-safe clothing and regular use of high-SPF, broad-spectrum sunscreens that protect against UVB, UVA, and HEVL. Tinted, mineral-based formulations potentially supplemented with safe organic filters may be optimal for pregnant women providing both effective protection and cosmetic benefits.

Dermatology
Lyons AB, **Lim HW**, **Ozog DM**, **Hamzavi IH**, **Kohli I**, and **Mohammad TF**. Response to Truel et al, "Demographic differences and the impact of research years for reapplicants to dermatology residency programs: A retrospective cohort study". *J Am Acad Dermatol* 2025; Epub ahead of print. PMID: 40185283. Full Text

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Dermatology
Maghfour J, Mineroff J, **Ozog DM**, Jagdeo J, **Lim HW**, **Kohli I**, Anderson R, Kelly C, Mamalis A, Munavalli G, Cleber F, Siegel D, Geneva I, Weiss R, Morita A, Juanita A, Goldman MP, Arany PR, Sliney D, Ibrahimi OA, **Chopp M**, Esmat S, and Tuner J. Evidence-Based Consensus on the clinical application of Photobiomodulation. *J Am Acad Dermatol* 2025; Epub ahead of print. PMID: 40253006. Full Text

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BACKGROUND: There is a lack of evidence-based consensus to assist clinicians in using photobiomodulation(PBM). OBJECTIVE: To create a consensus on the safe and effective use of PBM. METHODS: A systematic literature review of Embase, and MEDLINE was conducted in June of 2022 to identify publications reporting research on PBM. An international multidisciplinary panel was convened to draft recommendations informed by the systematic search; they were refined through 2 rounds of Delphi survey, 2 consensus meetings, and iterative review by all panelists until unanimous consensus was achieved. RESULTS: A multidisciplinary panel of experts(n=21) was assembled based on publication history. The key findings that informed the consensus developed by the expert panel were as follows: PBM is a safe treatment modality for adult patients and red light PBM does not induce DNA damage. PBM is an effective treatment option for peripheral neuropathy, androgenic alopecia, wound ulcers due to multiple etiologies, decubitus ulcers, pain attributed to diabetic foot ulcers,and acute radiation dermatitis. CONCLUSION: The systematic literature search and structured Delphi consensus approach culminated in an evidence-based clinical practice guideline for safe and effective use of PBM in medical and aesthetic applications. Future research will further bolster our understanding of this evolving non-invasive technique.

Dermatology
Padron F, **Adlam T**, **Chaffins M**, and **Zarbo A**. Pigmented Plaque on the Hip of a 6-Year-Old Girl. *Pediatr Dermatol* 2025; Epub ahead of print. PMID: 40276868. Full Text

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Dermatology
Saunte DML, Khan S, Zehtab M, Caplan AS, Gold JAW, Smith DJ, Rosenbach M, Li C, Verma S, Castillo D, McMillen A, Elewski B, Lim HW, Desai SR, Hay R, and Freeman EE. The American Academy of Dermatology and International League of Dermatological Societies' Drug Resistant Dermatophytes (Tinea) Registry: The latest addition to the COVID-19, mpox, and Emerging Infections Registry. JAAD International 2025; 20:59-60. PMID: Not assigned. Full Text

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Dermatology
Stein Gold L, Alexis A, Glick BP, Shahriari M, Song EJ, Strober B, Watch NM, and Young M. Management of Challenging Psoriasis Clinical Scenarios. *Dermatol Ther (Heidelb)* 2025; Epub ahead of print. PMID: 40232594. Full Text

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Psoriasis, a chronic inflammatory skin condition, can have a significant impact on patients' quality of life. Adoption of novel and emerging treatments has significantly improved psoriasis care in clinical practice, but challenges remain. The 'Bridging the Gaps in Challenging Psoriasis' meeting was held in October 2024 to discuss relevant evidence, knowledge gaps, and best practices pertaining to challenging presentations of psoriasis. This report captures important insights and practice impacting guidance gathered from the panel discussion on five topics. The meeting commenced with an in-depth discussion on managing psoriasis in high-impact areas (e.g., scalp, intertriginous regions, nails, and the palms and soles) followed by a discussion on the importance of identifying and addressing common comorbidities associated with psoriasis. The panel explored key considerations and unique challenges when treating psoriasis in patients with darker skin tones ('skin of color') and highlighted the need for tailored therapeutic approaches. A comprehensive dialogue ensued on strategies for managing primary and secondary treatment failures. The session concluded with a concise discussion on the future of psoriasis treatments and pharmacologic therapies currently being developed to manage psoriasis. While discussing various challenging psoriasis scenarios, the dermatology experts emphasized the need to approach psoriasis as a systemic disease and advocated for comprehensive management that addresses both the skin and the broader health of the patient.

Diagnostic Radiology

Al-Antary N, Hirko KA, **Cassidy-Bushrow AE**, Zarins KR, **Simoff MJ**, **Song T**, **Cohen A**, and **Neslund-Dudas C**. Coronary Artery Calcification Identified on Lung Cancer Screening CT Scans: A Scoping Review. *Chest* 2025; Epub ahead of print. PMID: 40254149. Full Text

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TOPIC IMPORTANCE: Coronary artery calcification (CAC) can be a significant incidental finding on low-dose computed tomography (CT) scans performed for lung cancer screening (LCS). CAC presence and grade hold important diagnostic, and preventive value, particularly in patients without previously recognized coronary artery disease. This scoping review describes the prevalence of CAC as an incidental finding on LCS CT scans across prior studies and identifies directions for future research. REVIEW FINDINGS: The initial search resulted in 256 abstracts screened for eligibility, resulting in 32 articles included in the final review. CAC presence across included studies varied from 14.8% to 98%. CAC was most commonly reported as mild in grade, among 46.9% of studies. The majority of studies were conducted among predominantly White male participants. Finally, only 6 articles provided information on down-stream interventions for patients with newly detected CAC. SUMMARY: CAC, a predictive risk factor for cardiovascular events and mortality, is a frequently detected incidental finding on LCS CT scans, with substantial variation in presence across studies. Identification of CAC on LCS CT could inform clinical decisions to reduce patients' overall cardiovascular risk. These findings underscore the significance of standardizing the documentation and management of CAC in LCS. Finally, future studies should include greater race diversity.

Diagnostic Radiology

Eghbali N, **Klochko C**, **Mahdi Z**, **Alhiari L**, **Lee J**, **Knisely B**, **Craig J**, and Ghassemi MM. Enhancing Radiology Clinical Histories Through Transformer-Based Automated Clinical Note Summarization. *J Imaging Inform Med* 2025; Epub ahead of print. PMID: 40195229. Full Text

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Insufficient clinical information provided in radiology requests, coupled with the cumbersome nature of electronic health records (EHRs), poses significant challenges for radiologists in extracting pertinent clinical data and compiling detailed radiology reports. Considering the challenges and time involved in navigating electronic medical records (EMR), an automated method to accurately compress the text while maintaining key semantic information could significantly enhance the efficiency of radiologists' workflow. The purpose of this study is to develop and demonstrate an automated tool for clinical note summarization with the goal of extracting the most pertinent clinical information for the radiological assessments. We adopted a transfer learning methodology from the natural language processing domain to fine-tune a transformer model for abstracting clinical reports. We employed a dataset consisting of 1000 clinical notes from 970 patients who underwent knee MRI, all manually summarized by radiologists. The fine-tuning process involved a two-stage approach starting with self-supervised denoising and then focusing on the summarization task. The model successfully condensed clinical notes by 97% while aligning closely with radiologist-written summaries evidenced by a 0.9 cosine similarity and a ROUGE-1 score of 40.18. In addition, statistical analysis, indicated by a Fleiss kappa score of 0.32, demonstrated fair agreement among specialists on the model's effectiveness in producing more relevant clinical histories compared to those included in the exam requests. The proposed model effectively summarized clinical notes for knee MRI studies, thereby demonstrating potential for improving radiology reporting efficiency and accuracy.

Diagnostic Radiology

Fana M, **Sanmugananthan P**, **Santangelo G**, **Kole M**, **Chebl AB**, and **Marin H**. Functional outcomes reporting using an adjusted outcomes index for mechanical thrombectomy in anterior cerebral artery occlusions – A case series. *Interdiscip Neurosurg* 2025; 40. PMID: Not assigned. Full Text

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Introduction: The decision to intervene with mechanical thrombectomy (MT) for anterior cerebral artery (ACA) strokes is often made based on anticipated long-term functional outcomes using modified Rankin scores (mRS) which is primarily based on ambulatory status. Here, we review our single-center experience with ACA MT and evaluate the utility of various functional outcomes reporting. Methods: A case series of 15 patients undergone MT for ACA stroke using the Solitaire or Trevo stent-retrievers was completed. The data retrieved included patient demographics, initial National Institute of Health Stroke Scale (NIHSS), thrombolysis in cerebral infarction (TICI) scores and number of passes, post-procedure 24-hour NIHSS, intra-operative or post-operative complications, discharge NIHSS and mRS, and 90-day mRS. Results: There were 87 % favorable ACA TICI scores (i.e. 2B/C and 3) and 80 % first pass recanalization rate. The Solitaire 4 mm stent-retriever was employed in the majority of cases (60 %). No procedural complications were noted in 73 % of cases and no hemorrhagic conversion in 87 % of cases. 90-day mRS scores of 0–2 were noted in 26 % of patients. Using an adjusted outcomes index, 80 % of patients had favorable outcomes based on the 24-hour baseline-adjusted NIHSS score decrease of ≥41 %. Conclusion: Our preliminary findings here highlight successful radiographic and favorable functional outcomes using the Solitaire and Trevo stent-retrievers (3–6 mm luminal diameter) for ACA MT when reporting with the adjusted outcomes index as compared to the 90-day mRS score. Further studies comparing these outcomes reporting metrics with a larger sample size will be needed to further elucidate this notable difference.

Diagnostic Radiology

Munkhtuvshin T, Shagdarsuren B, Bold B, Khurelsukh K, Myagmarsuren D, Bryant JM, Salzillo TC, Mohammed S, Einstein SA, **Musall BC**, Mollura DJ, and Weygand J. Cultivating expertise in MRI physics in Mongolia through international collaboration. *J Med Imaging Radiat Sci* 2025; 56(4):101897. PMID: 40245825. Full Text

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INTRODUCTION: Mongolia's expanding MRI infrastructure faces challenges due to limited local MRI physics expertise, critical for optimizing scanner performance and ensuring diagnostic quality. In response, Intermed Hospital in Ulaanbaatar partnered with RAD-AID International to build MRI capacity and enhance imaging access across urban and rural areas. METHODS: This project included comprehensive MRI physics education, clinical protocol optimization, QA implementation, and the installation of two new MRI scanners. A didactic course covered MRI fundamentals, helping technologists, radiologists, and engineers understand how MRI parameters impact image quality. Practical sessions allowed staff to refine protocols to reduce artifacts, and an ACR-adapted QA program was established for consistent scanner monitoring. RESULTS: Participants demonstrated improved knowledge and practical skills, enabling them to independently adjust protocols and conduct QA. Two 1.5 T MRI scanners were successfully installed in Ulaanbaatar and Darkhan, with local staff applying new expertise to maintain consistent imaging quality. DISCUSSION: This collaborative model shows that partnerships with international experts can empower local teams in resource-limited settings to sustain high imaging standards, reduce reliance on external support, and enhance patient care through improved diagnostic quality. CONCLUSION: The successful integration of MRI physics education, protocol optimization, and QA provides a replicable roadmap for similar low-resource settings, bridging healthcare gaps and expanding access to advanced imaging in underserved regions.

Diagnostic Radiology

Qureshi H, Sobotie A, Hallwachs A, Pagano K, Devita R, Barger R, Kosaraju V, Miskovsky S, and Faraji N. Ankle Impingement Syndromes: What the Radiologist Needs to Know. *Appl Radiol* 2025; 54(Suppl 1):24-38. PMID: Not assigned. Full Text

Emergency Medicine

Aboul-Nour H, Jumah A, Mohamed G, **Albanna AJ**, Alsrouji OK, **Schultz L**, **Latack K**, **Miller J**, Uddin K, **Gunaga S**, **Muir J**, **Chebl A**, and **Ramadan AR**. Fibrinogen depletion and the risk of intracerebral hemorrhage following endovascular mechanical thrombectomy. *Interv Neuroradiol* 2025; Epub ahead of print. PMID: 40296708. Full Text

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BackgroundIntravenous thrombolysis (IVT) and mechanical thrombectomy (MT) are the standard of care for select stroke patients with acute large vessel occlusion (LVO). Fibrinogen levels may drop after IVT, and a significant decrease in fibrinogen is associated with an increased risk of intracranial hemorrhage (ICH). Our pilot study aimed to explore the relationship between fibrinogen levels and the development of ICH in MT-treated patients and whether bridging with IVT further increases that risk.MethodsThis is a prospective pilot study that enrolled adults presenting with a diagnosis of LVO stroke and eligible to receive MT with or without IVT between April 2020 and May 2023. Fibrinogen levels were drawn before treatment with IVT or MT and immediately following MT.ResultsForty-one patients were enrolled. Median age was 68 years [interquartile range 56-79], 58.5% were females and 56.1% were black. Nineteen patients (46.3%) were treated with MT + IVT, and 22 (53.6%) were treated with MT-only. There was no difference in baseline characteristics between the two groups. Baseline fibrinogen levels were similar between MT + IVT and MT-only groups [391 vs. 352 mg/dL, $p = 0.4$]. Post MT, the MT + IVT group had lower fibrinogen levels compared to the MT-only group [224 vs. 303 mg/dL, $p < 0.001$]. Similarly, there was a significant change between baseline and follow-up levels in the MT + IVT vs. MT-only group [106 vs. 39.5 mg/dL, $p = 0.001$]. Eight patients (19.5%) developed ICH; 5 (26.3%) in the MT + IVT group and 3 (13.6%) in the MT-only group. No significant differences were seen in baseline, follow-up, or change in fibrinogen levels between patients who developed ICH and those who did not. However, when stratified by treatment group, postintervention fibrinogen levels were significantly lower in patients who developed an ICH in the MT + IVT group compared to those without ICH in the MT group (200 vs. 301 mg/dL, $p = 0.006$). There was also a negative correlation between the change in fibrinogen levels and the rate of first-pass recanalization (Spearman CC -0.33, $p = 0.03$).ConclusionThis pilot study's preliminary data showed an association between fibrinogen depletion and hemorrhagic transformation in MT-treated patients. Since intracerebral hemorrhage is the most dire side effect in stroke treatment, fibrinogen monitoring in patients undergoing MT after IVT may help identify patients with an increased risk of ICH. Larger, prospective, and multicenter studies are needed to confirm these findings and if fibrinogen repletion should be considered for dysfibrinogenemia.

Emergency Medicine

Ellis RA, Webber TK, Noble NC, Linnstaedt SD, Hinrichs R, Wiltshire C, Reda MH, Davie W, House SL, Beaudoin FL, An X, Neylan TC, Clifford GD, Germine LT, Rauch SL, Haran JP, Storrow AB, **Lewandowski C**, Musey PI, Jr., Hendry PL, Sheikh S, Punches BE, Pascual JL, Seamon MJ, Datner EM, Pearson C, Peak DA, Domeier RM, Rathlev NK, O'Neil BJ, Sergot P, Sanchez LD, Bruce SE, Joormann J, Kessler RC, Ressler KJ, Koenen KC, McLean SA, Stevens JS, Jovanovic T, and Seligowski AV. Longitudinal Associations Between Peritraumatic Oestradiol and Fear Responding in Women and Men. *Stress Health* 2025; 41(2):e3522. PMID: 40119846. Full Text

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PTSD is more prevalent in women than men and associated with autonomic dysfunction. Higher oestradiol levels have been associated with decreased PTSD severity, however, the impact of oestradiol on autonomic function is not well characterised. We examined associations among peritraumatic oestradiol levels and autonomic function in the multi-site AURORA study. Participants (n = 283, 69.6% female) were recruited from the emergency department (ED) following trauma exposure. Skin conductance (SC) was measured during trauma recall at the ED. Oestradiol was assayed from blood collected at ED, 2-week and 6-month. Fear conditioning, including fear potentiated startle (FPS), was completed at 2-week and 6-month. In women, ED oestradiol was significantly positively associated with

ED SC and FPS at 6-month. In men, significant negative correlations between ED oestradiol and SC were found. Among women in the study, peritraumatic oestradiol was positively associated with fear responding 6-month. Findings suggest that the protective effects of oestradiol on PTSD may depend on other factors, such as time since trauma. Additional research is needed to elucidate how peritraumatic oestradiol and autonomic function may interact to confer risk for PTSD.

Emergency Medicine
Ezell GJ, **Smith N**, **Condon M**, **Joyce K**, **Joseph J**, **Springer K**, and **Pitts DAS**. Time to Diagnosis and Treatment of Postpartum Hypertensive Disorders in the Emergency Department—A Single Retrospective Cohort Study. *Reprod Med* 2025; 6(1):2. PMID: Not assigned. Full Text

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Background/Objectives: In the postpartum period, approximately 12% of patients seek care in the emergency department (ED), with a higher representation of Black patients. Hypertension is a common reason for ED visits during this period, often leading to dangerously delayed diagnosis and treatment. Objective: This study aims to assess the time to diagnosis and treatment of hypertensive disorders in the postpartum period in the ED, focusing on potential disparities in care, to identify areas for quality improvement. Design: Retrospective cohort study. Setting: A multi-centered large medical institution in the metro Detroit area. Methods: Postpartum patients (day 2 through day 28) presenting to the ED from November 2015 to December 2022. Exposures: none. Main Outcome Measures: Primary analysis assessed the time elapsed between severe-range blood pressure readings (greater than/equal to 160 systolic and/or 110 diastolic) and the administration of antihypertensives. Secondary analyses assessed the presence of essential laboratory workups such as complete blood counts, complete metabolic panels, and urine protein and creatinine. Results: Among the 430 women who presented to the ED during the postpartum period with hypertension, 372 (86.5%) exhibited severe-range blood pressure (greater than/equal to 160 systolic and/or 110 diastolic). Patients presented on average on postpartum day 6. Of the patients with severe hypertension, only 72% received a complete blood count, 66% underwent evaluation of creatinine and liver profile, and 4% had a urine protein and creatinine test ordered. The average time from severe-range blood pressure reading to antihypertensive administration was 189 min for Black patients and 370 min for White patients. There were no statistically significant differences in the time of the first blood pressure reading, laboratory evaluation, or treatment of severe-range blood pressure between racial groups. Conclusions: This study identifies the most significant area for improvement in the timely administration of antihypertensive medication following severe-range blood pressure readings. Additional areas for improvement were observed in ordering essential laboratory tests to assess the severity of preeclampsia. The institution demonstrated delayed yet equitable care for White and Black patients, contrary to the existing literature indicating potential racial disparities. A targeted quality improvement plan has been implemented to improve the identified areas of concern to adhere to the ACOG's treatment recommendations for hypertensive disorders of pregnancy. The impact on patient care will be reassessed at the 1-year mark.

Emergency Medicine
Mace SE, Baugh C, **Pena ME**, and **Takla R**. A comparison of magnetocardiography with noninvasive cardiac testing in the evaluation of patients with chest pain. *Am Heart J Plus* 2025; 54:100541. PMID: 40276544. Full Text

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OBJECTIVES: Chest pain is a common complaint of outpatients and emergency department patients. These patients are often referred for noninvasive cardiac imaging (NCI). Problems with NCI include limited availability, lengthy test delays, test duration, radiation exposure, adverse events, NPO (holding medications, caffeine/food/liquids/tobacco), exercise requirement, limitations for certain populations, inability to assess for ischemia with no obstructive coronary artery disease (INOCA), contrast/medication/needlestick-intravenous (IV) line needed.Magnetocardiography (MCG) advantages include faster, easier test administration, radiation avoidance, less resource utilization, safer, no needlestick/IV requirement, no NPO for caffeine/food/liquids/tobacco, and no holding medications. By avoiding medications and/or exercise, MCG avoids risk of provoking myocardial injury and dangerous events (arrhythmias). No contrast or pharmacologic agents are needed with MCG, eliminating side effects/complications: tissue necrosis from extravasation, contrast-induced nephropathy, allergic reactions including life threatening anaphylaxis. DESIGN: MCG comparison with NCI: exercise stress test, stress echo, dobutamine stress echocardiogram, myocardial perfusion imaging: single photon emission computed tomography (SPECT) or positron emission tomography (PET), cardiac magnetic resonance imaging (cMRI), coronary computed tomography angiography (CCTA). OUTCOME MEASURES: Literature review: NCI versus MCG. CONCLUSION: MCG is a rapid, safe, effective, painless and radiation-free test, does not require contrast/medication administration. MCG by avoiding provocative medications and/or exercise eliminates the risk of provoking myocardial injury and causing dangerous events such as arrhythmias. MCG avoids testing delays, has higher patient satisfaction, no NPO requirement, no holding medications or caffeine/food/liquids/tobacco, with similar sensitivity and specificity. Additional clinical research is needed to validate its utility. MCG may be a complementary modality alongside current NCI.

Emergency Medicine

Miller J, **Cook B**, **Gunaga S**, **Fadel R**, **Gandolfo C**, **Emakhu J**, Mills NL, Mahler S, Levy P, **Parikh S**, **Krupp S**, **Hawatian K**, **Nour K**, **Klausner H**, **Gindi R**, **Hudson M**, **Perrotta G**, **Zweig B**, **Lanfear D**, **Kim H**, Danagoulian S, Keerie C, Nassereddine H, **Morton T**, Affas Z, **Husain A**, and **McCord J**. Health Care Resource Utilization for Patients With Suspected Myocardial Infarction: A Secondary Analysis of the RACE-IT Randomized Clinical Trial. *JAMA Netw Open* 2025; 8(4):e256930. PMID: 40279128. Full Text

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IMPORTANCE: Evaluation for myocardial infarction (MI) in emergency departments (EDs) is a common, resource-intensive process. High-sensitivity cardiac troponin I (hs-cTnI) assays have become a key tool in rapidly ruling out MI, with the potential to reduce health care resource utilization. OBJECTIVE: To determine whether a 0-hour and 1-hour (hereafter referred to as 0/1-hour) hs-cTnI accelerated protocol reduces health care resource utilization compared with a traditional 0/3-hour standard care protocol for MI exclusion in the ED. DESIGN, SETTING, AND PARTICIPANTS: This is a prespecified secondary analysis of the RACE-IT trial, a stepped-wedge randomized clinical implementation trial conducted across 9 EDs in Michigan. The trial enrolled 32 608 consecutive ED patients evaluated for suspected MI between July 8, 2020, and April 3, 2021. Statistical analysis was conducted from July 10 to September 5, 2024. INTERVENTIONS: The 0/1-hour hs-cTnI accelerated protocol for MI exclusion was compared with the

traditional 0/3-hour standard care protocol. MAIN OUTCOMES AND MEASURES: Main outcomes were ED discharge to home, ED length of stay, rates of cardiac stress testing, cardiology consultation, left heart catheterization, and cardiac revascularization within 30 days. RESULTS: A total of 32 608 patients (median age, 59 years [IQR, 45-71 years]; 18 705 women [57.4%]) were included in the analysis. The rate of ED discharge to home was 58.0% for the accelerated protocol group (11 082 of 19 103) and 59.8% for the standard care group (8070 of 13 505) (adjusted odds ratio [AOR], 1.05; 95% CI, 0.95-1.15). The accelerated protocol group showed significant reductions in the odds of cardiac stress testing (3.3% [623 of 19 103] vs 3.9% [526 of 13 505]; AOR, 0.62; 95% CI, 0.49-0.78), cardiology consultations (8.6% [1640 of 19 103] vs 12.2% [1651 of 13 505]; AOR, 0.57; 95% CI, 0.49-0.67), and left heart catheterization rates (1.0% [198 of 19 103] vs 1.2% [167 of 13 505]; AOR, 0.65; 95% CI, 0.43-0.99) compared with the standard protocol group. The median ED length of stay decreased by 20 minutes (IQR, 18-24 minutes) in the accelerated protocol group, with no significant change in revascularization rates. CONCLUSIONS AND RELEVANCE: This secondary analysis of a randomized clinical trial of a 0/1-hour hs-cTnI protocol to rule out MI in the ED found that there was a reduction in cardiac evaluations and ED length of stay without increasing revascularization rates compared with the standard 0/3-hour hs-cTnI protocol. This approach could optimize health care resources in EDs. TRIAL REGISTRATION: ClinicalTrials.gov Identifier: NCT04488913.

Emergency Medicine

Prescott HC, Heath M, **Jayaprakash N**, Dantes RB, Rhee C, Posa PJ, and Flanders SA. Concordance of 30-Day Mortality and In-Hospital Mortality or Hospice Discharge After Sepsis. *JAMA* 2025; Epub ahead of print. PMID: 40202753. Full Text

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This study uses a multihospital cohort to evaluate 2 candidate outcome measures being considered for benchmarking by the CDC and CMS for community-onset sepsis hospitalizations: 30-day mortality after admission and composite in-hospital mortality or hospice discharge.

Endocrinology and Metabolism

Kruger DF, Parkin CG, Hirsch IB, Aleppo G, McGill JB, Galindo RJ, Levy CJ, Umpierrez GE, Grunberger G, and Bergenstal RM. Addressing the Diabetes Tsunami Requires Expanded Access to Diabetes Technologies. *J Diabetes Sci Technol* 2025; Epub ahead of print. PMID: 40207786. Full Text

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The use of continuous glucose monitoring (CGM) and automated insulin delivery (AID) technologies can improve patient outcomes and overall quality of life while helping to reduce the long-term costs. However, current eligibility criteria imposed by many major commercial insurers limit access to these technologies among a large portion of the diabetes population. This narrative review and commentary highlights the evidence supporting the use of CGM and AID in the various diabetes populations, discuss the current eligibility criteria that make these technologies inaccessible to individuals who would benefit, and present recommendations for modifying these criteria.

Endocrinology and Metabolism
Marrero DG, Parkin CG, Aleppo G, Hirsch IB, McGill J, Galindo RJ, **Kruger DF**, Levy CJ, Carlson AL, and Umpierrez GE. The role of advanced technologies in improving diabetes outcomes. *Am J Manag Care* 2025; 31(4):e102-e112. PMID: 40227450. Full Text

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OBJECTIVES: To discuss the current state of diabetes care in America, the value and utility of innovative diabetes technologies, barriers to access to quality diabetes care and technologies, and how a value-based model of diabetes care can improve outcomes and reduce costs. STUDY DESIGN: Narrative review of the current state of diabetes care in America and use of diabetes technologies such as continuous glucose monitoring (CGM) and automated insulin delivery (AID) systems. METHODS: An internet search of relevant studies and government reports was conducted. RESULTS: Numerous studies have shown that use of CGM and AID improves glycemia, diabetes-related events, and health care resource utilization and lowers overall health care costs. Despite these demonstrated benefits, the majority of individuals with diabetes are not achieving their glycemic goals. Although many of these individuals have limited access to these technologies due to restrictive coverage eligibility criteria, significant disparities exist in technology use within racial/ethnic minority populations and communities of lower socioeconomic status. Transitioning to a value-based approach to diabetes care supports the Quintuple Aim framework. CONCLUSIONS: Shifting our current health care delivery paradigm from the traditional volume-based, fee-for-service model to a value-based model that takes a proactive approach could improve patient outcomes and overall quality of life while helping to reduce the long-term costs of diabetes care.

Gastroenterology
Abusuliman M, **Dawod S**, **Nimri F**, **Jamali T**, **Jacobsen G**, **Khan MZ**, **Arwani R**, **Shamaa O**, **Ali SA**, **Alluri S**, **Youssef R**, **Saleem A**, **Alomari A**, **Faisal MS**, **Omeish H**, **Faisal MS**, Abusuliman A, **Singla S**, **Piraka C**, **Elatrache M**, and **Zuchelli T**. Predictive Factors of Post-ERCP Hepatic Decompensation in Patients with Cirrhosis: A Retrospective Case-Control Study. *Dig Dis Sci* 2025; Epub ahead of print. PMID: 40274678. Full Text

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BACKGROUND AND AIM: Endoscopic retrograde cholangiopancreatography (ERCP) is a crucial diagnostic and therapeutic procedure in patients with cirrhosis; however, it carries the risk of post-procedural hepatic decompensation. This study aims to identify predictive factors associated with post-ERCP hepatic decompensation in patients with cirrhosis to better inform clinical decision-making and minimize adverse outcomes. METHODS: A retrospective analysis was conducted on patients with cirrhosis undergoing ERCP. Clinical, biochemical, and procedural variables were evaluated to determine

their association with hepatic decompensation. Multivariate analysis was performed to identify independent predictors. RESULTS: A total of 277 patients with cirrhosis who underwent an ERCP were included. The cohort had a mean age of 63.4 years, with a male predominance (65.3%) and various etiologies of cirrhosis, including alcohol-related (39.3%) and hepatitis C (11.4%). Post-ERCP complications occurred in 26.7% of patients. The most common complications were hepatic decompensation events (18.4%), sepsis (10.8%), and cholangitis (6.1%). Patients with complications had significantly higher baseline MELD scores, INR, chronic kidney disease (CKD) and history of ascites, hepatic encephalopathy, and hepatorenal syndrome (HRS). A Multivariate analysis revealed that factors such as higher MELD score, ascites, hepatic encephalopathy, and stent placement were associated with post-ERCP complications. Subgroup analyses indicated that patients who developed hepatic decompensation events (ascites, SBP, or HRS) had a more severe liver dysfunction at baseline, as reflected by a higher MELD score and INR, and prior episodes of ascites and hepatic encephalopathy. CONCLUSION: Pre-procedural liver function parameters and procedural factors are crucial predictors of post-ERCP hepatic decompensation in patients with cirrhosis. Key risk factors include higher MELD score, CKD, history of ascites, and hepatic encephalopathy. Careful pre-procedural evaluation and management are essential to reduce these risks.

Gastroenterology

Brown RS, Jr., **Brown KA**, Flamm S, Bejarano RE, Rahimi RS, Singal AK, and Rockey DC. Screening and management of portal hypertension and varices in cirrhosis: Expert perspectives. *Hepatol Commun* 2025; 9(4). PMID: 40178492. Full Text

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The prevalence of liver injury, fibrosis, and, in particular, cirrhosis in the United States is increasing in parallel to the current epidemic of metabolic dysfunction-associated steatotic liver disease and alcohol-associated liver disease. As fibrosis advances, portal hypertension occurs, and when the pressure gradient meets or exceeds 10 mm Hg, the patient is at an increased risk for decompensating events such as esophageal varices. The risk of death also increases. Therefore, decreasing the risk of progression to decompensated cirrhosis is an important management goal. The American Association for the Study of Liver Diseases recently published a guidance document to "coalesce best practice recommendations for the identification of portal hypertension, for prevention of initial hepatic decompensation, for the management of acute variceal hemorrhage, and for reduction of the risk of recurrent variceal hemorrhage in chronic liver disease." In this updated guidance, the new terms "advanced chronic liver disease" and "clinically significant portal hypertension" have been proposed for routine use in clinical practice. Following recommendations for advanced chronic liver disease identification, which are largely defined by transient elastography measurements of liver stiffness, guidance is provided on the identification of clinically significant portal hypertension and early administration of nonselective beta-blocker therapy in clinically significant portal hypertension for prophylaxis. Optimal control of active bleeding, the role of preemptive TIPS, and gastric varices management are also addressed. Despite the wealth of information provided, the guidance can be difficult to put into practice, leaving non-liver-focused clinicians with an unmet need for a simplified approach to guidelines in general. To address this issue, a panel of hepatologists met to review and discuss the real-world implications of this new guidance and the result is this expert perspective review. This review aims to facilitate improvements in risk stratification and management of variceal bleeding, streamline controversial and complex issues in the recent guidance in

a practical way for clinical use, and make recommendations on how to incorporate this important new guidance document into clinical practice.

Gastroenterology
Ronca V, Parente A, Lytvyak E, Hansen BE, Hirschfield G, Bonder A, Ebadi M, Elwir S, Alsaed M, Milkiewicz P, Janik MK, Marschall HU, Burza MA, Efe C, Rıza Calışkan A, Harputluoglu M, Kabaçam G, Terrabuio D, de Quadros Onofrio F, Selzner N, Parés A, Llovet L, Akyıldız M, Arikan C, Manns MP, Taubert R, Weber AL, Schiano TD, Haydel B, Czubkowski P, Socha P, Ołdak N, Akamatsu N, Tanaka A, Levy C, Martin EF, Goel A, Sedki M, Jankowska I, Ikegami T, Rodriguez M, Sterneck M, Sebode M, Schramm C, Donato MF, Colapietro F, Lohse A, Andrade RJ, Patwardhan VR, van Hoek B, Biewenga M, Kremer AE, Ueda Y, Deneau M, Pedersen M, Mayo MJ, Floreani A, Burra P, Secchi MF, Terziroli Beretta-Piccoli B, Sciveres M, Maggiore G, **Jafri SM**, Debray D, Girard M, Lacaille F, Heneghan M, Mason AL, Oo Y, and Montano-Loza AJ. Recurrence of autoimmune hepatitis cholestatic variant syndromes after liver transplantation affects graft and patient survival. *JHEP Rep* 2025; 7(5):101332. PMID: 40276483. Full Text

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BACKGROUND & AIMS: A significant proportion of patients with variant syndromes (VSs), namely autoimmune hepatitis/primary biliary cholangitis or autoimmune hepatitis/primary sclerosing cholangitis, require liver transplantation (LT) despite treatment. The frequency of disease recurrence and the effect on graft survival are yet to be clarified. The aim of this international, multicentric, retrospective study is to evaluate the risk factors associated with recurrence and the impact of the disease recurrence after LT on graft and patient survival. METHODS: We evaluated 166 patients undergoing LT for VS in 33 centers in North America, South America, Europe, and Asia. Clinical data before and after LT, biochemical data within the first 12 months after LT, and immunosuppression after LT were analyzed to identify patients with a higher risk of recurrence of autoimmune disease based on a histological and radiological diagnosis. Cumulative probabilities of graft and overall survival after LT were calculated using a semi-Markov model. RESULTS: The autoimmune pattern of recurrence resembled the original VS in 19 cases (61%). Recurrence of autoimmune liver disease (rALD) after LT was observed in 23% and 33% of patients after 5 and 10 years, respectively. Increased alkaline phosphatase (hazard ratio [HR] 1.60, 95% confidence interval [CI] 1.13-2.25, p <0.01) and alanine aminotransferase (HR 1.25, 95% CI 1.01-1.53, p = 0.03) at 12 months after LT and acute rejection (HR 3.58, 95% CI 1.60-7.73, p <0.01) were associated with a higher risk of VS recurrence, whereas the use of predniso(lo)ne was associated with a reduced risk (HR 0.30, 95% CI 0.14-0.64, p <0.01). After adjusting for alanine aminotransferase and alkaline phosphatase at 12 months, the use of predniso(lo)ne was found to be independently and negatively associated with recurrent disease. The rALD was found to be significantly associated with graft loss and patient survival in the multivariate Cox regression analysis with a time-dependent covariate. The 5- and 10-year probabilities of graft survival were 68% and 41% in patients with recurrent VS compared with 83% and 60% in patients without recurrent disease, respectively (p = 0.01). The overall survival was significantly reduced in patients with recurrent disease (p = 0.01), with event probability at 5 and 10 years of 75% and 49% vs. 84% and 60% in patients without recurrence, respectively. CONCLUSIONS: rALD after LT is frequent and is associated with elevation in liver enzymes within the first year after LT and rejection episodes. According to our data, VS recurrence appears to be associated with poorer graft and patient survival. Further studies are needed to explore strategies that can prevent VS recurrence or mitigate its potential impact. IMPACT AND IMPLICATIONS: This study investigated the recurrence of

autoimmune liver diseases (rALD) in patients transplanted for variant syndromes (VSs) and its effect on graft and patient survival. The findings reveal a significant association between rALD and poorer graft and overall survival, highlighting the need for preventive strategies. This research is crucial for transplant physicians and healthcare providers, as it underscores the impact of early liver enzyme monitoring and tailored immunosuppressive therapy on long-term outcomes. These insights can inform more effective post-LT management protocols, potentially improving patient prognosis.

Gastroenterology
Shahzil M, **Chaudhary AJ**, Sohail A, Haq K, **Khan MZ**, **Muszkat Y**, and **Jafri SM**. Managing pregnancy with long-term parenteral nutrition: A case report and review of the literature. *JPEN J Parenter Enteral Nutr* 2025; Epub ahead of print. PMID: 40170624. Full Text

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Parenteral nutrition (PN) is essential for patients with chronic intestinal failure but poses significant challenges during pregnancy because of increased nutrition needs and associated risks such as central line-associated bloodstream infections. We report a case of a 29-year-old primigravid woman with Crohn's disease who required chronic PN. Despite these complexities, her pregnancy was managed successfully with tailored PN adjustments. She developed intrahepatic cholestasis of pregnancy at 38 weeks and delivered a healthy, full-term newborn. Meticulous planning and individualized nutrition management are crucial in navigating the complexities of PN during pregnancy, demonstrating the potential for successful outcomes with strategic and personalized interventions.

Gastroenterology
Zuchelli T, Patel A, Repici A, and Rex DK. AGA Clinical Practice Update on Endoscopic Lifting Agents: Commentary. *Clin Gastroenterol Hepatol* 2025; Epub ahead of print. PMID: 40261232. Full Text

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DESCRIPTION: This American Gastroenterological Association (AGA) Institute Clinical Practice Update (CPU) reviews endoscopic lifting agents and their use in the gastrointestinal tract. METHODS: This CPU was commissioned and approved by the AGA Institute Clinical Practice Updates Committee and the AGA Governing Board to provide timely guidance on a topic of high clinical importance to the AGA membership. This CPU underwent internal peer review by the Clinical Practice Updates Committee and external peer review through standard procedures of Clinical Gastroenterology and Hepatology. This expert commentary incorporates important as well as recently published data in this field and reflects the experiences of the authors.

Hematology-Oncology
Al-Antary N, **Tam S**, **Alzouhayli S**, **Zatirka TM**, **Ryan M**, **Chang SS**, **Movsas B**, and **Adjei Boakye E**. Interventions influencing patient-reported outcomes (PROs) response rates in cancer: a scoping review. *J Cancer Surviv* 2025; Epub ahead of print. PMID: 40234324. Full Text

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PURPOSE: Despite the emerging evidence around patient-reported outcome measures (PROMs) monitoring benefits in oncology, completion rates remain low due to numerous multi-level barriers. This review summarizes existing literature on interventions employed to improve PROMs response rates in routine practice among patients with cancer. METHODS: PubMed database was used to perform a literature search of articles published between 2000 and 2022. Articles were included if they focused on PROMs implementation in non-clinical trial setting and reported results on methodologies and their influence on response rates. RESULTS: A total of 495 abstracts were screened for eligibility, and 14 articles that met the inclusion criteria were included. PROMs mode of administration varied between electronic only (four studies, 28.6%), paper only (two studies, 14.3%), electronic-paper (six studies, 42.9%), and electronic-telephone (two studies, 14.3%). Reminder systems, using electronic, paper, or in-person, were implemented in 12 studies (85.7%). Different strategies of initial recruitment, aiming to enhance patients' PROM engagements, were outlined in five studies (35.7%). CONCLUSION: Multiple interventions were implemented to improve PROMs completion rates. Mode of questionnaire administration, reminder systems, patient education on benefits of PROMs, and clinical staff involvement were shown to be effective in increasing the overall completion rate. IMPLICATIONS FOR CANCER SURVIVORS: This review provides a summary for researchers and clinicians on the current practice of PROMs implementation, thus creating a framework for the impact of different methodologies on patient's response rate for better monitoring of recurring symptoms, including long-term side effects, emotional distress, and changes in health-related quality of life.

Hematology-Oncology

Chiang AC, Olmedo Garcia ME, Carlisle JW, Dowlati A, Reguart N, Felip E, Jost PJ, Steeghs N, Stec R, **Gadgeel SM**, Loong HH, Jiang W, Hamidi A, Parkes A, and Paz-Ares L. Safety of tarlatamab with 6-8-h outpatient versus 48-h inpatient monitoring during cycle 1: DeLLphi-300 phase 1 substudy. *ESMO Open* 2025; 10(4):104538. PMID: 40187110. Full Text

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BACKGROUND: Tarlatamab, a bispecific T-cell engager immunotherapy targeting delta-like ligand 3, has demonstrated promising survival outcomes in small-cell lung cancer (SCLC). Given the risk of cytokine release syndrome (CRS), initial clinical trials incorporated 48-72-h inpatient monitoring in cycle 1. METHODS: Patients with previously treated SCLC were enrolled into DeLLphi-300 part F, which evaluated the safety of tarlatamab 10 mg every 2 weeks (Q2W) with 6-8-h outpatient monitoring following cycle 1 doses. The primary endpoint, safety, was compared with patients from DeLLphi-300 part A receiving tarlatamab 10 mg Q2W with 48-h inpatient monitoring for cycle 1 doses. RESULTS: In cycle 1, the rates of treatment-related adverse events and hospitalizations, including emergency room visits, were similar between outpatient (n = 30) and inpatient (n = 58) groups (93% versus 100% and 27% versus 34%, respectively). The incidence of all grade and serious CRS during cycle 1 was similar between outpatient and inpatient groups (any grade: 60% versus 62%; serious: 17% versus 22%). The median time to CRS resolution was 3 days for both groups. CONCLUSIONS: Safety outcomes, including hospitalization rates, were similar in this first-in-human study following tarlatamab 10 mg Q2W administration with 6-8-h outpatient versus 48-h inpatient monitoring in cycle 1.

Hematology-Oncology

Felip E, Cho BC, Lu S, Şendur MAN, **Gadgeel SM**, Sethi S, Bauml JM, and Hayashi H. Plain language summary of first-line amivantamab-lazertinib in previously untreated high-risk EGFR-altered non-small-cell lung cancer in MARIPOSA. *Future Oncol* 2025; 1-16. Epub ahead of print. PMID: 40270251. Full Text

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What is this summary about?This plain language summary describes the efficacy results from high-risk subgroups in the phase 3 MARIPOSA study. The study evaluated the safety and efficacy of amivantamab plus lazertinib, a third-generation tyrosine kinase inhibitor (TKI), compared with osimertinib, another third-generation TKI, or lazertinib in patients with advanced non-small-cell lung cancer (NSCLC) with exon 19 deletions (Ex19del) or exon 21 L858R substitution alterations in the epidermal growth factor receptor (EGFR) gene who had not received treatment before. Among all patients, at a median follow-up of 22 months, the median progression-free survival (PFS) for amivantamab plus lazertinib was 23.7 months compared with 16.6 months for osimertinib, with a 30% lower risk of their disease getting worse or dying. Median duration of response was 9 months longer with amivantamab plus lazertinib compared with osimertinib. Here, we report the results from a secondary analysis of the MARIPOSA study in patients with high-risk cancer characteristics associated with poor disease outcomes, such as TP53 gene alterations, cancer DNA in the bloodstream, and liver or brain metastases. We will refer to patients with high-risk cancer traits as ‘high-risk subgroups’.What were the results?1074 adults with locally advanced or metastatic EGFR-altered NSCLC were randomly divided into 3 treatment groups (patients who received amivantamab plus lazertinib, osimertinib alone, or lazertinib alone) in a 2:2:1 ratio. Here, we report the results for the amivantamab plus lazertinib and osimertinib monotherapy groups. Among high-risk subgroups, the median PFS was 20.3 months for amivantamab plus lazertinib compared with 15.0 months for osimertinib. PFS benefits were seen for those without TP53 alterations, cancer DNA in the

bloodstream, and liver or brain metastases.As with treatments for NSCLC and other cancers, side effects occurred in most patients, many of which are commonly seen with amivantamab and other EGFR-targeting therapies. Venous thromboembolic events (VTE), commonly associated with lung cancer, occurred more often in patients receiving amivantamab plus lazertinib compared with those receiving osimertinib.Severe VTEs were rare (less than 1%). However, few patients received anticoagulants to prevent VTEs (5%) or stopped taking amivantamab plus lazertinib due to these side effects (amivantamab plus lazertinib: 3%; osimertinib: less than 1%).What do the results mean?Most patients with advanced NSCLC have at least one high-risk feature. Among high-risk subgroups, amivantamab plus lazertinib compared with osimertinib extended the time that their cancer did not worsen. These results could be relevant to a wide range of patients with amivantamab plus lazertinib as a potential treatment option.[Box: see text].
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Hematology-Oncology
Megaly M, Zakhour S, **Maki M**, **Albusoul L**, **Nakhle A**, Karacsonyi J, Mashayekhi K, Rinfret S, Brilakis ES, and **Alaswad K**. Impact of Chronic Total Occlusion PCI in Non-LAD Coronary Arteries on Patients with Cardiomyopathy. *Am J Cardiol* 2025; Epub ahead of print. PMID: 40221124. Full Text

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OBJECTIVES: To evaluate the impact of left circumflex artery (LCX) or right coronary artery (RCA) chronic total occlusion percutaneous coronary intervention (CTO PCI) on left ventricular ejection fraction (LVEF) in heart failure patients with reduced ejection fraction (HFrEF). BACKGROUND: The effect of RCA or LCX CTO PCI on HFrEF patients remains understudied. METHODS: We conducted a retrospective analysis of patients with HFrEF (EF <40%) who underwent LCX or dominant RCA CTO PCI at a high-volume center. The primary outcome was LVEF change, while secondary outcomes included in-hospital and long-term major adverse cardiovascular events (MACE). Subgroup analyses assessed the influence of myocardial viability testing and optimal heart failure therapy (OHFT) on LVEF change. RESULTS: From December 2014 to February 2022, 111 HFrEF patients underwent non-LAD CTO PCI, with a 93.6% technical success rate and 5.4% in-hospital MACE rate. At a median 27.4-month follow-up, LVEF significantly improved by 8.2% (95% CI 5.9%-10.7%, p<0.001). RCA CTO PCI led to a 9.6% LVEF increase (95% CI 6.7%-12.6%, p<0.001), while LCX PCI resulted in a 5.6% improvement (95% CI 1.3%-9.8%, p=0.011). Pre-procedure viability testing (p=0.310) and post-procedural OHFT (defined as three classes of guideline-directed medical therapy, p=0.673) were not significantly associated with LVEF changes. CONCLUSION: Non-LAD CTO PCI significantly improved LVEF (8.2%) in HFrEF patients over two years, regardless of pre-procedure viability testing or post-procedural medical therapy.

Hematology-Oncology
Palathingal Bava E, **Skorupski S**, **Peres E**, **Dejban P**, **Chang Q**, **Theisen B**, and **Husain S**. Suspected late graft failure and graft versus host disease 34 years after hematopoietic stem cell transplantation clinically and pathologically presenting as host versus graft disease with liver injury. *Hum Pathol Rep* 2025; 40. PMID: Not assigned. Full Text

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A 36-year-old man who underwent hematopoietic stem cell transplantation (HSCT) at the age of 2 years for severe combined immunodeficiency, presented with jaundice, skin rash, and elevated liver function tests 34 years after HSCT. Liver biopsy showed bile duct injury and cholestasis. Viral studies, autoimmune panel, review of medications, and imaging did not establish a cause of liver injury. However, graft-versus-host disease (GVHD) was unlikely because of the remote history of HSCT. Short tandem repeat-polymerase chain reaction (STR-PCR) chimerism analysis showed that the percentage of donor DNA in the liver biopsy specimen was very low (11 %); hence, host-versus-graft disease (HVGD) was implicated. Because STR analysis of patient's blood showed a mixed chimera with 11 % donor DNA, graft failure was suspected; however, fractionated STR analysis ruled out complete graft failure. Overall, this case outlines liver injury caused by HVGD in the absence of complete graft failure 34 years after HSCT, which has never been reported in the literature. STR-PCR analysis was essential for mitigating the diagnostic dilemma.

Hematology-Oncology

Simone CB, 2nd, Amini A, **Chetty IJ**, Choi JI, Chun SG, Donington J, Edelman MJ, Higgins KA, Kestin LL, Mohindra P, **Movsas B**, Rodrigues GB, Rosenzweig KE, **Rybkin, II**, Shepherd AF, Slotman BJ, Wolf A, and Chang JY. American Radium Society™ Appropriate Use Criteria Systematic Review and Guidelines on Reirradiation for Non-small Cell Lung Cancer Executive Summary. *Int J Radiat Oncol Biol Phys* 2025; Epub ahead of print. PMID: 40185207. Full Text

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BACKGROUND: Definitive thoracic reirradiation can improve outcomes for select non-small cell lung cancer (NSCLC) patients with locoregional recurrences. To date, there are a lack of systematic reviews on safety or efficacy of NSCLC reirradiation and dedicated guidelines. This ARS Appropriate Use Criteria Systematic Review and Guidelines provides practical guidance on thoracic reirradiation safety and efficacy and recommends consensus of strategy, techniques and composite dose constraints to minimize risks of high-grade/fatal toxicities. METHODS: PRISMA systematic review assessed all studies published through 5/2020 evaluating toxicities, local control and/or survival for NSCLC thoracic reirradiation. Of 251 articles, 52 remained after exclusions (3 prospective) and formed the basis for recommendations on the role of concurrent chemotherapy, factors associated with toxicities, and optimal reirradiation modalities and dose-fractionation schemas. RESULTS: Stereotactic body radiation therapy improves conformality/dose escalation and is optimal for primary-alone failures, but caution is needed for central lesions. Concurrent chemotherapy with definitive reirradiation improves outcomes in nodal recurrences but adds toxicity and should be individualized. Hyperfractionated reirradiation may reduce long-term toxicities, although data are limited. Intensity-modulated reirradiation is recommended over 3D conformal reirradiation. Particle therapy may further reduce toxicities and enable safer dose escalation. Acute esophagitis/pneumonitis and late pulmonary/cardiac/esophageal/brachial plexus toxicities are dose limiting for reirradiation. Recommended reirradiation composite dose constraints (2Gy equivalents): esophagus V60<40%, DMax<100 Gy; lung V20<40%; heart V40<50%; aorta/great vessels DMax<120 Gy; trachea/proximal bronchial tree DMax<110 Gy; spinal cord DMax<57 Gy; brachial plexus DMax<85 Gy. CONCLUSIONS: Personalized thoracic reirradiation approaches and consensus dose constraints for

thoracic reirradiation are recommended and serve as the basis for ongoing Reirradiation Collaborative Group (ReCOG) and NRG Oncology initiatives. As very few prospective and small retrospective studies formed the basis for generating the dose constraint recommended in this report, further prospective studies are needed to strengthen and improve these guidelines.

Hematology-Oncology

Waliany S, Hung YP, **Rous FA**, Luo F, Capelletti M, Ressler S, Do A, Peterson J, **Meservey C**, Digumarthy SR, Ou SI, **Gadgeel SM**, Lin JJ, and Meador CB. Lung Carcinoid Tumors With Potentially Actionable Genomic Alterations and Responses to Targeted Therapies. *Clin Lung Cancer* 2025; Epub ahead of print. PMID: 40234130. Full Text

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BACKGROUND: Effective treatments for patients with advanced lung carcinoids remain limited. The prevalence of potentially actionable genomic alterations (AGAs) among lung carcinoids is not well-understood. MATERIALS AND METHODS: Lung carcinoids submitted for next-generation sequencing (NGS) at a Clinical Laboratory Improvement Amendments (CLIA)-certified genomics laboratory from September 2013 to March 2024 were retrospectively investigated to determine prevalence of AGAs. We evaluated outcomes with genotype-matched targeted therapies in patients with advanced lung carcinoids with AGAs identified across 3 institutions and comprehensive literature search. RESULTS: Among 321 cases of lung carcinoids profiled by NGS, 8 (2.5%) harbored potential AGAs (4 [1.2%] with commercially available targeted therapies), including KRAS mutations (n = 4, 1.2%: G12C, G12D, G12R, G12V), ALK fusions (n = 2, 0.6%), BRAF D594N (n = 1, 0.3%), and RET fusion (n = 1, 0.3%). None of the 24 typical carcinoids harbored an AGA. Collectively across these database-identified patients, our multi-institutional cohort, and literature review, we identified 36 cases of lung carcinoids with potential AGAs (24 with commercially available targeted therapies), predominantly comprising fusions of ALK (n = 14), RET (n = 5), and NTRK (n = 2). Of 27 with known disease stage, 19 had stage 4 disease, and 13 (68.4%) had outcomes reported following targeted therapies. Median treatment duration was 12.0 months (95% CI: 6.7-16.0). Median progression-free survival (PFS) was 10.6 months (95% CI: 6.7-16.0) across all targeted therapy lines and 14.0 months (95% CI: 1.3-NA) with first-line targeted therapies. Objective response rate with at least one targeted therapy was 61.5%. CONCLUSIONS: Patients with advanced lung carcinoids harboring AGAs can derive meaningful benefit from genotype-matched targeted therapies, highlighting potential role for NGS in patients with advanced carcinoids.

Hospital Medicine

Schaefer JK, Errickson J, Kong X, Ali MA, Chipalkatti N, Haymart B, **Kaatz S**, **Krol GD**, Sood SL, Froehlich JB, and Barnes GD. A Comparison of Outcomes With Apixaban, Rivaroxaban, and Warfarin for Atrial Fibrillation and/or Venous Thromboembolism. *JACC Adv* 2025; 4(5):101714. PMID: 40286370. Full Text

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BACKGROUND: Apixaban and rivaroxaban are commonly used direct oral anticoagulants for atrial fibrillation (AF) and venous thromboembolism (VTE). Both have been compared to warfarin, but there are insufficient comparative outcome data. OBJECTIVES: The purpose of this study was to assess outcomes of apixaban, rivaroxaban, and warfarin. METHODS: This is a registry-based cohort study with data from 6 centers in Michigan, 2009 to 2023. Patients were adults with AF and/or VTE with at least 3 months of follow-up. Outcomes included rates of bleeding, thrombosis, healthcare utilization, and death. RESULTS: A total of 13,435 patients met the study inclusion criteria (average age 66.7 years, 58.0% on anticoagulation for AF, average follow-up 28.2 months). After matching, 2 groups of 3,527 patients on apixaban and warfarin were compared. Any bleeding was similar between groups, but major bleeding was less with apixaban. Thrombotic event rates were higher with apixaban. Mortality, rates of emergency room visits, and hospitalizations for bleeding were higher with warfarin. After matching, 1,395 patients on rivaroxaban were compared to 4,185 patients on warfarin. Any bleeding and major bleeding were higher with rivaroxaban. Thrombotic event rates were similar, aside from a higher rate of "other" thrombosis with rivaroxaban. After matching, 2 groups of 1,395 patients on apixaban and rivaroxaban were compared. Any bleeding, major bleeding, and mortality were higher with rivaroxaban. Thrombotic event rates were similar. CONCLUSIONS: For patients with AF and/or VTE, we observed that bleeding was highest with rivaroxaban, followed by warfarin, and then apixaban. Rates of thrombosis were higher with apixaban than with warfarin, largely driven by "other" thrombotic events.

Infectious Diseases

Caniff KE, Al Musawa M, Judd C, Shupp M, **Veve MP**, **Alangaden G**, Claeys KC, Scipione MR, Walsh TJ, and Rybak MJ. Evaluating antimicrobial stewardship strategies in candidemia: a novel desirability of outcome ranking (DOOR) analysis comparing blood culture versus T2Candida diagnostic approaches. *J Clin Microbiol* 2025; e0004325. Epub ahead of print. PMID: 40214232. Full Text

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The T2Candida Panel (T2 Biosystems, Lexington, MA) is a rapid diagnostic test that detects Candida from whole blood within 3-5 hours. We developed and applied a desirability of outcome ranking (DOOR) analysis to investigate if an antimicrobial stewardship program (ASP) strategy centered on T2Candida diagnosis is associated with improved outcomes compared to an ASP strategy that relies on conventional blood culture diagnosis in critically ill patients with candidemia. This is a retrospective, observational cohort of patients with candidemia identified ≤72 h of intensive care unit admission at two medical centers in Detroit, MI (one T2Candida site and one blood culture site) from 2016 to 2023. Management strategies for candidemia were compared using an original DOOR analysis with inverse probability of treatment

weighting (IPTW) to account for confounding. Two hundred patients were included, 100 from each site. Baseline illness severity, race, and Candida species varied between groups; however, source control procedures, echocardiogram, and ophthalmologic exam occurred at similar frequencies. T2Candida/ASP was associated with faster median (interquartile range [IQR]) detection of candidemia (7.0 [5.0-10.75] h vs 45.5 h [34.25-68.75], P < 0.001) and timelier median (IQR) initiation of directed antifungal therapy (6.0 [0-11.0] h vs 49.0 [34.0-77.0] h, P < 0.001). T2Candida/ASP patients had a 58.0% probability of achieving an overall better outcome compared to those managed with blood culture/ASP (95% confidence interval: 50.4-65.2%) in IPTW-adjusted DOOR analysis. An ASP strategy incorporating T2Candida was associated with an overall better patient outcome compared to patients managed via conventional blood culture diagnosis.IMPORTANCECandida species are a significant cause of bloodstream infections in critically ill patients. Conventional diagnostic methods, such as blood cultures, have poor sensitivity and delayed results. The T2Candida Panel is a diagnostic tool that rapidly detects Candida directly from the blood in 3-5 h, enabling faster initiation of antifungal therapy. Antimicrobial stewardship programs (ASPs) optimize the management of bloodstream infections and may benefit from incorporating T2Candida to improve patient outcomes. This study examined whether an ASP intervention based on T2Candida diagnosis, compared to one relying on traditional blood culture methods, could improve outcomes in candidemia using a desirability of outcome ranking (DOOR) analysis. The DOOR method provides a comprehensive evaluation by integrating multiple outcomes into a single end point, which is ideal given the complexity of patients with candidemia. The T2Candida/ASP intervention resulted in an overall better patient outcome, considering infectious complications, treatment failure, and all-cause mortality.

Infectious Diseases

Davies Smith E, Malvestutto C, Ribaudo HJ, Fichtenbaum CJ, Aberg JA, Watanabe M, Bloomfield GS, Currier JS, Chu SM, Fitch KV, Diggs MR, Bedimo R, Valencia J, Gomez-Ayerbe C, **Brar I**, Madruga JV, Lu MT, Douglas PS, Zanni MV, and Grinspoon SK. Cardiovascular Hazards of Abacavir- Versus Tenofovir-Containing Antiretroviral Therapies: Insights From an Analysis of the REPRIEVE Trial Cohort. *Open Forum Infect Dis* 2025; 12(4). PMID: 40207047. Full Text

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BACKGROUND: Prior analyses suggest that the nucleoside reverse transcriptase inhibitor (NRTI) abacavir (ABC), but not tenofovir (TFV), is associated with a 2-fold increase in the hazard of myocardial infarction. the Randomized Trial to Prevent Vascular Events in HIV (REPRIEVE) is ideally suited to evaluate the role of ABC and the TFV backbones, tenofovir alafenamide (TAF) and tenofovir disoproxil fumarate (TDF), in major adverse cardiovascular events (MACE). METHODS: We compared hazard of first MACE among people living with human immunodeficiency virus (HIV) at low-to-moderate cardiovascular risk using ABC (n = 883), TAF (n = 957), and TDF (n = 4274) at entry. Overlap weights

balanced biasing factors, including age, sex at birth, atherosclerotic cardiovascular disease risk, CD4 count, estimated glomerular filtration rate, and anchor antiretroviral therapy. Associations between entry NRTI and MACEs were estimated using a marginal Cox proportional hazards model. Change of NRTI, or "switching," was common during follow-up. Additional associations were estimated by further censoring at first switch and applying time-updated inverse probability of censoring weighting (IPCW). RESULTS: Baseline-adjusted associations suggest clinically relevant increases in hazard of first MACE for ABC versus TAF (hazard ratio [HR], 1.5 [95% confidence interval {CI}, .9-2.3]) and ABC versus TDF (HR, 1.4 [95% CI, .9-2.1]), but not TAF versus TDF (HR, 0.9 [95% CI, .6-1.5]). With censoring at switch, HRs increased to 1.6 (95% CI, .9-2.7) for ABC versus TAF, 2.0 (95% CI, 1.2-3.4) for ABC versus TDF, and 1.2 (95% CI, .7-2.2) for TAF versus TDF. The largest HR observed was for ABC versus TDF and myocardial infarction (IPCW HR, 3.5 [95% CI, 1.3-9.4]). CONCLUSIONS: Antiretroviral therapies with ABC backbones are associated with an increase in MACE compared to TFV backbones among people living with HIV at low-to-moderate cardiovascular risk. CLINICAL TRIALS REGISTRATION: NCT02344290.

Infectious Diseases

Dorff EM, **Crooker K**, Teng T, Hickey T, HoddWells M, Sarathy A, Muniz S, Lor J, Chang A, Singh D, Dejace J, Riser E, Tompkins BJ, and Hale AJ. Clinical Characteristics and Outcomes of Patients with Cirrhosis Who Develop Infective Endocarditis. *Infect Dis Rep* 2025; 17(2). PMID: 40277964. Full Text

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Background: Infective endocarditis (IE) is an increasingly common infection that results in significant morbidity and mortality. An important but under-analyzed subpopulation of patients with IE are those with concomitant cirrhosis. This study compared the characteristics and outcomes of patients with and without cirrhosis who were hospitalized with IE. Methods: The authors conducted a retrospective cohort study in adult patients with IE admitted at a single center from 2010 to 2020, comparing outcomes between those with and without cirrhosis at the time of admission. Results: A total of 22 patients with a history of cirrhosis and 356 patients without a history of cirrhosis were included. Over a quarter (27.3%) of those with cirrhosis experienced a decompensation event within two years of their admission for IE. Clinical features, microbiology, and direct complications from IE were largely similar between groups. There was no significant difference in IE-related mortality rates between groups, although, in an overall survival analysis, the group with cirrhosis did have a higher risk of all-cause mortality at 2 years (HR = 2.85; p = 0.012). Conclusions: This study highlights that IE in patients with cirrhosis may contribute to or trigger decompensation events. Further research is warranted to better understand morbidity outcomes in patients with cirrhosis who develop IE.

Infectious Diseases

Jensen TO, Sharma S, Avihingsanon A, Lutaakome J, **Brar I**, Burman W, Chetchotisakd P, de Castro N, Galán-Herrera JF, Kumarasamy N, Paredes R, Ridzon R, Sciaudone M, Singh K, Uriel A, Lundgren J, Reilly C, and Matthews G. Risk of severe bacterial infections including TB before and after immediate or deferred antiretroviral therapy: a multicenter, prospective, cohort study. *Int J Infect Dis* 2025; 107911. Epub ahead of print. PMID: 40268134. Full Text

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OBJECTIVES: Deferring ART until a CD4 count below cells/mm(3) or other clinical indication in people with HIV (PWH) carries an increased risk of severe bacterial infections and tuberculosis (TB). It is not known if this increased risk is reversed after ART initiation. METHODS: We analyzed 4,684 adult PWH with CD4 cell counts above 500 cells/mm(3) who were randomized to immediate or deferred ART in the Strategic Timing of AntiRetrovial Treatment (START) trial. In May 2015, the deferred group was offered ART and follow-up continued until December 2021. Cox proportional hazards models were used to compare the risks of severe bacterial infections including TB in the immediate and deferred groups before and after ART initiation in the deferred group. RESULTS: 217 (4.6%) participants experienced a severe bacterial infection during the entire follow-up period. Pre-2016, the immediate group had a lower rate of severe bacterial infections compared to the deferred group (HR 0.38; 95% CI 0.26, 0.55). During 2016-2021, there was no longer a statistically significant difference (HR 0.75; 95% CI 0.49, 1.16). No differences were observed between clinical or demographic subgroups. CONCLUSION: The increased risk of severe bacterial infections seen after deferring ART is reversed once ART is initiated.

Infectious Diseases

Lewis NM, Harker EJ, Cleary S, Zhu Y, Grijalva CG, Chappell JD, Rhoads JP, Baughman A, Casey JD, Blair PW, Jones ID, Johnson CA, Halasa NB, Lauring AS, Martin ET, Gaglani M, Ghamande S, Columbus C, Steingrub JS, Duggal A, Felzer JR, Prekker ME, Peltan ID, Brown SM, Hager DN, Gong MN, Mohamed A, Exline MC, Khan A, Ferguson SAN, Mosier J, Qadir N, Chang SY, Ginde AA, Zepeski A, Mallow C, Harris ES, Johnson NJ, Gibbs KW, Kwon JH, **Vaughn IA**, **Ramesh M**, Safdar B, Surie D, Dawood FS, Ellington S, and Self WH. Vaccine Effectiveness Against Influenza A(H1N1), A(H3N2), and B-Associated Hospitalizations-United States, September 1, 2023-May 31, 2024. *J Infect Dis* 2025; Epub ahead of print. PMID: 40198276. Full Text

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BACKGROUND: The 2023-2024 influenza season included sustained elevated activity from December 2023-February 2024 and continued activity through May 2024. Influenza A(H1N1), A(H3N2), and B viruses circulated during the season. METHODS: During September 1, 2023-May 31, 2024, a multistate sentinel surveillance network of 24 medical centers in 20 U.S. states enrolled adults aged ≥18 years hospitalized with acute respiratory illness (ARI). Consistent with a test-negative design, cases tested positive for influenza viruses by molecular or antigen test, and controls tested negative for influenza viruses and SARS-CoV-2. Vaccine effectiveness (VE) against influenza-associated hospitalization was calculated as (1 - adjusted odds ratio for vaccination) × 100%. RESULTS: Among 7690 patients, including 1170 influenza cases (33% vaccinated) and 6520 controls, VE was 40% (95% CI: 31%-48%) with varying estimates by age (18-49 years: 53% [34%-67%]; 50-64 years: 47% [31%-60%]; ≥65 years: 31% [16%-43%]). Protection was similar among immunocompetent patients (40% [30%-49%]) and immunocompromised patients (32% [7-50%]). VE was statistically significant against influenza B (67% [35%-84%]) and A(H1N1) (36% [21%-48%]) and crossed the null against A(H3N2) (19% [-8%-39%]). VE was higher for patients 14-60 days from vaccination (54% [40%-65%]) than >120 days (18% [-1%-33%]). CONCLUSIONS: During 2023-2024, influenza vaccination reduced the risk of influenza A(H1N1)- and influenza B-associated hospitalizations among adults; effectiveness was lower in patients vaccinated >120 days prior to illness onset compared with those vaccinated 14-60 days prior.

Infectious Diseases

Surie D, Yuengling KA, Safdar B, Ginde AA, Peltan ID, Brown SM, Gaglani M, Ghamande S, Gottlieb RL, Columbus C, Mohr NM, Gibbs KW, Hager DN, O'Rourke M, Gong MN, Mohamed A, Johnson NJ, Steingrub JS, Khan A, Duggal A, Wilson JG, Qadir N, Chang SY, Mallow C, Busse LW, Felzer J, Kwon JH, Exline MC, **Vaughn IA**, **Ramesh M**, Lauring AS, Martin ET, Mosier JM, Harris ES, Baughman A, Swan SA, Johnson CA, Blair PW, Lewis NM, Ellington S, Rutkowski RE, Zhu Y, Self WH, and Dawood FS. Patient- and Community-Level Characteristics Associated With Respiratory Syncytial Virus Vaccination. *JAMA Netw Open* 2025; 8(4):e252841. PMID: 40168024. Full Text

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IMPORTANCE: In 2023, the first respiratory syncytial virus (RSV) vaccines were recommended for US adults 60 years or older, but few data are available about which patients were most likely to receive vaccine to inform future RSV vaccine outreach efforts. OBJECTIVE: To assess patient- and community-level characteristics associated with RSV vaccine receipt and patient knowledge and attitudes related to RSV disease and RSV vaccines. DESIGN, SETTING, AND PARTICIPANTS: During the first season of RSV vaccine use from October 1, 2023, to April 30, 2024, adults 60 years or older hospitalized with RSV-negative acute respiratory illness were enrolled in this cross-sectional study from 26 hospitals in 20 US states. Sociodemographic and clinical data were abstracted from health records, and structured interviews were conducted for knowledge and attitudes about RSV disease and RSV vaccines. EXPOSURES: Age, sex, race and ethnicity, pulmonary disease, immunocompromised status, long-term care facility residence, medical insurance, social vulnerability index (SVI), and educational level. MAIN OUTCOMES AND MEASURES: The exposures were identified a priori as possible factors associated with RSV vaccine receipt and were entered into a modified Poisson regression model accounting for state clustering, to assess for association with RSV vaccine receipt. Knowledge and attitudes were summarized with frequencies and proportions. RESULTS: Among 6746 hospitalized adults 60 years or older, median age was 73 (IQR, 66-80) years and 3451 (51.2%) were female. Among the 6599 patients with self-reported race and ethnicity, 699 (10.6%) were Hispanic, 1288 (19.5%) were non-Hispanic Black, 4299 (65.1%) were non-Hispanic White, and 313 (4.7%) were other race or ethnicity. There were 700 RSV-vaccinated (10.4%) and 6046 unvaccinated (89.6%) adults. Among 3219 unvaccinated adults who responded to RSV knowledge questions, 1519 (47.2%) had not heard of RSV or were unsure; 2525 of 3218 (78.5%) were unsure if they were eligible for RSV vaccine or thought they were not. In adjusted analyses, characteristics associated with RSV vaccination were being 75 years or older (adjusted risk ratio [ARR], 1.23; 95% CI, 1.10-1.38, P < .001), being male (ARR, 1.15; 95% CI, 1.01-1.30; P = .04), and having pulmonary disease (ARR, 1.39; 95% CI, 1.16-1.67; P < .001), immunocompromised status (ARR, 1.30; 95% CI, 1.14-1.48; P < .001), low (ARR, 1.47; 95% CI, 1.18-1.83, P < .001) or moderate (ARR, 1.47; 95% CI, 1.21-1.79; P < .001) SVI, and educational level consisting of 4 or more years of college (ARR, 2.91; 95% CI, 2.14-3.96; P < .001), at least some college or technical training (ARR, 1.85; 95% CI, 1.35-2.53; P < .001), or grade 12 education or General Educational Development (ARR, 1.44; 95% CI, 1.03-2.00; P = .03). RSV vaccination was less likely among residents of long-term care facilities, patients with Medicaid coverage, and uninsured patients. CONCLUSIONS AND RELEVANCE: In this cross-sectional study of hospitalized adults, knowledge of RSV disease and RSV vaccine eligibility was low. Older adults

and those with certain medical conditions were more likely to have received vaccine, suggesting appropriate prioritization, but sociodemographic differences in vaccine uptake occurred.

Internal Medicine

Abusuliman M, **Dawod S**, **Nimri F**, **Jamali T**, **Jacobsen G**, **Khan MZ**, **Arwani R**, **Shamaa O**, **Ali SA**, **Alluri S**, **Youssef R**, **Saleem A**, **Alomari A**, **Faisal MS**, **Omeish H**, **Faisal MS**, Abusuliman A, **Singla S**, **Piraka C**, **Elatrache M**, and **Zuchelli T**. Predictive Factors of Post-ERCP Hepatic Decompensation in Patients with Cirrhosis: A Retrospective Case-Control Study. *Dig Dis Sci* 2025; Epub ahead of print. PMID: 40274678. Full Text

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BACKGROUND AND AIM: Endoscopic retrograde cholangiopancreatography (ERCP) is a crucial diagnostic and therapeutic procedure in patients with cirrhosis; however, it carries the risk of post-procedural hepatic decompensation. This study aims to identify predictive factors associated with post-ERCP hepatic decompensation in patients with cirrhosis to better inform clinical decision-making and minimize adverse outcomes. METHODS: A retrospective analysis was conducted on patients with cirrhosis undergoing ERCP. Clinical, biochemical, and procedural variables were evaluated to determine their association with hepatic decompensation. Multivariate analysis was performed to identify independent predictors. RESULTS: A total of 277 patients with cirrhosis who underwent an ERCP were included. The cohort had a mean age of 63.4 years, with a male predominance (65.3%) and various etiologies of cirrhosis, including alcohol-related (39.3%) and hepatitis C (11.4%). Post-ERCP complications occurred in 26.7% of patients. The most common complications were hepatic decompensation events (18.4%), sepsis (10.8%), and cholangitis (6.1%). Patients with complications had significantly higher baseline MELD scores, INR, chronic kidney disease (CKD) and history of ascites, hepatic encephalopathy, and hepatorenal syndrome (HRS). A Multivariate analysis revealed that factors such as higher MELD score, ascites, hepatic encephalopathy, and stent placement were associated with post-ERCP complications. Subgroup analyses indicated that patients who developed hepatic decompensation events (ascites, SBP, or HRS) had a more severe liver dysfunction at baseline, as reflected by a higher MELD score and INR, and prior episodes of ascites and hepatic encephalopathy. CONCLUSION: Pre-procedural liver function parameters and procedural factors are crucial predictors of post-ERCP hepatic decompensation in patients with cirrhosis. Key risk factors include higher MELD score, CKD, history of ascites, and hepatic encephalopathy. Careful pre-procedural evaluation and management are essential to reduce these risks.

Internal Medicine

Adjei Boakye E, **Nair M**, **Al-Antary N**, **Wilson C**, **Kerr K**, **Zatirka TM**, Hirko KA, **Elsiss F**, **Chang SS**, **Movsas B**, **Ryan M**, and **Tam S**. Exploratory analysis of electronic patient-reported outcomes collection: comparing online and in-clinic modalities in cancer care. *Qual Life Res* 2025; Epub ahead of print. PMID: 40237928. Full Text

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PURPOSE: Patient reported outcome measures (PROMs) have been shown to improve cancer survival but are generally underutilized in cancer care. It is unclear whether electronic-PROMS (ePROMs) modality (online vs. in-clinic) may address barriers to completion. We examined whether patient sociodemographic and clinical factors differed by completion modality. METHODS: Patients with cancer who had an oncologic provider visit from January 2021 to March 2023 at a tertiary cancer center were assigned the National Institute of Health's computer adaptive technology Patient-Reported Outcomes Measurement Information System instruments. Patients completed ePROMs either through online patient portal (online) up to 7 days before the visit or used a tablet at the clinic visit (in-clinic) if not completed online. Multivariable logistic regression model estimated associations between patient sociodemographic and clinical factors and completion modality. RESULTS: A total of 8556 patients completed ePROMs (43.3% completed in-clinic). Females were less likely than males to complete ePROMs in-clinic (aOR = 0.89, 0.84-0.93) as were patients with commercial insurance (aOR = 0.83, 0.77-0.89) vs. Medicare; or saw radiation oncologist (aOR = 0.89, 0.83-0.96) vs. medical oncologist. However, patients were more likely to complete ePROMs in-clinic if they identified as Black race (aOR = 1.41, 1.33-1.49) vs. White; were single (aOR = 1.21, 1.14-1.29) or divorced/separated/widowed (aOR = 1.11, 1.04-1.18) vs. married; or saw a provider located in rural (aOR = 1.33, 1.25-1.42) vs. urban area. CONCLUSIONS: Patients who were males, Blacks, unmarried, Medicare insured or saw providers located in rural area were more likely to complete ePROMs in-clinic. Given the preference for online completion before visits for real-time symptom monitoring, targeted efforts are needed to boost online PROMs completion. PLAIN MESSAGE: This is a cross-sectional analysis of the associations between sociodemographic and clinical factors with two electronic patient reported outcome measures completion modalities. The results indicate that about half of patients completed online and half completed in-clinic, with males, Blacks, patients who were divorced/separated/widowed, had Medicare insurance and saw a medical oncologist completing electronic patient reported outcome measures in-clinic. We support offering both options while addressing barriers to either modality.

Internal Medicine

Al-Antary N, **Tam S**, **Alzouhayli S**, **Zatirka TM**, **Ryan M**, **Chang SS**, **Movsas B**, and **Adjei Boakye E**. Interventions influencing patient-reported outcomes (PROs) response rates in cancer: a scoping review. *J Cancer Surviv* 2025; Epub ahead of print. PMID: 40234324. Full Text

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PURPOSE: Despite the emerging evidence around patient-reported outcome measures (PROMs) monitoring benefits in oncology, completion rates remain low due to numerous multi-level barriers. This

review summarizes existing literature on interventions employed to improve PROMs response rates in routine practice among patients with cancer. METHODS: PubMed database was used to perform a literature search of articles published between 2000 and 2022. Articles were included if they focused on PROMs implementation in non-clinical trial setting and reported results on methodologies and their influence on response rates. RESULTS: A total of 495 abstracts were screened for eligibility, and 14 articles that met the inclusion criteria were included. PROMs mode of administration varied between electronic only (four studies, 28.6%), paper only (two studies, 14.3%), electronic-paper (six studies, 42.9%), and electronic-telephone (two studies, 14.3%). Reminder systems, using electronic, paper, or in-person, were implemented in 12 studies (85.7%). Different strategies of initial recruitment, aiming to enhance patients' PROM engagements, were outlined in five studies (35.7%). CONCLUSION: Multiple interventions were implemented to improve PROMs completion rates. Mode of questionnaire administration, reminder systems, patient education on benefits of PROMs, and clinical staff involvement were shown to be effective in increasing the overall completion rate. IMPLICATIONS FOR CANCER SURVIVORS: This review provides a summary for researchers and clinicians on the current practice of PROMs implementation, thus creating a framework for the impact of different methodologies on patient's response rate for better monitoring of recurring symptoms, including long-term side effects, emotional distress, and changes in health-related quality of life.

Internal Medicine
Alsakarneh S, Al Ta'ani O, **Aburumman R**, Mikhail I, Hashash JG, and Farraye FA. Risk of De Novo Inflammatory Bowel Disease in Patients With Psoriasis and Psoriatic Arthritis Treated With IL-17A Inhibitors: A Population-Based Study. *Aliment Pharmacol Ther* 2025; Epub ahead of print. PMID: 40192577. Full Text

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IL-17 inhibitors effectively treat psoriasis and psoriatic arthritis but may increase the risk of inflammatory bowel disease (IBD). We assessed their association with IBD compared to apremilast. Utilising the TriNetX database, we analysed patients with psoriasis or ankylosing spondylitis initiating IL-17 inhibitors or apremilast. We used propensity score matching and Cox models to estimate IBD risk. Among 13,216 matched patients per group, 142 developed IBD with IL-17 inhibitors versus 60 with apremilast (aHR = 2.50, 95% CI: 1.85-3.39). IL-17 inhibitors increase IBD risk, necessitating careful patient selection and monitoring.

Internal Medicine
Drallmeier M, Grossmann M, and **Haftka-George A**. A Case of Systemic Lupus Erythematosus Complicated by Secondary Evans Syndrome. *Cureus* 2025; 17(3):e80959. PMID: 40255787. Full Text

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Evans syndrome (ES) is a condition that describes the development of multiple cytopenias, including autoimmune hemolytic anemia (AIHA), immune thrombocytopenia (ITP), and autoimmune neutropenia (AIN). ES can be idiopathic or caused by an underlying condition, known as secondary ES. While secondary ES is associated with increased morbidity and mortality, any diagnosis of ES confers a poor prognosis. In this case report, we describe a young male patient diagnosed with systemic lupus erythematosus (SLE) and secondary ES that was complicated by multiple relapses and subsequent infections, bleeding events, and thrombotic events that ultimately led to the passing of the patient.

Internal Medicine
Ellauzi R, and **Aronow HD**. Intravascular Ultrasound and Infrapopliteal Arterial Interventions: Helping the Blind Squirrel Find a Nut? *J Soc Cardiovasc Angiogr Interv* 2025; 4(3Part A):102561. PMID: 40231062. Full Text

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Internal Medicine
Mahmood A, Ang SP, **Qadeer YK**, Wang Z, Alam M, Jneid H, Sharma S, and Krittanawong C. Outcomes of Percutaneous Coronary Intervention in Nonagenarians in the United States. *Catheter Cardiovasc Interv* 2025; Epub ahead of print. PMID: 40241276. Full Text

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BACKGROUND: Although Percutaneous Coronary Intervention (PCI) is the cornerstone treatment acute myocardial infarction (AMI), its use in the elderly, specifically nonagenarians patients, is not well studied. This study sought to compare the outcomes and complications of nonagenarian patients who experienced AMI between those who underwent PCI and those who underwent medical treatment only. METHODS: We evaluated 301,440 nonagenarian (ages 90-99) patients who presented to the hospital with AMI who were listed in the National Inpatient Sample from 2016 to 2021. AMI was defined according to the ICD-10 Diagnostic Codes. Multivariable logistic regression analysis was used to examine the association of PCI with primary outcomes of mortality and secondary outcomes. The temporal trend of both the incidence of PCI in nonagenarian patients as well as the mortality rate between 2016 and 2021 were expressed as percentages over time. RESULTS: Of the total (n = 301,440) nonagenarian patients with AMI, 33,035 patients underwent PCI while 268,406 did not undergo PCI and rather, just utilized optimized medical therapy (OMT). Of these, 3290 (9.96%) died in the PCI group, and 43580 (16.24%) died in the OMT group. All of the secondary outcomes were significantly different between the PCI and OMT groups. Comparing the two groups, the PCI group was associated with decreased mortality (OR 0.63 [95% CI, 0.58-0.69]; $p < 0.001$), acute heart failure (OR 0.88 [95% CI, 0.82-0.95] $p < 0.001$), and AKI (OR 0.75 [95% CI, 0.70-0.79]; $p < 0.001$), and increased cardiogenic shock (OR 3.06 [95% CI, 2.77-3.38]. The temporal of PCI in nonagenarian patients showed an increase in frequency from about 8.3 in 2016 to about 13.7% in 2021. Furthermore, comparing the mortality between the PCI and OMT groups showed a significant difference with a decreased mortality in the PCI group. CONCLUSIONS: Nonagenarian patients experiencing AMI who underwent PCI is associated with a significant mortality decrease compared to those who underwent OMT only. The PCI group was also associated with a significant decrease in multiple secondary complications including acute heart failure, AKI, acute stroke, and an increase in cardiogenic shock. Temporally, we have seen an increase in PCI being used in nonagenarian patients over the interval.

Internal Medicine
Rackerby N, Ahn C, Ball BD, Samant S, Bernstein JS, and Bernstein JA. Evolving Paradigms Of Treatment Of Allergic And Non-Allergic Rhinitis. *Ann Allergy Asthma Immunol* 2025; Epub ahead of print. PMID: 40245980. Full Text

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Allergic rhinitis (AR) is a prevalent disease affecting approximately 15% of the US population which is about 50 million individuals. More broadly, it is estimated that 400-500 million people suffer with AR worldwide. Not surprisingly, AR has a significant impact on quality of life (QOL) due to increased fatigue, cognitive impairment, sleep disturbances, presenteeism or absenteeism, impairment of performance leading which all contributed to an increased cost burden to the medical system. Recent studies have identified social determinants of health including income level, age of migration from rural to urban areas or to high-income countries, and access to healthcare as important factors associated with the prevalence of allergic disease. However, up to 25% of individuals suffer from non-allergic rhinitis (NAR) triggered by mechanical, osmotic and chemical irritants and 50% suffer from mixed rhinitis (MR) characterized by allergic and non-allergic triggers. Uncontrolled chronic rhinitis subtypes have all been associated with asthma, eczema, chronic or recurrent sinusitis, cough, and both tension and migraine headaches. This review will address AR and NAR with a focus on evolving treatments in adults.

Internal Medicine
Saleem A, Shaikh AS, Overman M, Naik SA, Foo WC, Vilar E, Triadafilopoulos G, Raju GS, and Richards DM. Vanished! Auto-amputated Ileal Polyp in a Patient with Lynch Syndrome. *Dig Dis Sci* 2025; Epub ahead of print. PMID: 40266505. Full Text

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Internal Medicine
Schaefer JK, Errickson J, Kong X, Ali MA, Chipalkatti N, Haymart B, **Kaatz S**, **Krol GD**, Sood SL, Froehlich JB, and Barnes GD. A Comparison of Outcomes With Apixaban, Rivaroxaban, and Warfarin for Atrial Fibrillation and/or Venous Thromboembolism. *JACC Adv* 2025; 4(5):101714. PMID: 40286370. Full Text

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BACKGROUND: Apixaban and rivaroxaban are commonly used direct oral anticoagulants for atrial fibrillation (AF) and venous thromboembolism (VTE). Both have been compared to warfarin, but there are insufficient comparative outcome data. OBJECTIVES: The purpose of this study was to assess outcomes of apixaban, rivaroxaban, and warfarin. METHODS: This is a registry-based cohort study with data from 6 centers in Michigan, 2009 to 2023. Patients were adults with AF and/or VTE with at least 3 months of follow-up. Outcomes included rates of bleeding, thrombosis, healthcare utilization, and death. RESULTS: A total of 13,435 patients met the study inclusion criteria (average age 66.7 years, 58.0% on anticoagulation for AF, average follow-up 28.2 months). After matching, 2 groups of 3,527 patients on apixaban and warfarin were compared. Any bleeding was similar between groups, but major bleeding was less with apixaban. Thrombotic event rates were higher with apixaban. Mortality, rates of emergency room visits, and hospitalizations for bleeding were higher with warfarin. After matching, 1,395 patients on rivaroxaban were compared to 4,185 patients on warfarin. Any bleeding and major bleeding were higher with rivaroxaban. Thrombotic event rates were similar, aside from a higher rate of "other" thrombosis with rivaroxaban. After matching, 2 groups of 1,395 patients on apixaban and rivaroxaban were compared. Any bleeding, major bleeding, and mortality were higher with rivaroxaban. Thrombotic event rates were similar. CONCLUSIONS: For patients with AF and/or VTE, we observed that bleeding was highest with rivaroxaban, followed by warfarin, and then apixaban. Rates of thrombosis were higher with apixaban than with warfarin, largely driven by "other" thrombotic events.

Internal Medicine

Shahzil M, **Chaudhary AJ**, Sohail A, Haq K, **Khan MZ**, **Muszkat Y**, and **Jafri SM**. Managing pregnancy with long-term parenteral nutrition: A case report and review of the literature. *JPEN J Parenter Enteral Nutr* 2025; Epub ahead of print. PMID: 40170624. Full Text

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Parenteral nutrition (PN) is essential for patients with chronic intestinal failure but poses significant challenges during pregnancy because of increased nutrition needs and associated risks such as central line-associated bloodstream infections. We report a case of a 29-year-old primigravid woman with Crohn's disease who required chronic PN. Despite these complexities, her pregnancy was managed successfully with tailored PN adjustments. She developed intrahepatic cholestasis of pregnancy at 38 weeks and delivered a healthy, full-term newborn. Meticulous planning and individualized nutrition management are crucial in navigating the complexities of PN during pregnancy, demonstrating the potential for successful outcomes with strategic and personalized interventions.

Internal Medicine

Singal AG, Yang JD, Jalal PK, **Salgia R**, Mehta N, Hoteit MA, Kao K, Daher D, El Dahan KS, Hernandez P, Nayak A, Kim N, Pham S, Gamez J, Troost JP, and Parikh ND. Patient-perceived risk of HCC and net benefit of surveillance: A multi-center survey study. *Am J Gastroenterol* 2025; Epub ahead of print. PMID: 40267274. Full Text

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BACKGROUND: Hepatocellular carcinoma (HCC) surveillance is underused in clinical practice, and few contemporary data have assessed patients' perceptions of surveillance effectiveness and net benefit. METHODS: We conducted a survey study among adult patients with cirrhosis at 7 health systems in the United States. The survey was based on validated measures, when available, and assessed patient knowledge about HCC surveillance, attitudes regarding surveillance benefits and harms, perceived HCC risk, and trust in their doctors. RESULTS: Respondents (n=665; median age 60; 46.5% female) were knowledgeable about HCC surveillance, with no significant differences across sociodemographic groups; however, approximately 1 in 5 patients had knowledge gaps about the need and benefit of surveillance. Over three-fourths of patients believed surveillance improves early HCC detection (80.3%) and survival (77.9%). Whereas 74.0% of patients reported doctors had discussed surveillance benefits, only 54.2% recalled a discussion about potential harms. Patients placed greater importance on surveillance benefits but expressed harms should be measured when assessing the net benefit of surveillance programs. Based on a pictogram depicting current estimates for surveillance benefits and harms, 93.2% of patients chose to undergo surveillance, with no significant differences by race, perceived surveillance benefits, or fear of dying from HCC. Study limitations include response and non-response biases, which may result in an over-estimation for reported surveillance benefits and patient acceptance. CONCLUSION: Most patients with cirrhosis followed at academic health systems have high knowledge about HCC surveillance, believe it is beneficial, and express interest in undergoing surveillance after being counseled about the benefits and harms.

Internal Medicine

Spernovasilis N, **Ishak A**, Tsioutis C, Alon-Ellenbogen D, Agouridis AP, and Mazonakis N. Sulbactam for carbapenem-resistant Acinetobacter baumannii infections: a literature review. *JAC Antimicrob Resist* 2025; 7(2). PMID: 40224360. Full Text

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Carbapenem-resistant Acinetobacter baumannii (CRAB) is characterized as a critical priority pathogen with restricted therapeutic options. To date, the most effective antimicrobial treatment against this difficult-to-treat bacterial strain has not been established. Sulbactam is a β-lactamase inhibitor with intrinsic activity against this pathogen, however, as a β-lactam, it can be hydrolysed by β-lactamases produced by A. baumannii. High-dose, extended-infusion treatment with sulbactam can overcome this hydrolysis by β-lactamases and is considered an effective therapeutic strategy against CRAB. The aim of this review is to analyse primary and secondary research studies that compare sulbactam-based with other regimens, such as polymyxin-containing regimens, tigecycline-containing regimens and other antimicrobial combinations against CRAB infections, especially ventilator-associated pneumonia (VAP), hospital-acquired pneumonia (HAP) and bacteraemia. Our findings suggest that results are conflicting, mostly because of high heterogeneity among studies. However, in most studies, sulbactam-based regimens have demonstrated comparable, and in several studies more favourable results in contrast to other antimicrobial treatments with respect to clinical cure and mortality in CRAB-associated pneumonia, yet without reaching statistical significance in most cases. The auspicious novel β-lactam/β-lactamase inhibitor combination sulbactam/durlobactam is also discussed, although real-world clinical data regarding its efficacy in CRAB infections are still scarce. More randomized controlled trials comparing sulbactam-based with other regimens are warranted to determine the most effective antimicrobial combination against CRAB infections. Nevertheless, current data suggest that sulbactam could play a major role in this combination treatment.

Nephrology

Halloran PF, Chang J, Mackova M, Madill-Thomsen K, Akalin E, Alhamad T, Anand S, Arnol M, Baliga R, Banasik M, Blosser C, Böhmig G, Brennan D, Bromberg J, Budde K, Chamienia A, Chow K, Ciszek M, de Freitas D, Dęborska-Materkowska D, Debska-Ślizień A, Djamali A, Domański L, Durlik M, Einecke G, Eskandary F, Fatica R, **Francis I**, Fryc J, Gill J, Gill J, Glyda M, Gourishankar S, Gryczman M, Gupta G, Hruba P, Hughes P, Jittirat A, Jurekovic Z, Kamal L, Kamel M, Kant S, Kojc N, Konopa J, Lan J, Mannon R, Matas A, Mazurkiewicz J, Miglinas M, Mueller T, Myślak M, Narins S, Naumnik B, **Patel A**, Perkowska-Ptasińska A, Picton M, Piecha G, Poggio E, Rajnochová Bloudíčková S, Schachtner T, Shojai S, Sikosana M, Slatinská J, Smykal-Jankowiak K, Veceric Haler Ž, Viklicky O, Vucur K, Weir MR, Wiecek A, Włodarczyk Z, Yang H, Zaky Z, Gauthier PT, and Hinze C. The role of epithelial cell injury in kidney transplant outcomes - a cross-sectional study. *JCI Insight* 2025; Epub ahead of print. PMID: 40232852.
Full Text

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University of Alabama at Birmingham, Birmingham, United States of America.
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We defined injury-induced transcriptome states in 4502 kidney transplant biopsies taken 1 day to 45 years post-transplant using genome-wide microarrays. Injury was measured by injury-induced gene sets and classifiers previously developed in transplants. In principal component analysis, PC1 correlated with both acute and chronic kidney injury and related inflammation, and PC2 with time post-transplant. PC3

was a novel dimension that correlated with epithelial remodeling pathways. Both PC1 and PC3 correlated with reduced survival, PC1 effects strongly increasing with time whereas PC3 effects being time-independent. In this model, we studied the expression of genes annotated in native kidneys in epithelial cells with failed repair: 12 "New" gene sets previously defined in single nucleus RNA sequencing of native kidneys with AKI (Genome Med.14(1):103). The "New4" gene sets reflecting epithelial-mesenchymal transition (EMT) correlated with injury PC1, lower eGFR, higher donor age, and future failure as strongly as any gene sets previously derived in transplants, independent of nephron segment of origin and graft rejection. These results suggest that there are two distinct dimensions in kidney transplant response to injury: PC1, AKI-induced changes, failed repair, and inflammation; and PC3, a response involving epithelial remodeling without inflammation. Increasing kidney age amplifies PC1 and particularly PC3.

Neurology

Aboul-Nour H, Jumah A, Mohamed G, **Albanna AJ**, Alsrouji OK, **Schultz L**, **Latack K**, **Miller J**, Uddin K, **Gunaga S**, **Muir J**, **Chebl A**, and **Ramadan AR**. Fibrinogen depletion and the risk of intracerebral hemorrhage following endovascular mechanical thrombectomy. *Interv Neuroradiol* 2025; Epub ahead of print. PMID: 40296708. Full Text

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BackgroundIntravenous thrombolysis (IVT) and mechanical thrombectomy (MT) are the standard of care for select stroke patients with acute large vessel occlusion (LVO). Fibrinogen levels may drop after IVT, and a significant decrease in fibrinogen is associated with an increased risk of intracranial hemorrhage (ICH). Our pilot study aimed to explore the relationship between fibrinogen levels and the development of ICH in MT-treated patients and whether bridging with IVT further increases that risk.MethodsThis is a prospective pilot study that enrolled adults presenting with a diagnosis of LVO stroke and eligible to receive MT with or without IVT between April 2020 and May 2023. Fibrinogen levels were drawn before treatment with IVT or MT and immediately following MT.ResultsForty-one patients were enrolled. Median age was 68 years [interquartile range 56-79], 58.5% were females and 56.1% were black. Nineteen patients (46.3%) were treated with MT + IVT, and 22 (53.6%) were treated with MT-only. There was no difference in baseline characteristics between the two groups. Baseline fibrinogen levels were similar between MT + IVT and MT-only groups [391 vs. 352 mg/dL, $p = 0.4$]. Post MT, the MT + IVT group had lower fibrinogen levels compared to the MT-only group [224 vs. 303 mg/dL, $p < 0.001$]. Similarly, there was a significant change between baseline and follow-up levels in the MT + IVT vs. MT-only group [106 vs. 39.5 mg/dL, $p = 0.001$]. Eight patients (19.5%) developed ICH; 5 (26.3%) in the MT + IVT group and 3 (13.6%) in the MT-only group. No significant differences were seen in baseline, follow-up, or change in fibrinogen levels between patients who developed ICH and those who did not. However, when stratified by treatment group, postintervention fibrinogen levels were significantly lower in patients who developed an ICH in the MT + IVT group compared to those without ICH in the MT group (200 vs. 301 mg/dL, $p = 0.006$). There was also a negative correlation between the change in fibrinogen levels and the rate of first-pass recanalization (Spearman CC -0.33, $p = 0.03$).ConclusionThis pilot study's preliminary data showed an association between fibrinogen depletion and hemorrhagic transformation in MT-treated patients. Since intracerebral hemorrhage is the most dire side effect in stroke treatment, fibrinogen monitoring in patients undergoing MT after IVT may help identify patients with an increased risk of ICH.

Larger, prospective, and multicenter studies are needed to confirm these findings and if fibrinogen repletion should be considered for dysfibrinogenemia.

Neurology
Brown NJ, Patel S, **Reardon TK**, Rogers JL, and Gendreau JL. Operative considerations for resection of pituitary adenoma in patients with sickle cell disease: A retrospective analysis of 19,653 patients. *Surg Neurol Int* 2025; 16:100. PMID: 40206761. Full Text

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BACKGROUND: Sickle cell disease (SCD) is a hemoglobinopathy that affects over 30 million individuals worldwide. When significant "sickling" occurs, blood flow to specific organs can be impaired, resulting in ischemia or infarction. This can be problematic during intracranial surgery, in which low systemic circulatory volume due to significant blood loss can lead to intracranial hypotension. Using a multivariable modeling approach, we gathered a large patient dataset through a nationally representative database to inform future neurosurgical management of patients with concurrent SCD and pituitary adenoma. METHODS: We queried the Healthcare Cost and Utilization Project Nationwide Readmissions Database and implemented discharge weighting to identify a cohort of SCD patients who had undergone surgical resection of pituitary adenoma between 2015 and 2016. Variables investigated included patient age, sex, length of stay, postoperative complications and outcomes, payment methods, and median income, among several others. RESULTS: Retrospective analysis identified 19,612 non-sickle cell patients (NSCP) and 41 SCD patients. Complication profiles for the SCD cohort demonstrated significantly higher rates of postoperative pulmonary embolism (P = 0.042) and pneumonia (P = 0.005) compared to those of the NSCP cohort. In addition, the SCD cohort trended toward higher rates of readmission (15.25% vs. 9.76%) and deep vein thrombosis, although neither achieved statistical significance (P = 0.45 and 0.07, respectively). CONCLUSION: SCD is a severe disorder that affects many individuals worldwide and represents a significant risk factor for complications and adverse outcomes in pituitary adenoma surgery. Further research is needed to explore SCD as a risk factor in pituitary surgery and the role it may play in perioperative complications.

Neurology
Fana M, **Sanmugananthan P**, **Santangelo G**, **Kole M**, **Chebl AB**, and **Marin H**. Functional outcomes reporting using an adjusted outcomes index for mechanical thrombectomy in anterior cerebral artery occlusions – A case series. *Interdiscip Neurosurg* 2025; 40. PMID: Not assigned. Full Text

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Introduction: The decision to intervene with mechanical thrombectomy (MT) for anterior cerebral artery (ACA) strokes is often made based on anticipated long-term functional outcomes using modified Rankin scores (mRS) which is primarily based on ambulatory status. Here, we review our single-center experience with ACA MT and evaluate the utility of various functional outcomes reporting. Methods: A case series of 15 patients undergone MT for ACA stroke using the Solitaire or Trevo stent-retrievers was completed. The data retrieved included patient demographics, initial National Institute of Health Stroke Scale (NIHSS), thrombolysis in cerebral infarction (TICI) scores and number of passes, post-procedure 24-hour NIHSS, intra-operative or post-operative complications, discharge NIHSS and mRS, and 90-day mRS. Results: There were 87 % favorable ACA TICI scores (i.e. 2B/C and 3) and 80 % first pass recanalization rate. The Solitaire 4 mm stent-retriever was employed in the majority of cases (60 %). No procedural complications were noted in 73 % of cases and no hemorrhagic conversion in 87 % of cases. 90-day mRS scores of 0–2 were noted in 26 % of patients. Using an adjusted outcomes index, 80 % of patients had favorable outcomes based on the 24-hour baseline-adjusted NIHSS score decrease of ≥41

%. Conclusion: Our preliminary findings here highlight successful radiographic and favorable functional outcomes using the Solitaire and Trevo stent-retrievers (3–6 mm luminal diameter) for ACA MT when reporting with the adjusted outcomes index as compared to the 90-day mRS score. Further studies comparing these outcomes reporting metrics with a larger sample size will be needed to further elucidate this notable difference.

Neurology

Maghfour J, Mineroff J, **Ozog DM**, Jagdeo J, **Lim HW**, **Kohli I**, Anderson R, Kelly C, Mamalis A, Munavalli G, Cleber F, Siegel D, Geneva I, Weiss R, Morita A, Juanita A, Goldman MP, Arany PR, Sliney D, Ibrahimi OA, **Chopp M**, Esmat S, and Tuner J. Evidence-Based Consensus on the clinical application of Photobiomodulation. *J Am Acad Dermatol* 2025; Epub ahead of print. PMID: 40253006. Full Text

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BACKGROUND: There is a lack of evidence-based consensus to assist clinicians in using photobiomodulation(PBM). OBJECTIVE: To create a consensus on the safe and effective use of PBM. METHODS: A systematic literature review of Embase, and MEDLINE was conducted in June of 2022 to identify publications reporting research on PBM. An international multidisciplinary panel was convened to draft recommendations informed by the systematic search; they were refined through 2 rounds of Delphi survey, 2 consensus meetings, and iterative review by all panelists until unanimous consensus was achieved. RESULTS: A multidisciplinary panel of experts(n=21) was assembled based on publication history. The key findings that informed the consensus developed by the expert panel were as follows: PBM is a safe treatment modality for adult patients and red light PBM does not induce DNA damage.

PBM is an effective treatment option for peripheral neuropathy, androgenic alopecia, wound ulcers due to multiple etiologies, decubitus ulcers, pain attributed to diabetic foot ulcers,and acute radiation dermatitis. CONCLUSION: The systematic literature search and structured Delphi consensus approach culminated in an evidence-based clinical practice guideline for safe and effective use of PBM in medical and aesthetic applications. Future research will further bolster our understanding of this evolving non-invasive technique.

Neurology
Schneck D, Arguedas A, Xenopoulos-Oddsson A, **Arcila-Londono X**, Lunetta C, Wymer J, Olney N, Gwathmey K, Ajroud-Driss S, Hayat G, Heiman-Patterson T, Cerri F, Fournier C, Glass J, Sherman A, Fiecas M, and Walk D. Time-to-event prediction in ALS using a landmark modeling approach, using the ALS Natural History Consortium dataset. *Amyotroph Lateral Scler Frontotemporal Degener* 2025; 1-9. Epub ahead of print. PMID: 40170672. Full Text

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BACKGROUND AND OBJECTIVES: Times to clinically relevant events are a valuable outcome in observational and interventional studies, complementing linear outcomes such as functional rating scales and biomarkers. In ALS, there are several clinically relevant events. We developed dynamic prediction models for several of these times to events that can be used for clinical trial modeling and personal planning. METHODS: Landmark time-to-event analysis was implemented to determine the effect of patient characteristics on disease progression. Longitudinal data from 1557 participants in the ALS Natural History Consortium dataset were used. Five outcomes in the ALS disease progression were considered: loss of ambulation, loss of speech, gastrostomy, noninvasive ventilation (NIV) use, and continuous NIV use. Covariates in our models include age at diagnosis, sex, onset location, riluzole use, diagnostic delay, ALSFRS-R scores at the landmark time, and ALSFRS-R rates of change from baseline. Internal and external validation techniques were used. RESULTS: For each of our models and landmark times, we present risk prediction intervals for random sets of patient characteristics. We demonstrate our models' application for an individual's personal predicted time-to-event. Our internal and external validation metrics indicate good concordance and overall performance. The time to loss of speech models perform the best for each metric in terms of both internal and external validation. DISCUSSION: Landmarking is an efficient, individualized risk prediction model that is intuitive for both clinicians and patients. Importantly, landmarking can be used for clinical trial modeling, personal planning, and development of real-world evidence of the impacts of treatment interventions.

Neurology
Varelas PN, **Lopez-Plaza I**, Ata A, **Rehman MF**, **Mehta C**, **Ramadan R**, and Zisimopoulou V. Longitudinal Improvement in Respiratory Function Following Plasma Exchange in Patients with Severe Myasthenia Gravis. *Neurocrit Care* 2025; Epub ahead of print. PMID: 40180670. Full Text

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BACKGROUND: There are no data on the effect size and timing of plasma exchange (PLEX) in patients with myasthenic crisis (MC). METHODS: We retrospectively analyzed measurements of forced vital capacity (FVC) and negative inspiratory force (NIF) in the days before and after PLEX (administered every other day) in patients with MC admitted to a tertiary hospital over 4 years. For multiple measurements in one day, the average value was used. The day immediately before the first treatment with PLEX was considered baseline. Using time as a continuous or categorical variable in mixed-effects multiple linear regressions, we estimated predicted values for these tests. RESULTS: Twenty-two patients (mean age 67.3 years, 51.9% male patients) with 27 MC episodes and 508 measurements (234 FVC and 274 NIF; from 5 days before to 20 days after PLEX) were included. Presence of antibodies was detected in 70.4%. Intubation and mechanical ventilation occurred in 36.6% of patients. The mean number of PLEX was 5.1 (range 3-11). NIF values decreased before the first PLEX but increased after by on average 1 cm H(2)O/day (95% confidence interval [CI] 0.68-1.32, $p < 0.001$). FVC fluctuated before the first PLEX but then increased by on average 51.2 mL/day (95% CI 35.8-66.1, $p < 0.001$). The maximum increase in NIF occurred during the day of the first PLEX (9.2 cm H(2)O, 95% CI 3.3-15.1, $p = 0.002$) and rather slowed after day 10. FVC increase compared to baseline became significant the second day after the first PLEX (287 mL, 95% CI 7.5-567.6, $p = 0.04$) and continued overall to increase (with fluctuations) up to day 17. CONCLUSIONS: Significant increases in bedside respiratory measurements are observed as soon as the first PLEX day but with more variability on FVC than NIF, which may either reflect more FVC technique inconsistencies or more consistent effect of the treatment on NIF.

Neurology

Zahoor I, **Mir S**, and **Giri S**. Profiling Blood-Based Neural Biomarkers and Cytokines in Experimental Autoimmune Encephalomyelitis Model of Multiple Sclerosis Using Single-Molecule Array Technology. *Int J Mol Sci* 2025; 26(7). PMID: 40244087. Full Text

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Experimental autoimmune encephalomyelitis (EAE) is a preclinical animal model widely used to study multiple sclerosis (MS). Blood-based analytes, including cytokines and neural biomarkers are the predictors of neurodegeneration, disease activity, and disability in patients with MS. However, understudied confounding factors cause variation in reports on EAE across animal strains/studies, limiting the utility of these biomarkers for predicting disease activity. In this study, we investigated blood-based analyte profiles, including neural markers (NFL and GFAP) and cytokines (IL-6, IL-17, IL-12p70, IL-10, and TNF-α), in two clinically distinct EAE models: relapsing-remitting (RR)-EAE and chronic-EAE. Ultrasensitive single-molecule array technology (SIMOA, Quanterix) was used to profile the analytes in the blood plasma of mice at the acute, chronic, and progressive phases of disease. In both models, NFL was substantially increased during post-disease onset across all phases, with a pronounced increase observed in chronic-EAE. The leakage of GFAP into peripheral blood was also greater after disease onset in both EAE models, especially in the acute phase of chronic-EAE. Among all cytokines, only IL-10 had consistently lower levels in both EAE models throughout the course of disease. This study suggests NFL, GFAP, and IL-10 as potential translational predictors of disease activity in EAE, making them potential candidates as surrogate markers for the preclinical testing of therapeutic interventions in animal models of MS.

Neurosurgery

Andersen MS, Nielsen AY, Wirenfeldt M, Petersen JK, Møller MW, **Powell CL**, **Castro A**, **Herrgott G**, Mathiesen T, Poulsen CA, Olsen BB, Boldt HB, Pedersen CB, Halle B, and Poulsen FR. Establishment of a patient-derived 3D in vitro meningioma model in xeno-free hydrogel for clinical applications. *Acta Neuropathol Commun* 2025; 13(1):81. PMID: 40269981. Full Text

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BACKGROUND: Meningiomas exhibit a complex biology that, despite notable successes in preclinical studies, contributes to the failures of pharmaceutical clinical trials. Animal models using patient tumor cells closely mimic in vivo conditions but are labor-intensive, costly, and unsuitable for high-throughput pharmaceutical testing. In comparison, monolayer cell models (two-dimensional, 2D) are cost-efficient but lack primary tumor cell-cell interactions, potentially overestimating treatment effects. Three-dimensional (3D) models offer an alternative through more precise mimicking of tumor morphology and physiology than 2D models and are less costly than in vivo methods. Here, we aimed to establish a 3D cell model in a solid xeno-free medium using patient-derived tumors, thus creating a bench-to-clinic pathway for personalized pharmaceutical testing. METHODS: Four WHO grade 1 and one WHO grade 2 (third-passage, fresh) and 12 WHO grade 1 patient-derived meningioma cells (sixth-passage, frozen) and the malignant IOMM-Lee cell line were used to establish 2D and 3D models. The 3D model was developed using a solid xeno-free medium. After 3 months for the primary tumor and 13 days for the IOMM-Lee cell line, the 3D models were extracted and assessed using histology, immunohistochemistry, and epigenetic analyses (EPICv2 array) on five pairs to evaluate their structural fidelity, cellular composition, and epigenetic landscape compared to the original tumor. RESULTS: None of the frozen samples successfully generated 3D models. Models from fresh meningioma samples were more immunohistochemically similar to the primary tumors compared to 2D models, particularly regarding proliferation. 3D models displayed loss of fibrous tissue. All 3D models had similar copy number variation profiles, visually. Genome-wide DNA methylation level patterns were similar between pairs of 3D models and primary tumors. Correlation plots between CpG methylation levels showed high congruency between primary meningiomas and their corresponding 3D models for all samples ($R > 0.95$). CONCLUSIONS: Our patient-derived 3D meningioma models closely mimicked primary tumors in terms of cell morphology, immunohistochemical markers and genome-wide DNA methylation patterns, providing a cost-effective and accessible alternative to in vivo models. This approach has the potential to facilitate personalized treatment strategies for patients requiring additional therapy beyond surgery.

Neurosurgery
Asogwa OA, Dirven L, **Walbert T**, Armstrong TS, Arons D, van den Bent MJ, Blakeley J, Coomans MB, Brown PD, Bulbeck H, Chang SM, Coens C, Gilbert MR, Grant R, Jalali R, Koekkoek JAF, Panda PK, Leach D, Leeper H, Mendoza T, Nayak L, Oliver K, Reijneveld JC, Le Rhun E, Rubinstein L, Taylor JW, Weller M, Wen PY, and Taphoorn MJB. Establishing the content validity of Patient-Reported Outcome measures used in neuro-oncology based on the WHO ICF framework: part of the RANO-PRO initiative. *Neuro Oncol* 2025; Epub ahead of print. PMID: 40293144. Full Text

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BACKGROUND: Instruments to assess patient-reported outcomes (PRO) should generate high-quality evidence. Reliable PRO evidence is essential to policymakers, in conjunction with outcomes such as survival and radiological response, to understand the net clinical benefit of antitumor treatments. This study aimed to establish the content validity of 215 identified PRO measures used in patients with brain tumors. METHODS: A survey (n = 148 items) was developed reflecting aspects of the WHO International Classification of Functioning, Disability, and Health (ICF) framework. Patients with brain tumors, their proxies, and healthcare providers (HCPs) were asked to rate each survey item on relevance. An item was considered a relevant issue if ≥25% of the patients, proxies, or ≥50% of the HCPs considered that item to be an issue. Next, all items in the identified PRO measures were linked to ICF and relevant items in the survey, and the percentage of content coverage was calculated. RESULTS: In total, 114 patients, 71 proxies, and 65 HCPs from different countries completed the survey. Fifty-six of 148 (37.8%) items in the survey were considered relevant. The most important aspects mentioned by both patients and proxies were difficulty concentrating, difficulty remembering, multitasking, and handling stress. Depending on the definition, between 35% and 49% of PRO measures were considered to have sufficient content validity (≥80% coverage). CONCLUSION: The content validity was insufficient in more than half of the identified PRO measures, particularly multidimensional measures. Future research should investigate whether different approaches to PRO assessment better meet the needs of all stakeholders.

Neurosurgery
Fana M, **Sanmugananthan P**, **Santangelo G**, **Kole M**, **Chebl AB**, and **Marin H**. Functional outcomes reporting using an adjusted outcomes index for mechanical thrombectomy in anterior cerebral artery occlusions – A case series. *Interdiscip Neurosurg* 2025; 40. PMID: Not assigned. Full Text

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Introduction: The decision to intervene with mechanical thrombectomy (MT) for anterior cerebral artery (ACA) strokes is often made based on anticipated long-term functional outcomes using modified Rankin scores (mRS) which is primarily based on ambulatory status. Here, we review our single-center experience with ACA MT and evaluate the utility of various functional outcomes reporting. Methods: A case series of 15 patients undergone MT for ACA stroke using the Solitaire or Trevo stent-retrievers was completed. The data retrieved included patient demographics, initial National Institute of Health Stroke Scale (NIHSS), thrombolysis in cerebral infarction (TICI) scores and number of passes, post-procedure 24-hour NIHSS, intra-operative or post-operative complications, discharge NIHSS and mRS, and 90-day mRS. Results: There were 87 % favorable ACA TICI scores (i.e. 2B/C and 3) and 80 % first pass recanalization rate. The Solitaire 4 mm stent-retriever was employed in the majority of cases (60 %). No procedural complications were noted in 73 % of cases and no hemorrhagic conversion in 87 % of cases. 90-day mRS scores of 0–2 were noted in 26 % of patients. Using an adjusted outcomes index, 80 % of patients had favorable outcomes based on the 24-hour baseline-adjusted NIHSS score decrease of ≥41 %. Conclusion: Our preliminary findings here highlight successful radiographic and favorable functional outcomes using the Solitaire and Trevo stent-retrievers (3–6 mm luminal diameter) for ACA MT when reporting with the adjusted outcomes index as compared to the 90-day mRS score. Further studies comparing these outcomes reporting metrics with a larger sample size will be needed to further elucidate this notable difference.

Neurosurgery

Kim E, Kagithala D, **Hu J**, **Jarabek K**, Brennan M, **Chaker AN**, **Pawloski J**, **Telemi E**, **Mansour T**, Robles MC, **Fadel HA**, **Springer K**, **Schultz L**, **Nerenz DR**, **Khalil JG**, Easton R, Perez-Cruet M, Aleem I, Park P, Soo T, Tong D, **Abdulhak M**, **Schwalb JM**, and **Chang V**. Risk Factors of Long-Term Opioid Use After Elective Cervical and Lumbar Spine Surgery: A Michigan Spine Surgery Improvement Collaborative Study. *Neurosurgery* 2025; Epub ahead of print. PMID: 40243311. Full Text

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BACKGROUND AND OBJECTIVES: Given the current opioid epidemic and its impact on public health, long-term opioid use after elective spine surgery is a significant concern. Identifying risk factors of long-term opioid use after spine surgery is crucial for developing effective interventions to reduce opioid dependence in this patient population. The objective of this study was to identify risk factors associated with long-term opioid use after elective lumbar and cervical spine surgeries. METHODS: A retrospective analysis of patient data was conducted using the Michigan Spine Surgery Improvement Collaborative data registry. Patients who underwent elective lumbar or cervical spine surgery between March 2018 and September 2021 were included. Poisson generalized estimating equation models were used for multivariate analyses. RESULTS: A total of 5301 and 3992 lumbar surgery patients at 1 and 2 years, respectively, and a total of 2074 and 1451 cervical surgery patients at 1 and 2 years, respectively, were included for analysis. Preoperative opioid use, opioid use at 90 days postoperatively, and poor functional status were the strongest predictors of long-term opioid use. Among all patients, preoperative opioid use most strongly predicted long-term use at 1 and 2 years for lumbar and cervical patients. Among opioid-naïve patients (preoperative nonusers), opioid use at 90 days postoperatively strongly predicted continued use at 1 and 2 years in both lumbar and cervical patients. The inability to achieve a minimal clinically important difference in Patient-Reported Outcomes Measurement Information System physical function was also associated with opioid use at 1-year and 2-year follow-up in lumbar and cervical

patients. CONCLUSION: Preoperative opioid use, opioid use at 90 days postoperatively, and failure to reach minimal clinically important difference of Patient-Reported Outcomes Measurement Information System Physical Function were the strongest predictors of long-term opioid use after elective lumbar and cervical spine surgeries.

Neurosurgery

Kołodziejczak-Guglas I, Simões RLS, de Souza Santos E, Demicco EG, Lazcano Segura RN, Ma W, Wang P, Geffen Y, Storrs E, Petralia F, Colaprico A, da Veiga Leprevost F, Pugliese P, Ceccarelli M, **Noushmehr H**, Nesvizhskii AI, Kamińska B, Priebe W, Lubiński J, Zhang B, Lazar AJ, Kurzawa P, Mesri M, Robles AI, Ding L, Malta TM, and Wiznerowicz M. Proteomic-based stemness score measures oncogenic dedifferentiation and enables the identification of druggable targets. *Cell Genom* 2025; 100851. Epub ahead of print. PMID: 40250426. Full Text

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Cancer progression and therapeutic resistance are closely linked to a stemness phenotype. Here, we introduce a protein-expression-based stemness index (PROTsi) to evaluate oncogenic dedifferentiation in relation to histopathology, molecular features, and clinical outcomes. Utilizing datasets from the Clinical Proteomic Tumor Analysis Consortium across 11 tumor types, we validate PROTsi's effectiveness in accurately quantifying stem-like features. Through integration of PROTsi with multi-omics, including protein post-translational modifications, we identify molecular features associated with stemness and proteins that act as active nodes within transcriptional networks, driving tumor aggressiveness. Proteins highly correlated with stemness were identified as potential drug targets, both shared and tumor specific. These stemness-associated proteins demonstrate predictive value for clinical outcomes, as confirmed by immunohistochemistry in multiple samples. The findings emphasize PROTsi's efficacy as a valuable tool for selecting predictive protein targets, a crucial step in customizing anti-cancer therapy and advancing the clinical development of cures for cancer patients.

Neurosurgery

Wen PY, Manzanera A, Duault C, Gonzalez-Kozlova E, Lopez L, Grossman SA, Ye X, Fisher J, **Lee I**, **Walbert T**, **Snyder J**, Brem S, Desai A, Bagley SJ, Kakani C, Strowd R, Tatter S, Laxton A, Lesser G, Amankulor N, Lieberman F, Drappatz J, Mantica M, Triggs D, Haymaker C, Wistuba, II, Al-Atrash G, Mendoza Perez J, Futreal A, Little LD, Islam MDH, Duose D, Jiang P, Reuben A, Lawler SE, Pichavant M, Gentles A, Bendall S, Kong A, Camacho C, Del Valle D, Kim-Schulze S, Gnjatic S, Sharon E, Nowicki MO, Peruzzi P, Lane D, Aguilar-Cordova E, Aguilar LK, Nichols G, Dwyer J, Tak PP, Maecker H, Barone F, and Chiocca EA. A multi-institutional phase 1 clinical trial exploring upfront multimodal standard of care and combined immunotherapies for newly diagnosed glioblastoma. *Neuro Oncol* 2025; Epub ahead of print. PMID: 40120123. Full Text

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BACKGROUND: For newly diagnosed glioblastoma (GBM), combination of surgical upfront immunotherapy with aglatimagene besadenovec (CAN-2409), followed by chemoradiation and then adjuvant nivolumab has not been tested. The aim of this study was to test the safety of this regimen and determine metrics of immune activation that may correlate with clinical outcomes. METHODS: 41 patients with suspected newly diagnosed GBM by imaging were enrolled in this multi-institutional, open label, phase 1b clinical trial before surgical resection. Frozen section confirmation of high-grade glioma was required for administration of aglatimagene besadenovec. This was then followed with chemoradiation and adjuvant nivolumab. Tumor and blood were assayed for genetic and immune markers before and during treatment. RESULTS: The regimen was well tolerated and generated measurable immune activation. Factors linked to survival were identified, such as baseline mutated gene pairs (e.g. MED15/

HRC), tumor immune cell composition, and changes in systemic cytokine, immune cells, and T cell diversity. The most significant serial systemic immune changes were observed in a long-term survivor subset of patients with gross total resection (GTR)/ methylated methylguanine methyltransferase (MGMT) promoter tumors. Median overall survival (mOS) in these patients was 30.6 months, while it was less for patients with unmethylated or subtotal resections. CONCLUSIONS: These findings suggest the opportunity for patient stratification and the potential for more durable antitumor immune responses in future clinical trials of this multimodal standard of care and combined immunotherapy regimen. ClinicalTrials.gov identifier: NCT03576612.

Nursing

Ezell GJ, **Smith N**, **Condon M**, **Joyce K**, **Joseph J**, **Springer K**, and **Pitts DAS**. Time to Diagnosis and Treatment of Postpartum Hypertensive Disorders in the Emergency Department—A Single Retrospective Cohort Study. *Reprod Med* 2025; 6(1):2. PMID: Not assigned. Full Text

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Background/Objectives: In the postpartum period, approximately 12% of patients seek care in the emergency department (ED), with a higher representation of Black patients. Hypertension is a common reason for ED visits during this period, often leading to dangerously delayed diagnosis and treatment. Objective: This study aims to assess the time to diagnosis and treatment of hypertensive disorders in the postpartum period in the ED, focusing on potential disparities in care, to identify areas for quality improvement. Design: Retrospective cohort study. Setting: A multi-centered large medical institution in the metro Detroit area. Methods: Postpartum patients (day 2 through day 28) presenting to the ED from November 2015 to December 2022. Exposures: none. Main Outcome Measures: Primary analysis assessed the time elapsed between severe-range blood pressure readings (greater than/equal to 160 systolic and/or 110 diastolic) and the administration of antihypertensives. Secondary analyses assessed the presence of essential laboratory workups such as complete blood counts, complete metabolic panels, and urine protein and creatinine. Results: Among the 430 women who presented to the ED during the postpartum period with hypertension, 372 (86.5%) exhibited severe-range blood pressure (greater than/equal to 160 systolic and/or 110 diastolic). Patients presented on average on postpartum day 6. Of the patients with severe hypertension, only 72% received a complete blood count, 66% underwent evaluation of creatinine and liver profile, and 4% had a urine protein and creatinine test ordered. The average time from severe-range blood pressure reading to antihypertensive administration was 189 min for Black patients and 370 min for White patients. There were no statistically significant differences in the time of the first blood pressure reading, laboratory evaluation, or treatment of severe-range blood pressure between racial groups. Conclusions: This study identifies the most significant area for improvement in the timely administration of antihypertensive medication following severe-range blood pressure readings. Additional areas for improvement were observed in ordering essential laboratory tests to assess the severity of preeclampsia. The institution demonstrated delayed yet equitable care for White and Black patients, contrary to the existing literature indicating potential racial disparities. A targeted quality improvement plan has been implemented to improve the identified areas of concern to adhere to the ACOG's treatment recommendations for hypertensive disorders of pregnancy. The impact on patient care will be reassessed at the 1-year mark.

Nursing

Saravanan A, **Strickland N**, Booker SQ, Pervis B, Singh N, and Wilson M. Pain, Anger, and Aggression: A Complex Interplay of Symptoms, Social Factors, and Behaviors. *Pain Manag Nurs* 2025; 26(2):127-130. PMID: 40159018. Full Text

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Nursing

Trojand T, **Morgan J**, and **Shamoun CJ**. Using the Modified Minnesota Detoxification Scale to Evaluate Alcohol Withdrawal Syndrome: An Integrative Review. *Crit Care Nurse* 2025; 45(2):60-68. PMID: 40168010. Full Text

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BACKGROUND: Alcohol use disorder in the United States is increasing. Alcohol is the second most commonly abused drug worldwide, resulting in acute hospitalizations related to alcohol use and alcohol withdrawal syndrome. Management of alcohol withdrawal syndrome relies on screening tools to determine the need for treatment. The most commonly used tool is the Clinical Institute Withdrawal Assessment for Alcohol Scale-Revised (CIWA-Ar), which has not been validated for use in critical care units. OBJECTIVE: To evaluate whether the modified Minnesota Detoxification Scale (mMINDS) is more effective than the CIWA-Ar for evaluating acute withdrawal symptoms in patients in intensive care units. METHODS: This integrative review used the framework of Whittemore and Knafl. The literature was searched for studies related to mMINDS, neurocritical care, and critical care. RESULTS: Nine articles were included in the review. The review revealed 3 outcomes: nurses preferred the mMINDS over the CIWA-Ar, assessments with the mMINDS tool was more accurate for patients with CIWA-Ar scores greater than 10, and patient outcomes were improved with use of the mMINDS. The mMINDS is preferred over the CIWA-Ar for managing alcohol withdrawal syndrome in patients in intensive care units because it is associated with shorter stays, less benzodiazepine use, and a decrease in delirium tremens. CONCLUSION: The findings regarding mMINDS can apply to both critical care and non-critical care settings. The mMINDS is preferred by nurses and results in more positive patient outcomes. The mMINDS is effective and should be used in critical care areas.

Obstetrics, Gynecology and Women's Health Services

Ayyash MK, McLaren RA, Jr., Al-Kouatly HB, and **Shaman M**. Hypertensive disorders of pregnancy trends in the United States post aspirin recommendation guidelines. *Pregnancy Hypertens* 2025; 40:101210. PMID: 40184665. Full Text

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OBJECTIVE: To evaluate changes in the rates of hypertensive disorders of pregnancy (HDP) in the US after the publication of aspirin (ASA) recommendation guidelines by the USPSTF and ACOG. METHODS: A population-based retrospective cohort study was performed using the US Natality database. The pre-ASA group included births between 2010-2014. The post-ASA group were births between 2016-2021. Births in 2015 were excluded. Outcomes were rates of HDP. Univariate and multivariate analyses were performed. Using the 2010-2014 HDP trend, a projected trend was calculated and compared to the actual trend across the entire cohort. RESULTS: There were 12,127,659 births in the pre-ASA group and 17,665,217 births in the post-ASA group. The post-ASA group had a significantly higher rate of overall

HDP than the pre-ASA group (7.7 % vs 4.9 %; aOR 1.58, 95 % CI [1.57-1.59]). When stratified by gestational age at delivery, the post-ASA group had a significantly lower rate of preterm HDP prior to 37 weeks (21.6 % vs 23.7 %; aOR 0.90, 95 % CI [0.89-0.91]) and preterm HDP prior to 34 weeks (6.0 % vs 7.5 %; aOR 0.79, 95 % CI [0.78-0.81]). The actual HDP trend post-ASA recommendation was higher than projected for overall HDP and preterm HDP < 37 weeks but was not different for preterm HPD < 34 weeks. CONCLUSION: While overall HDP is increasing, the rate of preterm births complicated by HDP has been decreasing. The actual trend for the overall HDP category and the two preterm HDP categories, however, remains either higher or no different compared to the projected trend post aspirin recommendation guidelines.

Obstetrics, Gynecology and Women's Health Services

Ezell GJ, **Smith N**, **Condon M**, **Joyce K**, **Joseph J**, **Springer K**, and **Pitts DAS**. Time to Diagnosis and Treatment of Postpartum Hypertensive Disorders in the Emergency Department—A Single Retrospective Cohort Study. *Reprod Med* 2025; 6(1):2. PMID: Not assigned. Full Text

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Background/Objectives: In the postpartum period, approximately 12% of patients seek care in the emergency department (ED), with a higher representation of Black patients. Hypertension is a common reason for ED visits during this period, often leading to dangerously delayed diagnosis and treatment. Objective: This study aims to assess the time to diagnosis and treatment of hypertensive disorders in the postpartum period in the ED, focusing on potential disparities in care, to identify areas for quality improvement. Design: Retrospective cohort study. Setting: A multi-centered large medical institution in the metro Detroit area. Methods: Postpartum patients (day 2 through day 28) presenting to the ED from November 2015 to December 2022. Exposures: none. Main Outcome Measures: Primary analysis assessed the time elapsed between severe-range blood pressure readings (greater than/equal to 160 systolic and/or 110 diastolic) and the administration of antihypertensives. Secondary analyses assessed the presence of essential laboratory workups such as complete blood counts, complete metabolic panels, and urine protein and creatinine. Results: Among the 430 women who presented to the ED during the postpartum period with hypertension, 372 (86.5%) exhibited severe-range blood pressure (greater than/equal to 160 systolic and/or 110 diastolic). Patients presented on average on postpartum day 6. Of the patients with severe hypertension, only 72% received a complete blood count, 66% underwent evaluation of creatinine and liver profile, and 4% had a urine protein and creatinine test ordered. The average time from severe-range blood pressure reading to antihypertensive administration was 189 min for Black patients and 370 min for White patients. There were no statistically significant differences in the time of the first blood pressure reading, laboratory evaluation, or treatment of severe-range blood pressure between racial groups. Conclusions: This study identifies the most significant area for improvement in the timely administration of antihypertensive medication following severe-range blood pressure readings. Additional areas for improvement were observed in ordering essential laboratory tests to assess the severity of preeclampsia. The institution demonstrated delayed yet equitable care for White and Black patients, contrary to the existing literature indicating potential racial disparities. A targeted quality improvement plan has been implemented to improve the identified areas of concern to adhere to the ACOG's treatment recommendations for hypertensive disorders of pregnancy. The impact on patient care will be reassessed at the 1-year mark.

Ophthalmology and Eye Care Services

Alsumait A, Deshmukh S, Wang C, and Leffler CT. Triage of Patient Messages Sent to the Eye Clinic via the Electronic Medical Record: A Comparative Study on AI and Human Triage Performance. *J Clin Med* 2025; 14(7). PMID: 40217845. Full Text

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Background/Objectives: Assess the ability of ChatGPT-4 (GPT-4) to effectively triage patient messages sent to the general eye clinic at our institution. Methods: Patient messages sent to the general eye clinic via MyChart were de-identified and then triaged by an ophthalmologist-in-training (MD) as well as GPT-4 with two main objectives. Both MD and GPT-4 were asked to direct patients to either general or specialty eye clinics, urgently or nonurgently, depending on the severity of the condition. Main Outcomes: GPT-4s ability to accurately direct patient messages to (1) a general or specialty eye clinic and (2) determine the time frame within which the patient needed to be seen (triage acuity). Accuracy was determined by comparing percent agreement with recommendations given by GPT-4 with those given by MD. Results: The study included 139 messages. Percent agreement between the ophthalmologist-in-training and GPT-4 was 64.7% for general/specialty clinic recommendation and 60.4% for triage acuity. Cohen's kappa was 0.33 and 0.67 for specialty clinic and triage urgency, respectively. GPT-4 recommended a triage acuity equal to or sooner than ophthalmologist-in-training for 93.5% of cases and recommended a less urgent triage acuity in 6.5% of cases. Conclusions: Our study indicates an AI system, such as GPT-4, should complement rather than replace physician judgment in triaging ophthalmic complaints. These systems may assist providers and reduce the workload of ophthalmologists and ophthalmic technicians as GPT-4 becomes more adept at triaging ophthalmic issues. Additionally, the integration of AI into ophthalmic triage could have therapeutic implications by ensuring timely and appropriate care, potentially improving patient outcomes by reducing delays in treatment. Combining GPT-4 with human expertise can improve service delivery speeds and patient outcomes while safeguarding against potential AI pitfalls.

Orthopedics/Bone and Joint Center

Baughman MN, Griffin TC, Beyer RSH, Mosiman SJ, **Turner EHG**, Scerpella TA, and Spiker AM. What Characteristics of Orthopaedic Surgery Residency Programs Are Associated With Increased Percentage of Matched Women Residents? *Clin Orthop Relat Res* 2025; Epub ahead of print. PMID: 40198326. Full Text

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BACKGROUND: Women are underrepresented in the field of orthopaedics, and growth of the proportion of women is lagging behind all other medical specialties. Improvement begins with recruiting more women residents; however, few data exist regarding the factors that may attract women applicants to orthopaedic training programs. QUESTIONS/PURPOSES: In the 2020 to 2023 match cycles: (1) Was there a relationship between the percentage of women who matched into orthopaedic residency programs and the percentage of women residents or the percentage of women faculty in a given program? (2) What other program attributes were associated with an increased percentage of matched women applicants? (3) How did these trends change prior to and after the COVID-19 pandemic? METHODS: Internet searches were used to identify orthopaedic surgery residency programs and obtain program-specific information including match data, resident and faculty rosters, fellowship offerings, and parental leave policies. NIH research funding rank of the institution, United States News and World Report (USNWR) ranking of the orthopaedic department, and Doximity program rank were determined using public data. A total of 175 programs were included in the 2020 match cycle, 197 in 2021, 201 in 2022, and 202 in 2023. Pearson correlations and Wilcoxon rank sums were used to evaluate the association between various program attributes and matched women applicants. Mixed-effects logistic regression was performed to determine ORs for matching women residents based on independent variables of interest. RESULTS: A positive relationship was found between women faculty and women residents matched, as an increasing percentage of women faculty were associated with a modestly increasing percentage of matched women residents ($r = 0.19$, $p < 0.001$). The same relationship was found with current women residents, in that a greater percentage of women residents correlated modestly with a greater percentage of women matched ($r = 0.22$, $p < 0.001$). Additionally, as independent variables, a higher percentage of women faculty and current women residents separately suggested increased odds of matching women residents (faculty OR 1.28 [95% confidence interval (CI) 1.14 to 1.44], residents OR 1.21 [95% CI 1.11 to 1.32]). Other program

attributes associated with an increased percentage of matched women residents included number of fellowship offerings and ranking in Doximity, USNWR, and NIH funding. An increasing number of fellowship offerings was associated with an increasing percentage of women matched ($r = 0.32$, $p < 0.001$), and as an independent variable, more fellowship offerings suggested slightly increased odds of matching women residents (OR 1.14 [95% CI 1.08 to 1.19]). There was a higher percentage of matched women residents in programs with a top-40 ranking in Doximity (top-40 median 25%, not top-40 median 17%; $p = 0.004$), USNWR (top-40 median 29%, not top-40 median 20%; $p = 0.02$), or NIH funding (top-40 median 33%, not top-40 median 17%; $p < 0.001$) in 2023. The percentage of matched women residents changed from pre- to post-COVID-19 pandemic. Of the programs that had match data available, 24% (204 of 838) of matched applicants were women in 2023, an increase from 20% in 2020. In all, 34% (55 of 164) of these programs did not match a woman resident in the 2023 cycle, a decrease from 2020 (44%). The odds of matching women residents slightly increased with time while holding percentage of women faculty, percentage of women residents, and number of fellowship offerings constant (time effect in each respective model: faculty OR 1.13 [95% CI 1.04 to 1.22], resident OR 1.10 [95% CI 1.02 to 1.19], fellowship OR 1.11 [95% CI 1.03 to 1.19]). CONCLUSION: Given that programs with greater presence of women faculty and women residents are associated with higher percentages of matched women applicants, training institutions should focus their efforts on recruiting women orthopaedic surgeons to their staff, with the goal of subsequently increasing their representation of women residents. Additionally, given our data on fellowship offerings and program rankings, programs can work to expand the resources available at their institution, including fellowships and research funding. Overall, our data suggest that women who apply to orthopaedic residencies are in a strong position, requiring programs to compete for them, with well-rounded, diverse, and highly ranked programs having greater success. CLINICAL RELEVANCE: This is a new and positive shift for the field of orthopaedic surgery toward gender parity. Future studies should look further into the effect of different parental leave policies on matching women residents and factors that draw women to certain orthopaedic subspecialties.

Orthopedics/Bone and Joint Center
Carey SC, **Barkus OB**, and **Makhni EC**. Next Steps in Maximizing Value in Orthopedic Surgery. *Orthop Clin North Am* 2025. PMID: Not assigned. Full Text

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Orthopedics/Bone and Joint Center
Castle JP, and **Moutzouros V**. Editorial Commentary: Patellofemoral Stabilization for First-Time Dislocation in Skeletally Immature Patients Achieves Excellent Outcomes, Yet Indications Remain Unclear. *Arthroscopy* 2025; Epub ahead of print. PMID: 40174728. Full Text

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Historically, initial management of patellofemoral instability without osteochondral fracture consists of bracing and physical therapy, but up to 50% of skeletally immature patients may develop recurrent instability. Recent studies suggest that patients with first-time dislocations may benefit from surgical stabilization. Risk stratification is essential; those with ligamentous laxity, increased patellar height, and trochlear dysplasia have greater failure rates with nonoperative management. Surgery in skeletally immature patients also entails risk. We recommend conservative management to most patients with a first-time patellar dislocation. Patients with high-risk features are counseled candidly about their elevated risk of failure potentially requiring surgery.

Orthopedics/Bone and Joint Center
Dzieza WK, Foreman MA, Desai PD, Chughtai M, **Khlopas A**, and Kim J. Isolated Scaphoid Dislocation Secondary to Pseudogout Arthritis: A Case Report. *Cureus* 2025; 17(3):e80651. PMID: 40236370. Full Text

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A 69-year-old male laborer with a prolonged history of untreated gouty arthritis in the wrist with an atraumatic isolated scaphoid dislocation requiring urgent salvage procedure in the form of proximal row carpectomy. Few isolated scaphoid dislocations have been reported in the literature. They usually are a result of high-energy mechanisms. To our knowledge, no atraumatic, isolated scaphoid dislocations with underlying pseudogout have been described in the literature. This report describes one such case and brings attention to the importance of treatment of inflammatory arthropathies in the carpus due to its effect on the integrity of the carpus and the scaphoid in particular.

Orthopedics/Bone and Joint Center

Hennekes ME, **Castle JP**, **Halkias EL**, **Yedulla NR**, **Rahman T**, **Charters M**, and **Makhni E**. The Patient Acceptable Symptom State (PASS) has Little Utility Before Total Hip or Knee Arthroplasty. *J Arthroplasty* 2025; Epub ahead of print. PMID: 40262680. Full Text

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BACKGROUND: A better understanding of patient's a preoperative symptom state may assist in a more holistic evaluation of patients pursuing total joint arthroplasty (TJA). This study aimed to determine factors associated with preoperative Patient Acceptable Symptom State (PASS) scores in TJA patients and to determine the predictive ability of patient-reported outcome measures (PROMs) for achieving PASS preoperatively. METHODS: All patients undergoing primary, elective TJA between January and October 2021 at a single institution and who had completed a preoperative PASS, preoperative Patient-Reported Outcome Measurement Information System (PROMIS) questionnaires, and joint-specific PROMs were eligible for inclusion. Descriptive statistics and independent samples t-tests were utilized. Receiver operating characteristic curves and area under the curve analyses were created to determine threshold values for PROMs representing PASS achievement. RESULTS: A total of 287 total hip arthroplasty (THA) patients and 378 total knee arthroplasty (TKA) patients completed PASS preoperatively, with 12.9% of THA patients and 29.6% of TKA patients reporting acceptable symptom states. The PASS responses were associated with PROMIS Physical Function (PROMIS-PF) ($P < 0.001$) but not Hip Dysfunction and Osteoarthritis Score, Joint Replacement (HOOS, JR) ($P = 0.073$) scores in THA. The PASS responses were similarly associated with PROMIS-PF ($P < 0.010$) as well as Knee Injury and Osteoarthritis Outcome Score, Joint Replacement (KOOS, JR) ($P = 0.030$) scores in TKA. The HOOS, JR and PROMIS-PF threshold values of 55.6 and 40, respectively, only weakly predicted preoperative PASS achievement in THA. The KOOS, JR and PROMIS-PF threshold values of 52.5 and 39, respectively, only weakly predicted preoperative PASS achievement in TKA. CONCLUSION: In patients undergoing THA or TKA, 12.9 and 29.6% of patients were satisfied with their symptoms before surgery, respectively. None of the threshold values for the assessed PROMs strongly predict PASS achievement. Given that not all patients indicated for TJA reported unacceptable health states, these findings question the validity of the PASS questionnaire preoperatively.

Orthopedics/Bone and Joint Center

Hodson N, **McKegg PC**, **Driessche A**, **Raja H**, **North T**, and **Charters M**. Challenges in Meeting Centers for Medicare and Medicaid Services Patient-Reported Outcome Measures Collection Requirements and Patient Predictors of Substantial Clinical Benefit Achievement in Total Joint Arthroplasty. *J Arthroplasty* 2025; Epub ahead of print. PMID: 40216276. Full Text

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INTRODUCTION: Total hip arthroplasty (THA) and total knee arthroplasty (TKA) are highly effective procedures, with the Centers for Medicare and Medicaid Services (CMS) mandating patient-reported outcome measures (PROMs) for Medicare patients starting July 1, 2024. This study evaluated PROM collection rates and identified predictors of substantial clinical benefit (SCB), defined by CMS as a 22-point improvement in Hip Dysfunction and Osteoarthritis Outcome Score for Joint Replacement (HOOS-JR) for THA and a 20-point improvement in Knee Injury and Osteoarthritis Outcome Score for Joint Replacement (KOOS-JR) for TKA at four surgical sites across an academic tertiary referral center. METHODS: This retrospective cohort study analyzed PROM data for all patients who underwent THA or TKA from January 2021 to December 2022. Collection rates for PROMs were assessed by meeting the CMS requirement of 'matched pairs' of preoperative and 1-year postoperative PROM and meeting SCB. Logistic regression was used to identify predictors of SCB. RESULTS: Collection rates of PROMs improved from 2021 to 2022, but matched pair rates remained below 33%. The SCB was achieved by 70.9% of THA patients and 62.1% of TKA patients. Significant predictors of SCB included younger age, lower preoperative PROM scores, and absence of comorbidities such as diabetes or preoperative opioid use. Non-White race patients had significantly lower odds of achieving SCB for TKA (P = 0.003), while preoperative education did not significantly impact SCB rates for either procedure. CONCLUSION: The collection of PROMs remains a major challenge, particularly for postoperative intervals, but patients who had greater initial limitations showed substantial improvement. Targeted interventions to optimize preoperative risk factors and enhance long-term follow-up may improve SCB rates and CMS compliance.

Orthopedics/Bone and Joint Center

Jalics AR, **Zauel R**, **Klochko C**, **Moutzouros V**, and **Bey MJ**. Supraspinatus Muscle Length in the Torn Rotator Cuff: Associations with Shoulder Strength and Tear Size. *J Shoulder Elbow Surg* 2025; Epub ahead of print. PMID: 40250825. Full Text

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INTRODUCTION: Rotator cuff tears are a prevalent condition, affecting over 40% of individuals over age 60 and leading to approximately 250,000 surgical repairs annually in the U.S. The supraspinatus tendon is most commonly involved, resulting in retraction of the supraspinatus muscle-tendon unit. Clinically, retraction is often assessed through medial-lateral tear size or myotendinous junction (MTJ) position relative to the glenoid. However, muscle length is rarely measured, despite its importance for force-generating capacity and patient outcomes post-surgery. This study aimed to compare supraspinatus muscle length in patients with and without rotator cuff tears, and to determine the extent to which muscle length was associated with anterior-posterior (A-P) tear size, medial-lateral (M-L) tear size, and shoulder strength. METHODS: A convenience sample of 32 patients with rotator cuff tears and a control group of 32 individuals with intact rotator cuffs was analyzed. All participants underwent MRI scans, with supraspinatus muscle length calculated using a previously validated approach that assessed the MTJ position and supraspinatus fossa length. Normalized muscle length was determined by dividing muscle length by fossa length. Shoulder strength was measured with an isokinetic dynamometer during shoulder abduction, flexion, and internal and external rotation, with the strength data expressed relative to age-predicted maximum values and as strength ratios. Statistical analyses included t-tests for group comparisons and linear regression for association assessments, with significance set at $p<0.05$. RESULTS: No significant difference in patient age was detected between the two groups (torn: 59.3 ± 7.0;

intact: 58.1 ± 4.9, p=0.42). The average rotator cuff tear size was 16.8 ± 5.7 mm (A-P) and 18.2 ± 8.7 mm (M-L). Supraspinatus muscle length was significantly shorter in the rotator cuff tear group (96.6 ± 5.8% of fossa length) compared to the intact group (102.7 ± 6.3% of fossa length, p=0.0002). In patients with tears, muscle length did not correlate with tear sizes (M-L: r=0.01, p=0.95; A-P: r=0.27, p=0.15). However, muscle length was significantly associated with normalized abduction strength (r=0.41, p=0.02) and the abduction/internal rotation strength ratio (r=0.46, p=0.008). DISCUSSION: The findings indicate that supraspinatus muscle length is significantly reduced in rotator cuff tears and is associated with shoulder abduction strength, but not with tear size. This suggests that muscle shortening negatively impacts shoulder function and highlights potential implications for surgical repair strategies and postoperative recovery. Future studies should explore the effects of surgical interventions on muscle length and strength recovery in rotator cuff repair patients. LEVELS OF EVIDENCE: Basic Science Study; Kinesiology.

Orthopedics/Bone and Joint Center

Phillips M, Woodhams W, **Ogeh T**, Willson S, and Atkinson T. Factors Influencing Growth in Gender Diversity Within Orthopaedic Surgery. *J Am Acad Orthop Surg Glob Res Rev* 2025; 9(4). PMID: 40257831. Full Text

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INTRODUCTION: Despite increasing numbers of female medical students, there is low female representation in orthopaedic residencies across the globe. It is unknown whether female representation in orthopaedics is lower than other specialties and whether regional presence relates to patient population or residency positions. METHODS: The provider directory from the United States Centers for Medicare and Medicaid Services was reviewed from 2018 to 2023. Data for eight specialty subgroups (anesthesia, family medicine, gastroenterology, general surgery, internal medicine, obstetrics/gynecology, orthopaedics, and urology) were examined and grouped according to regions depicted by the Electronic Residency Application Service. RESULTS: The mean percentage of female orthopaedic Centers for Medicare and Medicaid Services providers increased 1.49% over the 6-year period, at a markedly lower rate compared with general surgery (3.7%, P = 0.018) and obstetrics and gynecology (4.7%, P = 0.012). It was also lower compared with gastroenterology (3.73%), family medicine (3.52%), urology (3.10%), internal medicine (1.82%), and anesthesia (1.66%). Pacific-West and South-Atlantic regions demonstrated the greatest increase in representation. The number of female orthopaedic surgeons and growth in all orthopaedic surgeons in a state correlated with increased representation, whereas residency positions and patient population did not. Graduation year was 6 years later for female versus male students. DISCUSSION: This study demonstrated a statistically significantly lower rate of change in female representation within orthopaedics compared with other specialties. Presence of practicing female orthopaedic surgeons was associated with growth in certain geographic regions. Future work should investigate factors associated with regional growth if specialties seek to move toward sex representation that reflects the United States population.

Orthopedics/Bone and Joint Center

Pietroski A, Zhou Y, **Kasto J**, **Obinero C**, **Zhu K**, **Mazeh M**, Chen C, and **Muh S**. Surface Electromyography Reveals Middle Deltoid as the Functionally Dominant Shoulder Muscle After Reverse Total Shoulder Arthroplasty. *Cureus* 2025; 17(3):e80229. PMID: 40196053. Full Text

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BACKGROUND: Reverse total shoulder arthroplasty (RSA) increases deltoid muscle fiber recruitment and tension to compensate for deficient rotator cuff activity; however, it is unclear whether the anterior or middle deltoid becomes dominant and how the muscle activation profile changes postoperatively. Using

minimally invasive electromyography, this study evaluated the activity of the deltoid and surrounding muscles during shoulder motion to assess muscle activation changes post-RSA. METHODS: In this observational study, we assessed change in preoperative to postoperative shoulder muscle activation in 10 patients over six months. Muscle activation was measured using eight surface electrodes. Activation of the anterior, middle, and posterior deltoid, along with surrounding muscles, was recorded and quantified during shoulder abduction, flexion, and external and internal rotation. One-way analysis of variance was used to identify significant differences in activation and time or speed. The least significant difference post hoc test was used to determine specific differences in muscle activation at subsequent time points. RESULTS: RSA shoulders at six months postoperatively showed a significant increase in activity of the middle deltoid predominantly. Middle deltoid activation increased during abduction ($p<0.001$), flexion ($p=0.008$), external ($p<0.001$), and internal ($p<0.001$) rotation. CONCLUSIONS: Our study highlights the middle deltoid as the primary contributor to rotator cuff function in reverse shoulder arthroplasty (RSA), characterized by quantitative activation, significant involvement in all shoulder motions, and increased activation over time. These findings could inform future RSA designs to enhance deltoid wrapping, maximizing strength and efficiency.

Orthopedics/Bone and Joint Center

Seta J, **Weaver M**, Hallstrom BR, Zheng H, Larese D, Dailey E, and **Markel DC**. Intraoperative Irrigation and Topical Antibiotic Use Fail to Reduce Early Periprosthetic Joint Infection Rates: A Michigan Arthroplasty Registry Collaborative Quality Initiative Study. *J Arthroplasty* 2025; Epub ahead of print. PMID: 40189075. Full Text

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OBJECTIVE: Periprosthetic joint infections (PJI) remain a major complication in total joint arthroplasty. Tremendous efforts made intraoperatively to prevent PJI during primary procedures include antiseptics or antibiotics in irrigation solutions. This study analyzed the incidence of post-operative infection in relation to use of irrigation solutions and antibiotic powder. METHODS: We reviewed primary total hip arthroplasty (THA) and total knee arthroplasty (TKA) cases from the Michigan Arthroplasty Registry Collaborative Quality Initiative (MARCQI) between January 2019 and December 2022. Data on irrigation solutions were categorized by those containing antibiotics, chlorhexidine-gluconate (CHG), povidone-iodine, or other substances, compared to normal saline. Logistic regression analyses were conducted, adjusting for various factors such as age, body mass index (BMI), sex, American Society of Anesthesiologists (ASA) score, smoking, and more. There were 67,871 THA and 105,963 TKA cases analyzed, with an overall infection rate of 0.6% (CI [confidence interval]: 0.6 to 0.7, n = 420) for THA and 0.4% (0.36 to 0.43, n = 419) for TKA within 90 days post-surgery. RESULTS: There were statistical differences between the use of normal saline alone versus other irrigation solutions in THA, including povidone and others. For TKA, there was a statistically significant difference with lower infection rates using normal saline alone compared to multiple types, CHG, and povidone. Notably, the use of non-saline irrigation increased over the study period. CONCLUSIONS: There was no reduction in 90-day infection rates for primary THA or TKA with irrigation additives. Higher infection rates were noted with povidone compared to saline for THA and TKA, potentially due to selection bias or local adverse tissue effects. Topical powders did not improve infection control. While irrigation is strongly recommended in all patients having TKA or THA, multiple irrigation solutions were not correlated with lower infection rates, suggesting importance of patient selection and optimization over irrigation type.

Orthopedics/Bone and Joint Center

Ziedas A, **Michaelson J**, **Knesek D**, **Laker M**, **Frush T**, and **Markel DC**. Cemented and Cementless Robotic-Assisted vs Manual Total Knee Arthroplasty Outcomes: A Single Center Michigan Arthroplasty Registry Collaborative Quality Initiative-Based Study. *J Arthroplasty* 2025; Epub ahead of print. PMID: 40280209. Full Text

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BACKGROUND: The purpose of our study was to determine whether a difference existed between cemented and cementless robotic-assisted total knee arthroplasty (RA-TKA) and manual-TKA with regard to revision rates and 90-day outcomes. We hypothesized these techniques would have similar results. METHODS: A single center's data from the Michigan Arthroplasty Registry Collaborative Quality Initiative (MARCQI) was queried for all primary TKAs from January 2012 to July 2023. The RA-TKA and manual cohorts were compared for revisions and 90-day complications, including emergency department (ED) visits, readmissions, and returns to the operating room (OR). Chi-square and Fisher's exact tests were used for categorical data, and t-tests for continuous data. Of the 7,417 cemented TKAs (mean age 67.9±9.6 years, 70% women), 273 were RA-TKA, and 7,144 were manual. Of the 2,407 cementless TKAs (mean age 65.5±8.6 years, 53% women), 730 were RA-TKA, and 1,677 were manual. RESULTS: Cemented RA-TKA had more periprosthetic joint infection (PJI) revisions, more 90-day ED visits, and readmissions for wound complications compared to cemented manual-TKA. Cementless RA-TKA had more 90-day readmissions for wound complications, while manual TKA had more 90-day ED visits for postoperative pain. Cemented and cementless RA-TKA had longer surgical time, shorter length of stay, and shorter time to revision. There were 283 revisions performed on cemented manual-TKA (nine RA-TKA, 3.2%, 274 manual, 3.8%, (P = 0.87)). There were 56 revisions performed on cementless knees (13 RA-TKA, 1.7%, 43 manual 2.5% (P = 0.303)). Cumulative percent revision (CPR) at five years was 3.9% for cemented RA-TKA, 3.5% for cemented manual-TKA, 1.8% for cementless RA-TKA, and 2.8% for cementless manual TKA. CONCLUSION: Both RA-TKA and manual-TKA have similar revision rates, while RA-TKA had more wound complications. Cementless RA-TKA may be beneficial in reducing postoperative pain.

Otolaryngology – Head and Neck Surgery

Abdurrob A, **Tayyari B**, **Goosmann M**, and **Darrat I**. Treatment of imperforate submandibular duct: A systematic literature review and case report. *Int J Pediatr Otorhinolaryngol* 2025; 193:112333. PMID: 40222345. Full Text

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BACKGROUND: Imperforate submandibular ducts are rare with a broad differential including lymphatic malformation, congenital ranula, and thyroglossal duct cyst. Prompt evaluation is important as treatment differs based on the diagnosis. This systematic review aimed to characterize treatments and outcomes for management of imperforate submandibular ducts while describing 2 new cases. METHODS: The following systematic review was performed using PubMed and EMBASE: imperforate submandibular duct or congenital atresia submandibular duct. All associated papers were also included. Demographics, birth history, symptoms, treatment, and outcomes were collected. RESULTS: Sixteen articles were included with 22 patients presenting with imperforate submandibular ducts. Most patients were male (67 %), half of them were born at term (50 %), and 15 (62 %) had unilateral imperforate ducts. Eight patients had bilateral presentation. The mean age for initial treatment was 3.5 months. Treatment varied from 11 (48 %) patients undergoing simple incision only, 3 (13 %) underwent incision and ductoplasty, 4 (17 %) underwent marsupialization and ductoplasty, 3 (13 %) underwent marsupialization only, and 2 (9 %) underwent incision and marsupialization. Mean follow-up without recurrence was 20 months. One complication was reported, restenosis after incision only. Two patients presented to our health system a month apart, one male and one female, and both with unilateral cysts. One patient underwent incision and ductoplasty with no recurrence at the 1-week postoperative visit. The second patient is pending incision and ductoplasty. CONCLUSIONS: Although an exceedingly rare condition, imperforate submandibular duct cysts more often present in males, unilaterally, and can be managed via multiple methods; however, marsupialization has shown no reported recurrences.

Otolaryngology – Head and Neck Surgery

Adjei Boakye E, **Nair M**, **Al-Antary N**, **Wilson C**, **Kerr K**, **Zatirka TM**, Hirko KA, **Elsiss F**, **Chang SS**, **Movsas B**, **Ryan M**, and **Tam S**. Exploratory analysis of electronic patient-reported outcomes collection: comparing online and in-clinic modalities in cancer care. *Qual Life Res* 2025; Epub ahead of print. PMID: 40237928. Full Text

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PURPOSE: Patient reported outcome measures (PROMs) have been shown to improve cancer survival but are generally underutilized in cancer care. It is unclear whether electronic-PROMS (ePROMs) modality (online vs. in-clinic) may address barriers to completion. We examined whether patient sociodemographic and clinical factors differed by completion modality. METHODS: Patients with cancer who had an oncologic provider visit from January 2021 to March 2023 at a tertiary cancer center were assigned the National Institute of Health's computer adaptive technology Patient-Reported Outcomes Measurement Information System instruments. Patients completed ePROMs either through online patient portal (online) up to 7 days before the visit or used a tablet at the clinic visit (in-clinic) if not completed online. Multivariable logistic regression model estimated associations between patient sociodemographic and clinical factors and completion modality. RESULTS: A total of 8556 patients completed ePROMs (43.3% completed in-clinic). Females were less likely than males to complete ePROMs in-clinic (aOR = 0.89, 0.84-0.93) as were patients with commercial insurance (aOR = 0.83, 0.77-0.89) vs. Medicare; or saw radiation oncologist (aOR = 0.89, 0.83-0.96) vs. medical oncologist. However, patients were more likely to complete ePROMs in-clinic if they identified as Black race (aOR = 1.41, 1.33-1.49) vs. White; were single (aOR = 1.21, 1.14-1.29) or divorced/separated/widowed (aOR = 1.11, 1.04-1.18) vs. married; or saw a provider located in rural (aOR = 1.33, 1.25-1.42) vs. urban area. CONCLUSIONS: Patients who were males, Blacks, unmarried, Medicare insured or saw providers located in rural area were more likely to complete ePROMs in-clinic. Given the preference for online completion before visits for real-time symptom monitoring, targeted efforts are needed to boost online PROMs completion. PLAIN MESSAGE: This is a cross-sectional analysis of the associations between sociodemographic and clinical factors with two electronic patient reported outcome measures completion modalities. The results indicate that about half of patients completed online and half completed in-clinic, with males, Blacks, patients who were divorced/separated/widowed, had Medicare insurance and saw a medical oncologist completing electronic patient reported outcome measures in-clinic. We support offering both options while addressing barriers to either modality.

Otolaryngology – Head and Neck Surgery

Agan AD, and **Deeb R**. The Shift Toward Office-Based Otolaryngology Procedures. *Otolaryngol Clin North Am* 2025; Epub ahead of print. PMID: 40234172. Full Text

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Otolaryngology – Head and Neck Surgery
Al-Antary N, Assi N, Nair M, Vu M, Siddiqui RF, **Siddiqui F**, and **Adjei Boakye E**. Human papillomavirus-related cancers and human papillomavirus vaccination among Arab Americans: A call to unveil disparities and bridge the research gaps. *Cancer* 2025; 131(7):e35830. PMID: 40130651. Full Text

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Arab Americans, a diverse and rapidly growing demographic in the United States, face unique barriers to human papillomavirus (HPV) vaccination and cancer prevention, but there is a notable lack of research on HPV-associated cancer incidence and vaccination rates in this community. Collaborative efforts among health care providers, public health agencies, researchers, and religious community organizations are essential to improve HPV vaccination uptake and reduce cancer disparities within this underserved population by including Middle Eastern and North African as a distinct category in national health surveys, conducting comprehensive epidemiological research, and developing culturally tailored interventions.

Otolaryngology – Head and Neck Surgery
Al-Antary N, **Tam S**, **Alzouhayli S**, **Zatirka TM**, **Ryan M**, **Chang SS**, **Movsas B**, and **Adjei Boakye E**. Interventions influencing patient-reported outcomes (PROs) response rates in cancer: a scoping review. *J Cancer Surviv* 2025; Epub ahead of print. PMID: 40234324. Full Text

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PURPOSE: Despite the emerging evidence around patient-reported outcome measures (PROMs) monitoring benefits in oncology, completion rates remain low due to numerous multi-level barriers. This review summarizes existing literature on interventions employed to improve PROMs response rates in routine practice among patients with cancer. METHODS: PubMed database was used to perform a literature search of articles published between 2000 and 2022. Articles were included if they focused on PROMs implementation in non-clinical trial setting and reported results on methodologies and their influence on response rates. RESULTS: A total of 495 abstracts were screened for eligibility, and 14 articles that met the inclusion criteria were included. PROMs mode of administration varied between electronic only (four studies, 28.6%), paper only (two studies, 14.3%), electronic-paper (six studies,

42.9%), and electronic-telephone (two studies, 14.3%). Reminder systems, using electronic, paper, or in-person, were implemented in 12 studies (85.7%). Different strategies of initial recruitment, aiming to enhance patients' PROM engagements, were outlined in five studies (35.7%). CONCLUSION: Multiple interventions were implemented to improve PROMs completion rates. Mode of questionnaire administration, reminder systems, patient education on benefits of PROMs, and clinical staff involvement were shown to be effective in increasing the overall completion rate. IMPLICATIONS FOR CANCER SURVIVORS: This review provides a summary for researchers and clinicians on the current practice of PROMs implementation, thus creating a framework for the impact of different methodologies on patient's response rate for better monitoring of recurring symptoms, including long-term side effects, emotional distress, and changes in health-related quality of life.

Otolaryngology – Head and Neck Surgery

Craig JR, **Mason W**, Laumet G, **Alkhoory W**, Hensley MD, Holleman D, and Hason N. Sensory and Autonomic Fibers in Anterior Ethmoid, Posterior Nasal, Posterolateral Nasal Nerves. *Laryngoscope* 2025; Epub ahead of print. PMID: 40192001. Full Text

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BACKGROUND: Sensory and autonomic nerves supply the sinonasal mucosa and contribute to the pathophysiology of certain forms of chronic rhinitis, rhinosinusitis, and craniofacial pain. The compositions of these intranasal nerves have been incompletely studied. The purpose of this cadaveric study was to investigate the relative areas of sensory, parasympathetic, and sympathetic nerve fibers within different nasal nerves. METHODS: Ten fresh cadaver heads were dissected, and anterior ethmoid (AEN), posterior nasal (PNN), and posterolateral (PLNN) sections were harvested unilaterally via endonasal and transorbital approaches. Specimens were formalin-fixed, sectioned, and stained with hematoxylin and eosin, as well as for neuropeptides (substance-P, calcitonin gene-related peptide [CGRP], neurokinins-A and B [NKA, NKB], vasointestinal peptide [VIP], neuropeptide Y [NPY]), and enzymes (choline acetyltransferase [ChAT] and tyrosine hydroxylase [TH]). Enzyme and neuropeptide nerve marker percent areas were calculated using brightfield analysis. Sensory and autonomic nerve marker percent areas were then compared within and between AENs, PNNs, and PLNNs. RESULTS: In total, 10 PNNs and AENs and 8 PLNNs were available for analyses. Sensory, parasympathetic, and sympathetic nerve markers were identified in every PNN, PLNN, and AEN, and were mostly equivalent between nerves. Only neurokinin-A demonstrated a significantly greater percent area than other markers across different nasal nerves. CONCLUSION: Sensory and autonomic nerve markers were present in all AENs, PNNs, and PLNNs, and were largely equivalent between nerves. NKA presented the greatest percent area consistently across each of the nerve types. Future studies should explore the relative contributions of sensory versus autonomic dysfunction in chronic rhinitis, rhinosinusitis, and craniofacial pain. LEVEL OF EVIDENCE: Level 4.

Otolaryngology – Head and Neck Surgery

Grewal JS, **Diffley M**, **Greenberg Y**, **Alzouhayli S**, **Springer K**, Westreich R, and **Deeb RH**. Endonasal dome bind with incorporation of a columellar strut reduces Infratip fullness: a quantitative photographic analysis. *Am J Otolaryngol* 2025; 46(3):104619. PMID: 40273632. Full Text

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OBJECTIVE: To demonstrate the effectiveness of the dome bind suture technique with incorporation of a columellar strut in reducing infratip lobule fullness in closed rhinoplasty by use of quantitative photographic analysis. METHODS: A retrospective review of patients who underwent rhinoplasty by two senior authors was carried out. All surgical maneuvers were documented. Photographic analysis was performed quantitatively using Rhinobase software. Results were recorded as ratio of change relative to a stable anatomic reference. This was chosen as the intercanthal distance on frontal view and lateral canthus to lateral commissure distance on lateral view. RESULTS: Sixty-three patients were included who underwent the dome bind suture technique. On frontal view, the ratio of the infratip lobule on post-surgical images versus preintervention was 0.88, which represents a reduction of 12 % ($P < 0.01$). This was not apparent on lateral view, with a postoperative/preoperative ratio of 1.02 ($P = 0.53$). CONCLUSION: We have demonstrated that the endonasal dome bind technique with incorporation of a columellar strut is useful at reducing infratip lobule fullness on frontal view and is a valuable tool in the armamentarium of the rhinoplasty surgeon.

Pathology and Laboratory Medicine

Celayir A, Marangoz H, **Göktürk Özcan G**, Abdullaev N, Camurdan VB, and Karaismailoglu B. A Case Report on an Uncommon Presentation of Giant Cell Tumor of the Tendon Sheath in the Infrapatellar Region. *Cureus* 2025; 17(3):e80918. PMID: 40260356. Full Text

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Giant cell tumor of the tendon sheath (GCT-TS) is a benign yet locally aggressive soft tissue neoplasm that typically arises in synovium-lined structures, including tendon sheaths, bursae, and joints. Also known as localized nodular tenosynovitis, this tumor primarily affects the hands and fingers but can occur in other anatomical locations. GCT-TS is histologically characterized by multinucleated giant cells within a background of mononuclear stromal cells. While it is generally nonmetastatic, the tumor carries a risk of local recurrence following surgical removal. Recognizing the clinical presentation, histopathological features, and appropriate management strategies is essential for effective treatment and recurrence prevention. Here, we present the case of a 34-year-old woman with a one-year history of pain in the infrapatellar region. Imaging revealed a well-defined soft tissue mass posterior to the patellar tendon, which was surgically excised. Histopathological examination confirmed the diagnosis of nodular-type GCT-TS. The patient's symptoms resolved completely postoperatively, and no recurrence was observed during a five-year follow-up period, highlighting the effectiveness of surgical excision in managing this rare tumor location.

Pathology and Laboratory Medicine

Craig JR, **Mason W**, Laumet G, **Alkhoory W**, Hensley MD, Holleman D, and Hason N. Sensory and Autonomic Fibers in Anterior Ethmoid, Posterior Nasal, Posterolateral Nasal Nerves. *Laryngoscope* 2025; Epub ahead of print. PMID: 40192001. Full Text

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BACKGROUND: Sensory and autonomic nerves supply the sinonasal mucosa and contribute to the pathophysiology of certain forms of chronic rhinitis, rhinosinusitis, and craniofacial pain. The compositions of these intranasal nerves have been incompletely studied. The purpose of this cadaveric study was to investigate the relative areas of sensory, parasympathetic, and sympathetic nerve fibers within different nasal nerves. METHODS: Ten fresh cadaver heads were dissected, and anterior ethmoid (AEN), posterior nasal (PNN), and posterolateral (PLNN) sections were harvested unilaterally via endonasal and

transorbital approaches. Specimens were formalin-fixed, sectioned, and stained with hematoxylin and eosin, as well as for neuropeptides (substance-P, calcitonin gene-related peptide [CGRP], neurokinins-A and B [NKA, NKB], vasointestinal peptide [VIP], neuropeptide Y [NPY]), and enzymes (choline acetyltransferase [ChAT] and tyrosine hydroxylase [TH]). Enzyme and neuropeptide nerve marker percent areas were calculated using brightfield analysis. Sensory and autonomic nerve marker percent areas were then compared within and between AENs, PNNs, and PLNNs. RESULTS: In total, 10 PNNs and AENs and 8 PLNNs were available for analyses. Sensory, parasympathetic, and sympathetic nerve markers were identified in every PNN, PLNN, and AEN, and were mostly equivalent between nerves. Only neurokinin-A demonstrated a significantly greater percent area than other markers across different nasal nerves. CONCLUSION: Sensory and autonomic nerve markers were present in all AENs, PNNs, and PLNNs, and were largely equivalent between nerves. NKA presented the greatest percent area consistently across each of the nerve types. Future studies should explore the relative contributions of sensory versus autonomic dysfunction in chronic rhinitis, rhinosinusitis, and craniofacial pain. LEVEL OF EVIDENCE: Level 4.

Pathology and Laboratory Medicine

Klump BM, **Alruwaii FI**, Alruwaii ZI, **Chang Q**, **Asai M**, and **Al-Obaidy KI**. Neuroendocrine Tumors Arising in a Sacrococcygeal Teratoma: Report of Two Tumors. *Int J Surg Pathol* 2025; Epub ahead of print. PMID: 40275701. Full Text

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Pathology and Laboratory Medicine

Miller J, **Cook B**, **Gunaga S**, **Fadel R**, **Gandolfo C**, **Emakhu J**, Mills NL, Mahler S, Levy P, **Parikh S**, **Krupp S**, **Hawatian K**, **Nour K**, **Klausner H**, **Gindi R**, **Hudson M**, **Perrotta G**, **Zweig B**, **Lanfear D**, **Kim H**, Danagoulian S, Keerie C, Nassereddine H, **Morton T**, Affas Z, **Husain A**, and **McCord J**. Health Care Resource Utilization for Patients With Suspected Myocardial Infarction: A Secondary Analysis of the RACE-IT Randomized Clinical Trial. *JAMA Netw Open* 2025; 8(4):e256930. PMID: 40279128. Full Text

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IMPORTANCE: Evaluation for myocardial infarction (MI) in emergency departments (EDs) is a common, resource-intensive process. High-sensitivity cardiac troponin I (hs-cTnI) assays have become a key tool in rapidly ruling out MI, with the potential to reduce health care resource utilization. OBJECTIVE: To determine whether a 0-hour and 1-hour (hereafter referred to as 0/1-hour) hs-cTnI accelerated protocol reduces health care resource utilization compared with a traditional 0/3-hour standard care protocol for MI exclusion in the ED. DESIGN, SETTING, AND PARTICIPANTS: This is a prespecified secondary analysis of the RACE-IT trial, a stepped-wedge randomized clinical implementation trial conducted across 9 EDs in Michigan. The trial enrolled 32 608 consecutive ED patients evaluated for suspected MI between July 8,

2020, and April 3, 2021. Statistical analysis was conducted from July 10 to September 5, 2024. INTERVENTIONS: The 0/1-hour hs-cTnI accelerated protocol for MI exclusion was compared with the traditional 0/3-hour standard care protocol. MAIN OUTCOMES AND MEASURES: Main outcomes were ED discharge to home, ED length of stay, rates of cardiac stress testing, cardiology consultation, left heart catheterization, and cardiac revascularization within 30 days. RESULTS: A total of 32 608 patients (median age, 59 years [IQR, 45-71 years]; 18 705 women [57.4%]) were included in the analysis. The rate of ED discharge to home was 58.0% for the accelerated protocol group (11 082 of 19 103) and 59.8% for the standard care group (8070 of 13 505) (adjusted odds ratio [AOR], 1.05; 95% CI, 0.95-1.15). The accelerated protocol group showed significant reductions in the odds of cardiac stress testing (3.3% [623 of 19 103] vs 3.9% [526 of 13 505]; AOR, 0.62; 95% CI, 0.49-0.78), cardiology consultations (8.6% [1640 of 19 103] vs 12.2% [1651 of 13 505]; AOR, 0.57; 95% CI, 0.49-0.67), and left heart catheterization rates (1.0% [198 of 19 103] vs 1.2% [167 of 13 505]; AOR, 0.65; 95% CI, 0.43-0.99) compared with the standard protocol group. The median ED length of stay decreased by 20 minutes (IQR, 18-24 minutes) in the accelerated protocol group, with no significant change in revascularization rates. CONCLUSIONS AND RELEVANCE: This secondary analysis of a randomized clinical trial of a 0/1-hour hs-cTnI protocol to rule out MI in the ED found that there was a reduction in cardiac evaluations and ED length of stay without increasing revascularization rates compared with the standard 0/3-hour hs-cTnI protocol. This approach could optimize health care resources in EDs. TRIAL REGISTRATION: ClinicalTrials.gov Identifier: NCT04488913.

Pathology and Laboratory Medicine

Palathingal Bava E, **Skorupski S**, **Peres E**, **Dejban P**, **Chang Q**, **Theisen B**, and **Husain S**. Suspected late graft failure and graft versus host disease 34 years after hematopoietic stem cell transplantation clinically and pathologically presenting as host versus graft disease with liver injury. *Hum Pathol Rep* 2025; 40. PMID: Not assigned. Full Text

S. Husain, Department of Pathology, Henry Ford Hospital, Senior Staff Pathologist, Henry Ford Health System, Clinical Associate Professor, Department of Medicine, Michigan State University, 2799 W. Grand Blvd., Pathology - K-6, Detroit, MI, United States

A 36-year-old man who underwent hematopoietic stem cell transplantation (HSCT) at the age of 2 years for severe combined immunodeficiency, presented with jaundice, skin rash, and elevated liver function tests 34 years after HSCT. Liver biopsy showed bile duct injury and cholestasis. Viral studies, autoimmune panel, review of medications, and imaging did not establish a cause of liver injury. However, graft-versus-host disease (GVHD) was unlikely because of the remote history of HSCT. Short tandem repeat-polymerase chain reaction (STR-PCR) chimerism analysis showed that the percentage of donor DNA in the liver biopsy specimen was very low (11 %); hence, host-versus-graft disease (HVGD) was implicated. Because STR analysis of patient's blood showed a mixed chimera with 11 % donor DNA, graft failure was suspected; however, fractionated STR analysis ruled out complete graft failure. Overall, this case outlines liver injury caused by HVGD in the absence of complete graft failure 34 years after HSCT, which has never been reported in the literature. STR-PCR analysis was essential for mitigating the diagnostic dilemma.

Pathology and Laboratory Medicine

Rohan TE, Zhang C, Wang Y, Couch FJ, Greenlee RT, Honda S, **Stark A**, White LL, **Chitale DA**, Xue X, Ginsberg M, and Loudig O. p16, COX-2, and Ki67 protein expression in DCIS and risk of ipsilateral invasive breast cancer. *Cancer Epidemiol Biomarkers Prev* 2025; Epub ahead of print. PMID: 40227115. Full Text

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BACKGROUND: Prior research on the associations of p16, COX-2, and Ki67 immunopositivity in ductal carcinoma in situ (DCIS) tissue with risk of subsequent ipsilateral invasive breast cancer (IBC) is limited. METHODS: In a case-control study nested in a cohort of women diagnosed with DCIS, immunostaining for p16, COX-2, and Ki67 was performed on DCIS tissue from those who developed subsequent ipsilateral IBC (cases; n=146) and on matched subjects who did not develop IBC (controls; n=273). Conditional logistic regression was used to estimate odds ratios (ORs) and 95% confidence intervals (CIs) for the associations between immunopositivity for p16, COX-2, and Ki67 and risk of subsequent ipsilateral IBC. RESULTS: There was no association between p16, COX-2, and Ki67 immunopositivity, examined either individually or in combination, with risk of ipsilateral IBC. Compared to all other groups, the multivariable OR (95% CI) for women who were triple positive for the three markers was 1.16 (0.38, 3.54). CONCLUSIONS: p16, COX-2, and Ki67 immunopositivity were not associated with altered risk of ipsilateral IBC in women with DCIS. IMPACT: p16, COX-2, and Ki67 may not be prognostic for ipsilateral IBC in women with DCIS.

Pathology and Laboratory Medicine
Varelas PN, **Lopez-Plaza I**, Ata A, **Rehman MF**, **Mehta C**, **Ramadan R**, and Zisimopoulou V. Longitudinal Improvement in Respiratory Function Following Plasma Exchange in Patients with Severe Myasthenia Gravis. *Neurocrit Care* 2025; Epub ahead of print. PMID: 40180670. Full Text

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BACKGROUND: There are no data on the effect size and timing of plasma exchange (PLEX) in patients with myasthenic crisis (MC). METHODS: We retrospectively analyzed measurements of forced vital capacity (FVC) and negative inspiratory force (NIF) in the days before and after PLEX (administered every other day) in patients with MC admitted to a tertiary hospital over 4 years. For multiple measurements in one day, the average value was used. The day immediately before the first treatment with PLEX was considered baseline. Using time as a continuous or categorical variable in mixed-effects multiple linear regressions, we estimated predicted values for these tests. RESULTS: Twenty-two patients (mean age 67.3 years, 51.9% male patients) with 27 MC episodes and 508 measurements (234 FVC and 274 NIF; from 5 days before to 20 days after PLEX) were included. Presence of antibodies was detected in 70.4%. Intubation and mechanical ventilation occurred in 36.6% of patients. The mean number of PLEX was 5.1 (range 3-11). NIF values decreased before the first PLEX but increased after by on average 1 cm H(2)O/day (95% confidence interval [CI] 0.68-1.32, $p < 0.001$). FVC fluctuated before the first PLEX but then increased by on average 51.2 mL/day (95% CI 35.8-66.1, $p < 0.001$). The maximum increase in NIF occurred during the day of the first PLEX (9.2 cm H(2)O, 95% CI 3.3-15.1, $p = 0.002$) and rather slowed after day 10. FVC increase compared to baseline became significant the second day after the first PLEX (287 mL, 95% CI 7.5-567.6, $p = 0.04$) and continued overall to increase (with fluctuations) up to day 17. CONCLUSIONS: Significant increases in bedside respiratory measurements are observed as soon as the first PLEX day but with more variability on FVC than NIF, which may either reflect more FVC technique inconsistencies or more consistent effect of the treatment on NIF.

Pharmacy
Caniff KE, Al Musawa M, Judd C, Shupp M, **Veve MP**, **Alangaden G**, Claeys KC, Scipione MR, Walsh TJ, and Rybak MJ. Evaluating antimicrobial stewardship strategies in candidemia: a novel desirability of outcome ranking (DOOR) analysis comparing blood culture versus T2Candida diagnostic approaches. *J Clin Microbiol* 2025; e0004325. Epub ahead of print. PMID: 40214232. Full Text

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The T2Candida Panel (T2 Biosystems, Lexington, MA) is a rapid diagnostic test that detects Candida from whole blood within 3-5 hours. We developed and applied a desirability of outcome ranking (DOOR) analysis to investigate if an antimicrobial stewardship program (ASP) strategy centered on T2Candida diagnosis is associated with improved outcomes compared to an ASP strategy that relies on conventional blood culture diagnosis in critically ill patients with candidemia. This is a retrospective, observational cohort of patients with candidemia identified ≤72 h of intensive care unit admission at two medical centers in Detroit, MI (one T2Candida site and one blood culture site) from 2016 to 2023. Management strategies for candidemia were compared using an original DOOR analysis with inverse probability of treatment weighting (IPTW) to account for confounding. Two hundred patients were included, 100 from each site. Baseline illness severity, race, and Candida species varied between groups; however, source control procedures, echocardiogram, and ophthalmologic exam occurred at similar frequencies. T2Candida/ASP was associated with faster median (interquartile range [IQR]) detection of candidemia (7.0 [5.0-10.75] h vs 45.5 h [34.25-68.75], P < 0.001) and timelier median (IQR) initiation of directed antifungal therapy (6.0 [0-11.0] h vs 49.0 [34.0-77.0] h, P < 0.001). T2Candida/ASP patients had a 58.0% probability of achieving an overall better outcome compared to those managed with blood culture/ASP (95% confidence interval: 50.4-65.2%) in IPTW-adjusted DOOR analysis. An ASP strategy incorporating T2Candida was associated with an overall better patient outcome compared to patients managed via conventional blood culture diagnosis.IMPORTANCECandida species are a significant cause of bloodstream infections in critically ill patients. Conventional diagnostic methods, such as blood cultures, have poor sensitivity and delayed results. The T2Candida Panel is a diagnostic tool that rapidly detects Candida directly from the blood in 3-5 h, enabling faster initiation of antifungal therapy. Antimicrobial stewardship programs (ASPs) optimize the management of bloodstream infections and may benefit from incorporating T2Candida to improve patient outcomes. This study examined whether an ASP intervention based on T2Candida diagnosis, compared to one relying on traditional blood culture methods, could improve outcomes in candidemia using a desirability of outcome ranking (DOOR) analysis. The DOOR method provides a comprehensive evaluation by integrating multiple outcomes into a single end point, which is ideal given the complexity of patients with candidemia. The T2Candida/ASP intervention resulted in an overall better patient outcome, considering infectious complications, treatment failure, and all-cause mortality.

Pharmacy

Halloran PF, Chang J, Mackova M, Madill-Thomsen K, Akalin E, Alhamad T, Anand S, Arnol M, Baliga R, Banasik M, Blosser C, Böhmig G, Brennan D, Bromberg J, Budde K, Chamienia A, Chow K, Ciszek M, de Freitas D, Dęborska-Materkowska D, Debska-Ślizień A, Djamali A, Domański L, Durlik M, Einecke G, Eskandary F, Fatica R, **Francis I**, Fryc J, Gill J, Gill J, Glyda M, Gourishankar S, Gryczman M, Gupta G, Hruba P, Hughes P, Jittirat A, Jurekovic Z, Kamal L, Kamel M, Kant S, Kojc N, Konopa J, Lan J, Mannon R, Matas A, Mazurkiewicz J, Miglinas M, Mueller T, Myślak M, Narins S, Naumnik B, **Patel A**, Perkowska-Ptasińska A, Picton M, Piecha G, Poggio E, Rajnochová Bloudíčková S, Schachtner T, Shojai S, Sikosana M, Slatinská J, Smykal-Jankowiak K, Veceric Haler Ž, Viklicky O, Vucur K, Weir MR, Wiecek A, Włodarczyk Z, Yang H, Zaky Z, Gauthier PT, and Hinze C. The role of epithelial cell injury in kidney transplant outcomes - a cross-sectional study. *JCI Insight* 2025; Epub ahead of print. PMID: 40232852. Full Text

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We defined injury-induced transcriptome states in 4502 kidney transplant biopsies taken 1 day to 45 years post-transplant using genome-wide microarrays. Injury was measured by injury-induced gene sets and classifiers previously developed in transplants. In principal component analysis, PC1 correlated with both acute and chronic kidney injury and related inflammation, and PC2 with time post-transplant. PC3 was a novel dimension that correlated with epithelial remodeling pathways. Both PC1 and PC3 correlated with reduced survival, PC1 effects strongly increasing with time whereas PC3 effects being time-independent. In this model, we studied the expression of genes annotated in native kidneys in epithelial cells with failed repair: 12 "New" gene sets previously defined in single nucleus RNA sequencing of native kidneys with AKI (Genome Med.14(1):103). The "New4" gene sets reflecting epithelial-mesenchymal transition (EMT) correlated with injury PC1, lower eGFR, higher donor age, and future failure as strongly as any gene sets previously derived in transplants, independent of nephron segment of origin and graft rejection. These results suggest that there are two distinct dimensions in kidney transplant response to injury: PC1, AKI-induced changes, failed repair, and inflammation; and PC3, a response involving epithelial remodeling without inflammation. Increasing kidney age amplifies PC1 and particularly PC3.

Pharmacy

Lobkovich A, Dabish R, Gavrilidis AM, Globerman B, and Berlie HD. Continuous Glucose Monitoring User-Wear Experience Fosters Empathy and Learning. *Am J Pharm Educ* 2025; 101410. Epub ahead of print. PMID: 40280332. Full Text

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OBJECTIVES: To determine if a continuous glucose monitoring (CGM) user-wear experience brings value to an advanced diabetes elective course by assessing impact on empathy and knowledge.
METHODS: This was a quasi-experimental pre-post intervention study, conducted over two offerings of an advanced diabetes elective course. Third-year pharmacy students participated in a two-part didactic education and user-wear experience involving CGM devices. Students completed a survey at three pre-specified time points to assess empathy and knowledge (foundational and counseling knowledge). Empathy was assessed using the Kiersma-Chen Empathy Scale. Knowledge was assessed using pre-defined multiple-choice questions. Statistical tests include repeated measures Analysis of Variance (ANOVA) and Bonferroni tests for overall and subsection scores on the empathy and knowledge surveys. A partial eta squared was also used to measure effect size for the repeated measures ANOVA test.
RESULTS: Twenty-nine out of the thirty-six enrolled students completed all three surveys. Compared to a traditional lecture, the CGM user-wear experience demonstrated a significant increase in student self-perceived empathy and in counseling knowledge. No change in foundational knowledge was observed.
CONCLUSION: A CGM user-wear experience provides educational value beyond a traditional lecture. Our study showed that educational outcomes such as empathy and counseling knowledge can be achieved by implementing a CGM user-wear experience. An advanced diabetes elective course provides an ideal environment to optimize CGM learning outcomes with a user-wear experience.

Public Health Sciences

Aboul-Nour H, Jumah A, Mohamed G, **Albanna AJ**, Alsrouji OK, **Schultz L**, **Latack K**, **Miller J**, Uddin K, **Gunaga S**, **Muir J**, **Chebl A**, and **Ramadan AR**. Fibrinogen depletion and the risk of intracerebral hemorrhage following endovascular mechanical thrombectomy. *Interv Neuroradiol* 2025; Epub ahead of print. PMID: 40296708. Full Text

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BackgroundIntravenous thrombolysis (IVT) and mechanical thrombectomy (MT) are the standard of care for select stroke patients with acute large vessel occlusion (LVO). Fibrinogen levels may drop after IVT, and a significant decrease in fibrinogen is associated with an increased risk of intracranial hemorrhage (ICH). Our pilot study aimed to explore the relationship between fibrinogen levels and the development of ICH in MT-treated patients and whether bridging with IVT further increases that risk.MethodsThis is a prospective pilot study that enrolled adults presenting with a diagnosis of LVO stroke and eligible to receive MT with or without IVT between April 2020 and May 2023. Fibrinogen levels were drawn before

treatment with IVT or MT and immediately following MT.ResultsForty-one patients were enrolled. Median age was 68 years [interquartile range 56-79], 58.5% were females and 56.1% were black. Nineteen patients (46.3%) were treated with MT + IVT, and 22 (53.6%) were treated with MT-only. There was no difference in baseline characteristics between the two groups. Baseline fibrinogen levels were similar between MT + IVT and MT-only groups [391 vs. 352 mg/dL, p = 0.4]. Post MT, the MT + IVT group had lower fibrinogen levels compared to the MT-only group [224 vs. 303 mg/dL, p < 0.001]. Similarly, there was a significant change between baseline and follow-up levels in the MT + IVT vs. MT-only group [106 vs. 39.5 mg/dL, p = 0.001]. Eight patients (19.5%) developed ICH; 5 (26.3%) in the MT + IVT group and 3 (13.6%) in the MT-only group. No significant differences were seen in baseline, follow-up, or change in fibrinogen levels between patients who developed ICH and those who did not. However, when stratified by treatment group, postintervention fibrinogen levels were significantly lower in patients who developed an ICH in the MT + IVT group compared to those without ICH in the MT group (200 vs. 301 mg/dL, p = 0.006). There was also a negative correlation between the change in fibrinogen levels and the rate of first-pass recanalization (Spearman CC -0.33, p = 0.03).ConclusionThis pilot study's preliminary data showed an association between fibrinogen depletion and hemorrhagic transformation in MT-treated patients. Since intracerebral hemorrhage is the most dire side effect in stroke treatment, fibrinogen monitoring in patients undergoing MT after IVT may help identify patients with an increased risk of ICH. Larger, prospective, and multicenter studies are needed to confirm these findings and if fibrinogen repletion should be considered for dysfibrinogenemia.

Public Health Sciences

Adjei Boakye E, **Nair M**, **Al-Antary N**, **Wilson C**, **Kerr K**, **Zatirka TM**, Hirko KA, **Elsiss F**, **Chang SS**, **Movsas B**, **Ryan M**, and **Tam S**. Exploratory analysis of electronic patient-reported outcomes collection: comparing online and in-clinic modalities in cancer care. *Qual Life Res* 2025; Epub ahead of print. PMID: 40237928. Full Text

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PURPOSE: Patient reported outcome measures (PROMs) have been shown to improve cancer survival but are generally underutilized in cancer care. It is unclear whether electronic-PROMS (ePROMs) modality (online vs. in-clinic) may address barriers to completion. We examined whether patient sociodemographic and clinical factors differed by completion modality. METHODS: Patients with cancer who had an oncologic provider visit from January 2021 to March 2023 at a tertiary cancer center were assigned the National Institute of Health's computer adaptive technology Patient-Reported Outcomes Measurement Information System instruments. Patients completed ePROMs either through online patient portal (online) up to 7 days before the visit or used a tablet at the clinic visit (in-clinic) if not completed online. Multivariable logistic regression model estimated associations between patient sociodemographic and clinical factors and completion modality. RESULTS: A total of 8556 patients completed ePROMs (43.3% completed in-clinic). Females were less likely than males to complete ePROMs in-clinic (aOR = 0.89, 0.84-0.93) as were patients with commercial insurance (aOR = 0.83, 0.77-0.89) vs.

Medicare; or saw radiation oncologist (aOR = 0.89, 0.83-0.96) vs. medical oncologist. However, patients were more likely to complete ePROMs in-clinic if they identified as Black race (aOR = 1.41, 1.33-1.49) vs. White; were single (aOR = 1.21, 1.14-1.29) or divorced/separated/widowed (aOR = 1.11, 1.04-1.18) vs. married; or saw a provider located in rural (aOR = 1.33, 1.25-1.42) vs. urban area. CONCLUSIONS: Patients who were males, Blacks, unmarried, Medicare insured or saw providers located in rural area were more likely to complete ePROMs in-clinic. Given the preference for online completion before visits for real-time symptom monitoring, targeted efforts are needed to boost online PROMs completion. PLAIN MESSAGE: This is a cross-sectional analysis of the associations between sociodemographic and clinical factors with two electronic patient reported outcome measures completion modalities. The results indicate that about half of patients completed online and half completed in-clinic, with males, Blacks, patients who were divorced/separated/widowed, had Medicare insurance and saw a medical oncologist completing electronic patient reported outcome measures in-clinic. We support offering both options while addressing barriers to either modality.

Public Health Sciences

Al-Antary N, Assi N, Nair M, Vu M, Siddiqui RF, **Siddiqui F**, and **Adjei Boakye E**. Human papillomavirus-related cancers and human papillomavirus vaccination among Arab Americans: A call to unveil disparities and bridge the research gaps. *Cancer* 2025; 131(7):e35830. PMID: 40130651. Full Text

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Arab Americans, a diverse and rapidly growing demographic in the United States, face unique barriers to human papillomavirus (HPV) vaccination and cancer prevention, but there is a notable lack of research on HPV-associated cancer incidence and vaccination rates in this community. Collaborative efforts among health care providers, public health agencies, researchers, and religious community organizations are essential to improve HPV vaccination uptake and reduce cancer disparities within this underserved population by including Middle Eastern and North African as a distinct category in national health surveys, conducting comprehensive epidemiological research, and developing culturally tailored interventions.

Public Health Sciences

Al-Antary N, Hirko KA, **Cassidy-Bushrow AE**, Zarins KR, **Simoff MJ**, **Song T**, **Cohen A**, and **Neslund-Dudas C**. Coronary Artery Calcification Identified on Lung Cancer Screening CT Scans: A Scoping Review. *Chest* 2025; Epub ahead of print. PMID: 40254149. Full Text

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TOPIC IMPORTANCE: Coronary artery calcification (CAC) can be a significant incidental finding on low-dose computed tomography (CT) scans performed for lung cancer screening (LCS). CAC presence and grade hold important diagnostic, and preventive value, particularly in patients without previously recognized coronary artery disease. This scoping review describes the prevalence of CAC as an incidental finding on LCS CT scans across prior studies and identifies directions for future research. REVIEW FINDINGS: The initial search resulted in 256 abstracts screened for eligibility, resulting in 32 articles included in the final review. CAC presence across included studies varied from 14.8% to 98%. CAC was most commonly reported as mild in grade, among 46.9% of studies. The majority of studies were conducted among predominantly White male participants. Finally, only 6 articles provided information on down-stream interventions for patients with newly detected CAC. SUMMARY: CAC, a predictive risk factor for cardiovascular events and mortality, is a frequently detected incidental finding on LCS CT scans, with substantial variation in presence across studies. Identification of CAC on LCS CT could inform clinical decisions to reduce patients' overall cardiovascular risk. These findings underscore the significance of standardizing the documentation and management of CAC in LCS. Finally, future studies should include greater race diversity.

Public Health Sciences

Al-Antary N, **Tam S**, **Alzouhayli S**, **Zatirka TM**, **Ryan M**, **Chang SS**, **Movsas B**, and **Adjei Boakye E**. Interventions influencing patient-reported outcomes (PROs) response rates in cancer: a scoping review. *J Cancer Surviv* 2025; Epub ahead of print. PMID: 40234324. Full Text

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PURPOSE: Despite the emerging evidence around patient-reported outcome measures (PROMs) monitoring benefits in oncology, completion rates remain low due to numerous multi-level barriers. This review summarizes existing literature on interventions employed to improve PROMs response rates in routine practice among patients with cancer. METHODS: PubMed database was used to perform a literature search of articles published between 2000 and 2022. Articles were included if they focused on PROMs implementation in non-clinical trial setting and reported results on methodologies and their influence on response rates. RESULTS: A total of 495 abstracts were screened for eligibility, and 14 articles that met the inclusion criteria were included. PROMs mode of administration varied between electronic only (four studies, 28.6%), paper only (two studies, 14.3%), electronic-paper (six studies, 42.9%), and electronic-telephone (two studies, 14.3%). Reminder systems, using electronic, paper, or in-person, were implemented in 12 studies (85.7%). Different strategies of initial recruitment, aiming to enhance patients' PROM engagements, were outlined in five studies (35.7%). CONCLUSION: Multiple interventions were implemented to improve PROMs completion rates. Mode of questionnaire administration, reminder systems, patient education on benefits of PROMs, and clinical staff involvement were shown to be effective in increasing the overall completion rate. IMPLICATIONS FOR CANCER SURVIVORS: This review provides a summary for researchers and clinicians on the current practice of PROMs implementation, thus creating a framework for the impact of different methodologies on patient's response rate for better monitoring of recurring symptoms, including long-term side effects, emotional distress, and changes in health-related quality of life.

Public Health Sciences

Elston Lafata J, Rendle KA, Wainwright JV, Cooley ME, Vachani A, **Neslund-Dudas C**, Odelberg MR, Alcaro L, Staresinic C, **Alexander GL**, Carlson RB, and Schapira MM. Characterizing the Design of and Emerging Evidence for Health Care Organization-Based Lung Cancer Screening Interventions: A Systematic Review. *MDM Policy Pract* 2025; 10(1). PMID: 40297168. Full Text

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Background. Implementing a lung cancer screening (LCS) program with low-dose computed tomography (LDCT) is complex, requiring health care organizations to consider several steps along the screening continuum from eligibility assessment to recommended follow-up testing adherence. The evidence to support LDCT screening implementation remains unclear. Purpose. To summarize interventions facilitating LCS initiation, adoption, or improvement within health care organizations. Data Sources. Librarian-assisted literature reviews identified published studies between January 1, 2011, and December 31, 2023, using CINAHL, Cochrane Library, Embase, Ovid Medline, PsycINFO, and Scopus. Study Selection. Published interventions focusing on any step in the LCS process before lung cancer diagnosis, including risk/eligibility assessment, shared decision making (SDM), and annual screening or diagnostic testing. Data Abstraction. We used a title/abstract review process, full-text review, and risk-of-bias assessments. We characterized studies by design, unit of observation, participant sociodemographic characteristics, primary outcome, and step in the LCS process. DistillerSR and Covidence were used for data management. Data Synthesis. We identified 64 study-eligible published articles, including 19 randomized and 45 nonrandomized studies. SDM interventions were most frequently studied (n = 20) followed by initial LCS uptake (n = 12). Most studies (n = 33) evaluated educational interventions, typically in one-on-one settings. Studies assessed at either low or moderate/some risk of bias reported statistically significant findings in the domains of improved knowledge (n = 7) and other aspects of decision making (n = 8), such as perceived risk or decisional conflict. Findings regarding LCS uptake were more variable. Limitations. The review includes only English-language studies published prior to 2024. The risk of bias was high among 5 of the randomized clinical trials and serious among 27 of the quasi-experimental design studies. Conclusions. LCS intervention strategies have focused on SDM and initial LCS uptake, leaving gaps in knowledge about how to support risk and eligibility assessment, adherence to annual screening, or diagnostic testing. Expanding interventions beyond those that are education focused and with single-level targets would expand the LDCT screening implementation evidence base. HIGHLIGHTS: Most lung cancer screening (LCS) interventions evaluated to date have been educational in nature and focused primarily on shared decision making or the initial uptake of screening, with some interventions demonstrating statistically significant improvements in patient knowledge and initial LCS order/uptake.A critical gap in knowledge remains regarding how to effectively support LCS eligibility assessment as well as adherence to annual screening and appropriate diagnostic testing.Findings underscore the need for the field to expand beyond education-focused interventions and incorporate multilevel targets when designing interventions to support high-quality LCS in practice.

Public Health Sciences

Eraky A, Ben-David R, Bignante G, Wu Z, Wang L, Lee R, Correa AF, Eun DD, Antonelli A, Veccia A, Ditonno F, **Abdollah F**, **Stephens A**, **Tinsley S**, Sidhom D, Sundaram CP, Moon SC, Rais-Bahrami S, Gonzalgo ML, Nativ OF, Porpiglia F, Amparore D, Checcucci E, Tufano A, Perdonà S, Brönimann S, Singla N, De Cobelli O, Ferro M, Simone G, Tuderti G, Meagher MF, Derweesh IH, Yoshida T, Kinoshita H, Bhanvadia R, Zahalka AH, Margulis V, Moghaddam FS, Djaladat H, Autorino R, and Mehrazin R. Combined neoadjuvant and adjuvant therapy versus adjuvant therapy in high-risk upper tract urothelial carcinoma: a propensity matched multicenter analysis (ROBUUST 2.0 International Collaborative Group). *World J Urol* 2025; 43(1):234. PMID: 40251401. Full Text

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INTRODUCTION: The efficacy of combined neoadjuvant and adjuvant therapy (CNAT) in upper tract urothelial carcinoma (UTUC) remains unclear despite its demonstrated potential in bladder urothelial carcinoma. High-risk features- clinical stage ≥ T3, node-positive disease, multifocality, high-grade pathology, hydronephrosis, and large tumor size - are associated with poor prognosis in UTUC. We investigated the oncological outcomes of CNAT versus adjuvant therapy (AT) alone in high-risk UTUC patients. MATERIALS AND METHODS: We analyzed perioperative data from 2433 patients with UTUC (2015-2023) across 17 centers in the US, Europe, and Asia. Propensity score matching was performed using preoperative clinical T and N stages. Kaplan-Meier curves and Cox proportional hazards models were used to evaluate overall survival (OS), cancer-specific survival (CSS), recurrence-free survival (RFS), and metastasis-free survival (MFS). RESULTS: Among 285 high-risk UTUC patients, 76 matched patients (38 CNAT, 38 AT) were analyzed after matching, with a median follow-up of 15 months. CNAT and AT groups had comparable oncological outcomes: 2-year OS (72.9% vs. 71.8%; p = 0.89), CSS (76.7% vs. 75.3%; p = 0.92), RFS (30.1% vs. 39%; p = 0.97), or MFS (45.5% vs. 44.7%; p = 0.91), respectively. Cox regression showed no significant survival benefit of CNAT over AT after adjusting for clinical and pathological factors (HR for OS: 1.06; p = 0.9). CONCLUSION: In this large multicenter international cohort, our findings suggest that CNAT does not provide a clear advantage over AT alone in patients with high-risk UTUC. Prospective randomized trials are needed to clarify the role of multimodal therapy in UTUC management.

Public Health Sciences

Ezell GJ, **Smith N**, **Condon M**, **Joyce K**, **Joseph J**, **Springer K**, and **Pitts DAS**. Time to Diagnosis and Treatment of Postpartum Hypertensive Disorders in the Emergency Department—A Single Retrospective Cohort Study. *Reprod Med* 2025; 6(1):2. PMID: Not assigned. Full Text

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Background/Objectives: In the postpartum period, approximately 12% of patients seek care in the emergency department (ED), with a higher representation of Black patients. Hypertension is a common reason for ED visits during this period, often leading to dangerously delayed diagnosis and treatment. Objective: This study aims to assess the time to diagnosis and treatment of hypertensive disorders in the postpartum period in the ED, focusing on potential disparities in care, to identify areas for quality improvement. Design: Retrospective cohort study. Setting: A multi-centered large medical institution in the metro Detroit area. Methods: Postpartum patients (day 2 through day 28) presenting to the ED from November 2015 to December 2022. Exposures: none. Main Outcome Measures: Primary analysis assessed the time elapsed between severe-range blood pressure readings (greater than/equal to 160 systolic and/or 110 diastolic) and the administration of antihypertensives. Secondary analyses assessed the presence of essential laboratory workups such as complete blood counts, complete metabolic panels, and urine protein and creatinine. Results: Among the 430 women who presented to the ED during the postpartum period with hypertension, 372 (86.5%) exhibited severe-range blood pressure (greater than/equal to 160 systolic and/or 110 diastolic). Patients presented on average on postpartum day 6. Of the patients with severe hypertension, only 72% received a complete blood count, 66% underwent evaluation of creatinine and liver profile, and 4% had a urine protein and creatinine test ordered. The average time from severe-range blood pressure reading to antihypertensive administration was 189 min for Black patients and 370 min for White patients. There were no statistically significant differences in the time of the first blood pressure reading, laboratory evaluation, or treatment of severe-range blood pressure between racial groups. Conclusions: This study identifies the most significant area for improvement in the timely administration of antihypertensive medication following severe-range blood pressure readings. Additional areas for improvement were observed in ordering essential laboratory tests to assess the severity of preeclampsia. The institution demonstrated delayed yet equitable care for White and Black patients, contrary to the existing literature indicating potential racial disparities. A targeted quality improvement plan has been implemented to improve the identified areas of concern to adhere to the ACOG's treatment recommendations for hypertensive disorders of pregnancy. The impact on patient care will be reassessed at the 1-year mark.

Public Health Sciences

Grewal JS, **Diffley M**, **Greenberg Y**, **Alzouhayli S**, **Springer K**, Westreich R, and **Deeb RH**. Endonasal dome bind with incorporation of a columellar strut reduces Infratip fullness: a quantitative photographic analysis. *Am J Otolaryngol* 2025; 46(3):104619. PMID: 40273632. Full Text

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OBJECTIVE: To demonstrate the effectiveness of the dome bind suture technique with incorporation of a columellar strut in reducing infratip lobule fullness in closed rhinoplasty by use of quantitative photographic analysis. METHODS: A retrospective review of patients who underwent rhinoplasty by two senior authors was carried out. All surgical maneuvers were documented. Photographic analysis was

performed quantitatively using Rhinobase software. Results were recorded as ratio of change relative to a stable anatomic reference. This was chosen as the intercanthal distance on frontal view and lateral canthus to lateral commissure distance on lateral view. RESULTS: Sixty-three patients were included who underwent the dome bind suture technique. On frontal view, the ratio of the infratip lobule on post-surgical images versus preintervention was 0.88, which represents a reduction of 12 % ($P < 0.01$). This was not apparent on lateral view, with a postoperative/preoperative ratio of 1.02 ($P = 0.53$). CONCLUSION: We have demonstrated that the endonasal dome bind technique with incorporation of a columellar strut is useful at reducing infratip lobule fullness on frontal view and is a valuable tool in the armamentarium of the rhinoplasty surgeon.

Public Health Sciences

Kim E, Kagithala D, **Hu J**, **Jarabek K**, Brennan M, **Chaker AN**, **Pawloski J**, **Telemi E**, **Mansour T**, Robles MC, **Fadel HA**, **Springer K**, **Schultz L**, **Nerenz DR**, **Khalil JG**, Easton R, Perez-Cruet M, Aleem I, Park P, Soo T, Tong D, **Abdulhak M**, **Schwalb JM**, and **Chang V**. Risk Factors of Long-Term Opioid Use After Elective Cervical and Lumbar Spine Surgery: A Michigan Spine Surgery Improvement Collaborative Study. *Neurosurgery* 2025; Epub ahead of print. PMID: 40243311. Full Text

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BACKGROUND AND OBJECTIVES: Given the current opioid epidemic and its impact on public health, long-term opioid use after elective spine surgery is a significant concern. Identifying risk factors of long-term opioid use after spine surgery is crucial for developing effective interventions to reduce opioid dependence in this patient population. The objective of this study was to identify risk factors associated with long-term opioid use after elective lumbar and cervical spine surgeries. METHODS: A retrospective analysis of patient data was conducted using the Michigan Spine Surgery Improvement Collaborative data registry. Patients who underwent elective lumbar or cervical spine surgery between March 2018 and September 2021 were included. Poisson generalized estimating equation models were used for multivariate analyses. RESULTS: A total of 5301 and 3992 lumbar surgery patients at 1 and 2 years, respectively, and a total of 2074 and 1451 cervical surgery patients at 1 and 2 years, respectively, were included for analysis. Preoperative opioid use, opioid use at 90 days postoperatively, and poor functional status were the strongest predictors of long-term opioid use. Among all patients, preoperative opioid use most strongly predicted long-term use at 1 and 2 years for lumbar and cervical patients. Among opioid-naïve patients (preoperative nonusers), opioid use at 90 days postoperatively strongly predicted continued use at 1 and 2 years in both lumbar and cervical patients. The inability to achieve a minimal clinically important difference in Patient-Reported Outcomes Measurement Information System physical function was also associated with opioid use at 1-year and 2-year follow-up in lumbar and cervical patients. CONCLUSION: Preoperative opioid use, opioid use at 90 days postoperatively, and failure to reach minimal clinically important difference of Patient-Reported Outcomes Measurement Information System Physical Function were the strongest predictors of long-term opioid use after elective lumbar and cervical spine surgeries.

Public Health Sciences

Lewis NM, Harker EJ, Cleary S, Zhu Y, Grijalva CG, Chappell JD, Rhoads JP, Baughman A, Casey JD, Blair PW, Jones ID, Johnson CA, Halasa NB, Lauring AS, Martin ET, Gaglani M, Ghamande S, Columbus C, Steingrub JS, Duggal A, Felzer JR, Prekker ME, Peltan ID, Brown SM, Hager DN, Gong MN, Mohamed A, Exline MC, Khan A, Ferguson SAN, Mosier J, Qadir N, Chang SY, Ginde AA, Zepeski A, Mallow C, Harris ES, Johnson NJ, Gibbs KW, Kwon JH, **Vaughn IA**, **Ramesh M**, Safdar B, Surie D, Dawood FS, Ellington S, and Self WH. Vaccine Effectiveness Against Influenza A(H1N1), A(H3N2), and B-Associated Hospitalizations-United States, September 1, 2023-May 31, 2024. *J Infect Dis* 2025; Epub ahead of print. PMID: 40198276. Full Text

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BACKGROUND: The 2023-2024 influenza season included sustained elevated activity from December 2023-February 2024 and continued activity through May 2024. Influenza A(H1N1), A(H3N2), and B viruses circulated during the season. METHODS: During September 1, 2023-May 31, 2024, a multistate sentinel surveillance network of 24 medical centers in 20 U.S. states enrolled adults aged ≥18 years hospitalized with acute respiratory illness (ARI). Consistent with a test-negative design, cases tested positive for influenza viruses by molecular or antigen test, and controls tested negative for influenza viruses and SARS-CoV-2. Vaccine effectiveness (VE) against influenza-associated hospitalization was calculated as (1 - adjusted odds ratio for vaccination) × 100%. RESULTS: Among 7690 patients, including 1170 influenza cases (33% vaccinated) and 6520 controls, VE was 40% (95% CI: 31%-48%) with varying estimates by age (18-49 years: 53% [34%-67%]; 50-64 years: 47% [31%-60%]; ≥65 years: 31% [16%-43%]). Protection was similar among immunocompetent patients (40% [30%-49%]) and immunocompromised patients (32% [7-50%]). VE was statistically significant against influenza B (67% [35%-84%]) and A(H1N1) (36% [21%-48%]) and crossed the null against A(H3N2) (19% [-8%-39%]). VE was higher for patients 14-60 days from vaccination (54% [40%-65%]) than >120 days (18% [-1%-33%]). CONCLUSIONS: During 2023-2024, influenza vaccination reduced the risk of influenza A(H1N1)- and influenza B-associated hospitalizations among adults; effectiveness was lower in patients vaccinated >120 days prior to illness onset compared with those vaccinated 14-60 days prior.

Public Health Sciences

Phelan KJ, Roskin KM, Burkle JW, Chang WC, Martin LJ, Biagini JM, Satish L, Haslam DB, Spagna D, Jenkins S, Parmar E, Bacharier LB, Gebretsadik T, Gill M, Gold DR, Jackson DJ, **Johnson CC**, Lynch SV, McCauley KE, McKennan CG, Miller R, Ober C, Ownby DR, Ryan PH, Schoettler N, Singh S, Visness CM, Altman MC, Gern JE, and Khurana Hershey GK. Early-Life Wheeze Trajectories Are Associated with Distinct Asthma Transcriptomes Later in Life. *J Allergy Clin Immunol* 2025; Epub ahead of print. PMID: 40189159. Full Text

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RATIONALE: Early childhood wheeze is characterized by heterogeneous trajectories having differential associations with later life asthma development. METHODS: The Children's Respiratory Environmental Workgroup (CREW) is a collective of 12 birth cohorts, 7 of which conducted an additional visit with a nasal lavage collected and subjected to bulk RNA-sequencing. Early-life wheeze trajectories were defined using latent class analysis of longitudinal early-life wheezing data. Weighted gene correlation network analysis was utilized to associate gene expression patterns and current asthma with early-life wheeze trajectories. RESULTS: We investigated 743 children (mean [SD] age 17 [5.1] years, 360 [48.5%] male). Four patterns of early life wheeze were identified: infrequent, transient, late-onset, persistent. Early life transient wheeze was associated with gene expression patterns related to increased antiviral response and late-onset wheeze was associated with decreased insulin signaling and glucose metabolism. Early-life persistent wheeze was associated with gene expression modules of type 2 inflammation and epithelial

development, but these modules did not distinguish those with current asthma. Children who had persistent wheeze in early life and current asthma displayed a unique increase in expression of genes enriched for neuronal processes and ciliated epithelial function compared to those without asthma. CONCLUSIONS: Early-life longitudinal wheeze trajectories are associated with specific asthma transcriptomes later in life. These data suggest early-life asthma prevention strategies may be most beneficial when tailored to the specific wheeze pattern.

Public Health Sciences

Surie D, Yuengling KA, Safdar B, Ginde AA, Peltan ID, Brown SM, Gaglani M, Ghamande S, Gottlieb RL, Columbus C, Mohr NM, Gibbs KW, Hager DN, O'Rourke M, Gong MN, Mohamed A, Johnson NJ, Steingrub JS, Khan A, Duggal A, Wilson JG, Qadir N, Chang SY, Mallow C, Busse LW, Felzer J, Kwon JH, Exline MC, **Vaughn IA**, **Ramesh M**, Lauring AS, Martin ET, Mosier JM, Harris ES, Baughman A, Swan SA, Johnson CA, Blair PW, Lewis NM, Ellington S, Rutkowski RE, Zhu Y, Self WH, and Dawood FS. Patient- and Community-Level Characteristics Associated With Respiratory Syncytial Virus Vaccination. *JAMA Netw Open* 2025; 8(4):e252841. PMID: 40168024. Full Text

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IMPORTANCE: In 2023, the first respiratory syncytial virus (RSV) vaccines were recommended for US adults 60 years or older, but few data are available about which patients were most likely to receive vaccine to inform future RSV vaccine outreach efforts. OBJECTIVE: To assess patient- and community-level characteristics associated with RSV vaccine receipt and patient knowledge and attitudes related to RSV disease and RSV vaccines. DESIGN, SETTING, AND PARTICIPANTS: During the first season of RSV vaccine use from October 1, 2023, to April 30, 2024, adults 60 years or older hospitalized with RSV-negative acute respiratory illness were enrolled in this cross-sectional study from 26 hospitals in 20 US states. Sociodemographic and clinical data were abstracted from health records, and structured interviews were conducted for knowledge and attitudes about RSV disease and RSV vaccines. EXPOSURES: Age, sex, race and ethnicity, pulmonary disease, immunocompromised status, long-term care facility residence, medical insurance, social vulnerability index (SVI), and educational level. MAIN OUTCOMES AND MEASURES: The exposures were identified a priori as possible factors associated with RSV vaccine receipt and were entered into a modified Poisson regression model accounting for state clustering, to assess for association with RSV vaccine receipt. Knowledge and attitudes were summarized with frequencies and proportions. RESULTS: Among 6746 hospitalized adults 60 years or older, median age was 73 (IQR, 66-80) years and 3451 (51.2%) were female. Among the 6599 patients with self-reported race and ethnicity, 699 (10.6%) were Hispanic, 1288 (19.5%) were non-Hispanic Black, 4299 (65.1%) were non-Hispanic White, and 313 (4.7%) were other race or ethnicity. There were 700 RSV-vaccinated (10.4%) and 6046 unvaccinated (89.6%) adults. Among 3219 unvaccinated adults who responded to RSV knowledge questions, 1519 (47.2%) had not heard of RSV or were unsure; 2525 of 3218 (78.5%) were unsure if they were eligible for RSV vaccine or thought they were not. In adjusted analyses, characteristics associated with RSV vaccination were being 75 years or older (adjusted risk ratio [ARR], 1.23; 95% CI, 1.10-1.38, P < .001), being male (ARR, 1.15; 95% CI, 1.01-1.30; P = .04), and having pulmonary disease (ARR, 1.39; 95% CI, 1.16-1.67; P < .001), immunocompromised status (ARR, 1.30; 95% CI, 1.14-1.48; P < .001), low (ARR, 1.47; 95% CI, 1.18-1.83, P < .001) or moderate (ARR, 1.47; 95% CI, 1.21-1.79; P < .001) SVI, and educational level consisting of 4 or more years of college (ARR, 2.91; 95% CI, 2.14-3.96; P < .001), at least some college or technical training (ARR, 1.85; 95% CI, 1.35-2.53; P < .001), or grade 12 education or General Educational Development (ARR, 1.44; 95% CI, 1.03-2.00; P = .03). RSV vaccination was less likely among residents of long-term care facilities, patients with Medicaid coverage, and uninsured patients. CONCLUSIONS AND RELEVANCE: In this cross-sectional study of hospitalized adults, knowledge of RSV disease and RSV vaccine eligibility was low. Older adults and those with certain medical conditions were more likely to have received vaccine, suggesting appropriate prioritization, but sociodemographic differences in vaccine uptake occurred.

Pulmonary and Critical Care Medicine

Al-Antary N, Hirko KA, **Cassidy-Bushrow AE**, Zarins KR, **Simoff MJ**, **Song T**, **Cohen A**, and **Neslund-Dudas C**. Coronary Artery Calcification Identified on Lung Cancer Screening CT Scans: A Scoping Review. *Chest* 2025; Epub ahead of print. PMID: 40254149. Full Text

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TOPIC IMPORTANCE: Coronary artery calcification (CAC) can be a significant incidental finding on low-dose computed tomography (CT) scans performed for lung cancer screening (LCS). CAC presence and

grade hold important diagnostic, and preventive value, particularly in patients without previously recognized coronary artery disease. This scoping review describes the prevalence of CAC as an incidental finding on LCS CT scans across prior studies and identifies directions for future research. REVIEW FINDINGS: The initial search resulted in 256 abstracts screened for eligibility, resulting in 32 articles included in the final review. CAC presence across included studies varied from 14.8% to 98%. CAC was most commonly reported as mild in grade, among 46.9% of studies. The majority of studies were conducted among predominantly White male participants. Finally, only 6 articles provided information on down-stream interventions for patients with newly detected CAC. SUMMARY: CAC, a predictive risk factor for cardiovascular events and mortality, is a frequently detected incidental finding on LCS CT scans, with substantial variation in presence across studies. Identification of CAC on LCS CT could inform clinical decisions to reduce patients' overall cardiovascular risk. These findings underscore the significance of standardizing the documentation and management of CAC in LCS. Finally, future studies should include greater race diversity.

Pulmonary and Critical Care Medicine
Awdish RLA. The Alchemy of Pain. *ATS Sch* 2025; Epub ahead of print. PMID: 40232321. Full Text

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Pulmonary and Critical Care Medicine
Kapadia D, **Simoff MJ**, and **Diaz-Mendoza J**. Benign Tracheal Stenosis and Subglottic Stenosis. *Clin Chest Med* 2025. PMID: Not assigned. Full Text

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Radiation Oncology
Adjei Boakye E, **Nair M**, **Al-Antary N**, **Wilson C**, **Kerr K**, **Zatirka TM**, Hirko KA, **Elsiss F**, **Chang SS**, **Movsas B**, **Ryan M**, and **Tam S**. Exploratory analysis of electronic patient-reported outcomes collection: comparing online and in-clinic modalities in cancer care. *Qual Life Res* 2025; Epub ahead of print. PMID: 40237928. Full Text

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PURPOSE: Patient reported outcome measures (PROMs) have been shown to improve cancer survival but are generally underutilized in cancer care. It is unclear whether electronic-PROMS (ePROMs) modality (online vs. in-clinic) may address barriers to completion. We examined whether patient sociodemographic and clinical factors differed by completion modality. METHODS: Patients with cancer

who had an oncologic provider visit from January 2021 to March 2023 at a tertiary cancer center were assigned the National Institute of Health's computer adaptive technology Patient-Reported Outcomes Measurement Information System instruments. Patients completed ePROMs either through online patient portal (online) up to 7 days before the visit or used a tablet at the clinic visit (in-clinic) if not completed online. Multivariable logistic regression model estimated associations between patient sociodemographic and clinical factors and completion modality. RESULTS: A total of 8556 patients completed ePROMs (43.3% completed in-clinic). Females were less likely than males to complete ePROMs in-clinic (aOR = 0.89, 0.84-0.93) as were patients with commercial insurance (aOR = 0.83, 0.77-0.89) vs. Medicare; or saw radiation oncologist (aOR = 0.89, 0.83-0.96) vs. medical oncologist. However, patients were more likely to complete ePROMs in-clinic if they identified as Black race (aOR = 1.41, 1.33-1.49) vs. White; were single (aOR = 1.21, 1.14-1.29) or divorced/separated/widowed (aOR = 1.11, 1.04-1.18) vs. married; or saw a provider located in rural (aOR = 1.33, 1.25-1.42) vs. urban area. CONCLUSIONS: Patients who were males, Blacks, unmarried, Medicare insured or saw providers located in rural area were more likely to complete ePROMs in-clinic. Given the preference for online completion before visits for real-time symptom monitoring, targeted efforts are needed to boost online PROMs completion. PLAIN MESSAGE: This is a cross-sectional analysis of the associations between sociodemographic and clinical factors with two electronic patient reported outcome measures completion modalities. The results indicate that about half of patients completed online and half completed in-clinic, with males, Blacks, patients who were divorced/separated/widowed, had Medicare insurance and saw a medical oncologist completing electronic patient reported outcome measures in-clinic. We support offering both options while addressing barriers to either modality.

Radiation Oncology

Al-Antary N, **Tam S**, **Alzouhayli S**, **Zatirka TM**, **Ryan M**, **Chang SS**, **Movsas B**, and **Adjei Boakye E**. Interventions influencing patient-reported outcomes (PROs) response rates in cancer: a scoping review. *J Cancer Surviv* 2025; Epub ahead of print. PMID: 40234324. Full Text

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PURPOSE: Despite the emerging evidence around patient-reported outcome measures (PROMs) monitoring benefits in oncology, completion rates remain low due to numerous multi-level barriers. This review summarizes existing literature on interventions employed to improve PROMs response rates in routine practice among patients with cancer. METHODS: PubMed database was used to perform a literature search of articles published between 2000 and 2022. Articles were included if they focused on PROMs implementation in non-clinical trial setting and reported results on methodologies and their influence on response rates. RESULTS: A total of 495 abstracts were screened for eligibility, and 14 articles that met the inclusion criteria were included. PROMs mode of administration varied between electronic only (four studies, 28.6%), paper only (two studies, 14.3%), electronic-paper (six studies, 42.9%), and electronic-telephone (two studies, 14.3%). Reminder systems, using electronic, paper, or in-person, were implemented in 12 studies (85.7%). Different strategies of initial recruitment, aiming to enhance patients' PROM engagements, were outlined in five studies (35.7%). CONCLUSION: Multiple interventions were implemented to improve PROMs completion rates. Mode of questionnaire administration, reminder systems, patient education on benefits of PROMs, and clinical staff involvement

were shown to be effective in increasing the overall completion rate. IMPLICATIONS FOR CANCER SURVIVORS: This review provides a summary for researchers and clinicians on the current practice of PROMs implementation, thus creating a framework for the impact of different methodologies on patient's response rate for better monitoring of recurring symptoms, including long-term side effects, emotional distress, and changes in health-related quality of life.

Radiation Oncology

Chapman D, **Matsumoto A**, **Aldridge K**, Yin M, Griffith K, Mietzel M, and **Walker EM**. The Use of Breast Cup Immobilization in Radiation Therapy and Patient-Reported Outcomes on Cosmesis and Pain. *Adv Radiat Oncol* 2025; 10(5):101759. PMID: 40276628. Full Text

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PURPOSE: Breast cosmesis and breast pain are among the most reported outcomes in patients undergoing adjuvant breast irradiation. The degree to which such adverse reactions occur can be variable based on different patient-specific characteristics. It has been found that women with a larger body habitus, and larger breasts, tend to have an increased chance of experiencing worse toxicity from treatment. As such, attempts to improve cosmetic and pain outcomes have been a highly explored topic. One such technique, that is studied here, is to explore whether the use of a breast cup during treatment leads to worse breast pain and cosmetic outcomes when compared with those treated without a breast cup. This proves to be an important topic because it is believed that the use of a breast cup would provide a significant dosimetric advantage (ie, breast coverage and organ at risk dosing) during treatment. We now explore this treatment option through the scope of a retrospective analysis of patient-reported outcomes experienced during and after completing postoperative radiation therapy to the breast. METHODS AND MATERIALS: A total of 645 patients undergoing adjuvant breast irradiation were evaluated from 2011 to 2019. Of the 645 patients, 79 were treated using a breast cup. The mean heart dose was analyzed and compared between the 2 treatment groups. Additionally, patient-reported outcomes among the entire cohort were collected via survey documentation forms during treatment, at 1 month after the completion of treatment, and at 1 year after the completion of treatment. These results were collected using the Michigan Radiation Oncology Quality Consortium database because each patient was consented to enroll in the Michigan Radiation Oncology Quality Consortium prior to starting treatment. The outcomes of skin changes, lymphedema, and breast pain among the 2 treatment groups were then compared for statistically significant differences via a logistic regression analysis. RESULTS: Of the 79 patients treated with a breast cup, grade 2 pruritus of the treated breast along with grade 1 alteration in skin texture was reported in 49.4%, 35.4%, and 22.8% while on treatment, at 1 month after the completion of treatment, and at 1 year after treatment, respectively; P-values were nonsignificant at all timepoints when data compared with non-cup-treated patients. With regard to lymphedema, 59.5%, 40.5%, and 10.1% of breast cup patients at the prespecified timepoints reported this sequela; all P-values were nonsignificant except for the 1-month mark (P-value .03). Lastly, breast pain was noted in 36.7%, 15.2%, and 11.4% of breast cup-treated patients while on treatment, at 1 month after the completion of treatment, and at 1 year after treatment, respectively; again, P-values for data analysis at each timepoint were nonsignificant. Other than the patient-reported outcome of lymphedema 1 month after the completion of treatment, no statistical significance was seen in comparing side effects between the 2 treatment arms. CONCLUSIONS: From our patients' perspective, the use of a breast cup during radiation therapy did not negatively impact breast cosmesis or pain when compared with patients treated without a cup. Furthermore, breast cup use was also found to produce a lower overall mean heart dose in patients with left-sided breast cancer.

Radiation Oncology

Li C, Sultan R, **Bagher-Ebadian H**, Qiang Y, **Thind K**, Zhu D, and Chetty IJ. Enhancing CT image segmentation accuracy through ensemble loss function optimization. *Med Phys* 2025; Epub ahead of print. PMID: 40275531. Full Text

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BACKGROUND: In CT-based medical image segmentation, the choice of loss function profoundly impacts the training efficacy of deep neural networks. Traditional loss functions like cross entropy (CE), Dice, Boundary, and TopK each have unique strengths and limitations, often introducing biases when used individually. PURPOSE: This study aims to enhance segmentation accuracy by optimizing ensemble loss functions, thereby addressing the biases and limitations of single loss functions and their linear combinations. METHODS: We implemented a comprehensive evaluation of loss function combinations by integrating CE, Dice, Boundary, and TopK loss functions through both loss-level linear combination and model-level ensemble methods. Our approach utilized two state-of-the-art 3D segmentation architectures, Attention U-Net (AttUNet) and SwinUNETR, to test the impact of these methods. The study was conducted on two large CT dataset cohorts: an institutional dataset containing pelvic organ segmentations, and a public dataset consisting of multiple organ segmentations. All the models were trained from scratch with different loss settings, and performance was evaluated using Dice similarity coefficient (DSC), Hausdorff distance (HD), and average surface distance (ASD). In the ensemble approach, both static averaging and learnable dynamic weighting strategies were employed to combine the outputs of models trained with different loss functions. RESULTS: Extensive experiments revealed the following: (1) the linear combination of loss functions achieved results comparable to those of single loss-driven methods; (2) compared to the best non-ensemble methods, ensemble-based approaches resulted in a 2%-7% increase in DSC scores, along with notable reductions in HD (e.g., a 19.1% reduction for rectum segmentation using SwinUNETR) and ASD (e.g., a 49.0% reduction for prostate segmentation using AttUNet); (3) the learnable ensemble approach with optimized weights produced finer details in predicted masks, as confirmed by qualitative analyses; and (4) the learnable ensemble consistently outperforms the static ensemble across most metrics (DSC, HD, ASD) for both AttUNet and SwinUNETR architectures. CONCLUSIONS: Our findings support the efficacy of using ensemble models with optimized weights to improve segmentation accuracy, highlighting the potential for broader applications in automated medical image analysis.

Radiation Oncology

Simone CB, 2nd, Amini A, **Chetty IJ**, Choi JI, Chun SG, Donington J, Edelman MJ, Higgins KA, Kestin LL, Mohindra P, **Movsas B**, Rodrigues GB, Rosenzweig KE, **Rykbin, II**, Shepherd AF, Slotman BJ, Wolf A, and Chang JY. American Radium Society™ Appropriate Use Criteria Systematic Review and Guidelines on Reirradiation for Non-small Cell Lung Cancer Executive Summary. *Int J Radiat Oncol Biol Phys* 2025; Epub ahead of print. PMID: 40185207. Full Text

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Fox Chase Comprehensive Cancer Center, Philadelphia, PA.
City of Hope Cancer Center Atlanta, Atlanta, GA.
MHP Radiation Oncology Institute/GenesisCare USA, Farmington Hills, MI.
UH Cleveland Medical Center, Cleveland, OH.
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BACKGROUND: Definitive thoracic reirradiation can improve outcomes for select non-small cell lung cancer (NSCLC) patients with locoregional recurrences. To date, there are a lack of systematic reviews on safety or efficacy of NSCLC reirradiation and dedicated guidelines. This ARS Appropriate Use Criteria

Systematic Review and Guidelines provides practical guidance on thoracic reirradiation safety and efficacy and recommends consensus of strategy, techniques and composite dose constraints to minimize risks of high-grade/fatal toxicities. METHODS: PRISMA systematic review assessed all studies published through 5/2020 evaluating toxicities, local control and/or survival for NSCLC thoracic reirradiation. Of 251 articles, 52 remained after exclusions (3 prospective) and formed the basis for recommendations on the role of concurrent chemotherapy, factors associated with toxicities, and optimal reirradiation modalities and dose-fractionation schemas. RESULTS: Stereotactic body radiation therapy improves conformality/dose escalation and is optimal for primary-alone failures, but caution is needed for central lesions. Concurrent chemotherapy with definitive reirradiation improves outcomes in nodal recurrences but adds toxicity and should be individualized. Hyperfractionated reirradiation may reduce long-term toxicities, although data are limited. Intensity-modulated reirradiation is recommended over 3D conformal reirradiation. Particle therapy may further reduce toxicities and enable safer dose escalation. Acute esophagitis/pneumonitis and late pulmonary/cardiac/esophageal/brachial plexus toxicities are dose limiting for reirradiation. Recommended reirradiation composite dose constraints (2Gy equivalents): esophagus V60<40%, DMax<100 Gy; lung V20<40%; heart V40<50%; aorta/great vessels DMax<120 Gy; trachea/proximal bronchial tree DMax<110 Gy; spinal cord DMax<57 Gy; brachial plexus DMax<85 Gy. CONCLUSIONS: Personalized thoracic reirradiation approaches and consensus dose constraints for thoracic reirradiation are recommended and serve as the basis for ongoing Reirradiation Collaborative Group (ReCOG) and NRG Oncology initiatives. As very few prospective and small retrospective studies formed the basis for generating the dose constraint recommended in this report, further prospective studies are needed to strengthen and improve these guidelines.

Sleep Medicine

Drake CL, Yardley J, Pinner K, Moline M, and Malhotra M. Perception of Lemborexant Effectiveness as Assessed by the Patient Global Impression-Insomnia Questionnaire. *Nat Sci Sleep* 2025; 17:557-570. PMID: 40225286. Full Text

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OBJECTIVE: Using data from a clinical study of lemborexant, evaluate responses to the Patient Global Impression-Insomnia (PGI-I) questionnaire, a simple 4-item questionnaire that assesses patients' perceptions of the effects of medication on sleep, which may help evaluate clinically meaningful changes from the patient's perspective. METHODS: Study E2006-G001-303, a 12-month, placebo (PBO)-controlled (first 6 months) Phase 3 study in adults with insomnia disorder, randomized subjects (1:1:1) to lemborexant 5 mg (LEM5; n=316), 10 mg (LEM10; n=315), or PBO (n=318). The second 6 months are not presented here. PGI-I results were analyzed post hoc in relation to patient-reported (subjective) sleep-onset latency (sSOL) and total-sleep-time (sTST). RESULTS: At 6 months: 67.3% (LEM5) and 68.8% (LEM10) of subjects reported positive effects of medication helping them sleep versus 45.0% (both p<0.0001) with PBO. Positive effects on "time to fall asleep" were reported by 72.8% (LEM5) and 73.1% (LEM10) versus 46.1% with PBO (p<0.0001), and 58.0% (LEM5) and 62.0% (LEM10) reported positive effects on sleep duration versus 39.9% with PBO (p<0.0001). Subjects reporting positive effects on "time to fall asleep" had greater change from baseline (CFB; improvement) at 6 months in median sSOL (in minutes; LEM5= -26.8; LEM10= -32.1; PBO= -17.5; p<0.01) versus those reporting negative effects (LEM5= -9.1; LEM10= -10.4; PBO= -8.6; LEM5 vs PBO, p=0.52; LEM10 vs PBO, p=0.69). For sTST (in minutes) at 6 months, mean CFB tended to be greater for subjects reporting positive (LEM5=81.2, LEM10=93.2, PBO=74.8; LEM5 vs PBO, p=0.28; LEM10 vs PBO, p=0.18) versus negative (LEM5=46.4, LEM10=35.0, PBO=38.6; LEM5 vs PBO, p=0.44; LEM10 vs PBO, p=0.52) effects, although this was not statistically significant. CONCLUSION: Patient impressions of the effects of lemborexant were positive based on the PGI-I and reflected improvements in subjective sleep outcome measures, indicating that the brief PGI-I tool may be useful in clinical practice. People with chronic insomnia, a common sleep disorder, have trouble falling asleep and/or staying asleep 3 or more times per week for at least 3 months. Insomnia treatments should improve sleep when measured objectively but should also improve sleep from the patient’s perspective. The Patient Global Impression–Insomnia (PGI-I) is a simple 4-item

questionnaire that assesses a patient's perceived efficacy of their sleep medication. Lemborexant is a medicine used to treat insomnia. This study evaluated the patient's view of the success of lemborexant treatment over time. There were 316, 315, and 318 people with chronic insomnia in the lemborexant 5 mg, lemborexant 10 mg, and no active treatment (placebo) groups, respectively, in this study. People treated with lemborexant reported more positive views of their medication on the PGI-I compared with those treated with placebo. These positive impressions of lemborexant on the PGI-I were associated with improvements in related subjective measurements of sleep. These results indicate that the PGI-I is a tool that may help assess whether an insomnia treatment is working from the patient's viewpoint.

Sleep Medicine
Gumenyuk V, Murman DL, **Roth T**, Korzyukov O, Miller NR, Parker SM, and Rizzo M. Discrepancies Between Subjective and Objective Evaluation of Sleep: Potential Marker for Mild Cognitive Impairment. *Sleep Med Res* 2025; 16(1):33-41. PMID: Not assigned. Full Text

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Background and Objective Discrepancies between objective and subjective evaluations of sleep efficiency have been observed in individuals with pathological and healthy aging. Objective sleep evaluation using actigraphy has been proposed as a potential tool for the clinical assessment of mild cognitive impairment (MCI). Methods Habitual sleep at home was evaluated using actigraphy (objective measure) and sleep diaries (subjective measure) in 45 participants (between 28 and 72 years old). Participants were divided into four groups by age and by diagnosis (MCI and Alzheimer desease). Cognitive and sleep measures were analyzed for comparisons and correlations. Results Significant discrepancies between objective and subjective sleep efficiency were observed in healthy and pathological ages. The MCI group showed the lowest sleep efficiency compared to other groups. Correlation analysis revealed a significant relationship between cognitive impairments and sleep efficiency in MCI and AD groups. Conclusions Objective sleep evaluation, with a particular focus on sleep efficiency, should be considered as a potential marker for MCI.

Sleep Medicine
Reffi AN, **Kalmbach DA**, **Cheng P**, **Moore DA**, **Jennings MB**, **Mahr GC**, Seymour GM, **Jankowiak L**, and **Drake CL**. Nightmares and insomnia within the acute aftermath of trauma prospectively predict suicidal ideation. *J Clin Sleep Med* 2025; Epub ahead of print. PMID: 40265245. Full Text

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STUDY OBJECTIVE: Acute trauma patients are vulnerable to suicidality following hospitalization. Research suggests nightmares and insomnia may interact to potentiate suicidality, possibly due to nightmares worsening co-occurring insomnia. Nightmares and insomnia are common stress reactions to acute trauma and might compound suicide risk within acutely traumatized patients. We tested the prospective relationship between nightmares and insomnia immediately after trauma on future suicidal ideation (SI). METHODS: Patients hospitalized in Detroit, MI following traumatic injury (M (age) = 39.53 ± SD 14.31 years, 67.0% male, 67.0% Black) completed surveys at three post-trauma timepoints: one week (T1; N = 88), one month (T2; n = 61), and two months (T3; n = 59). RESULTS: Patients with clinically significant nightmares and comorbid insomnia symptoms at T2 reported the highest rates of SI at T3 (42.9%), whereas patients with insomnia alone (8.0%) or neither sleep disturbance (6.7%) had the lowest SI rates (ps < .05). We observed an interaction effect wherein insomnia symptoms at T2 predicted increased SI at T3, but only among patients with comorbid nightmares at T2. This interaction remained after accounting for acute stress symptoms at T2. Post-hoc analyses showed nighttime awakenings and total wake time at T2 predicted increased SI at T3 with nightmares also moderating this prospective

effect. CONCLUSIONS: These novel results suggest clinically significant nightmares strengthen the association between insomnia and suicidality after trauma. As nearly half of acute trauma patients with nightmares and insomnia experience SI two months after trauma, early interventions that target both may curb SI rates.

Surgery

Arshad R, **Bui J**, **Kabbani LS**, and **Khoshbin S**. A Case of Atypical Acute Limb Ischemia and Concurrent Fournier's Gangrene. *Cureus* 2025; 17(3):e81224. PMID: 40291242. Full Text

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Fournier's gangrene is a severe necrotizing soft tissue infection involving the perineal, perianal, and genital areas, where early and aggressive surgical debridement is the key determinant for survival. Acute limb ischemia (ALI) occurs when vascular compromise threatens a limb, often requiring revascularization or amputation. A synergistic pathophysiological effect between Fournier's gangrene and ALI can be appreciated as infection promotes microthrombi, which leads to vessel occlusion, exacerbating the soft-tissue gangrene and local ischemia. Thus, fulminant Fournier's gangrene promotes a hypercoagulable state, which may result in ALI. A 63-year-old African American male with hypertension, hyperlipidemia, and a 35-pack-year smoking history presented with left lower extremity pain, scrotal swelling, and absent pedal pulses. Color Doppler showed an occlusion proximal to the left popliteal artery, and CT confirmed Fournier's gangrene extending to the presacral area. The patient was taken emergently to the operating room for an attempt at reperfusion of the left lower extremity. This was unsuccessful due to the extent of vascular disease. Extensive surgical debridement of the genitals and perineum was also performed. Subsequent trips to the operating room for further debridement were required. Ultimately, a left above-knee amputation was performed. Despite source control of his infection, the patient suffered an aspiration event on hospital day seven, which led to hypercarbic respiratory failure and cardiac arrest. This resulted in a poor neurologic outcome, from which he did not recover. The patient was transitioned to comfort measures and expired on hospital day 20. The rarity of concurrent Fournier's gangrene and ALI presents a unique clinical question, as one must decide which problem should be treated first on the operating table. This complex management decision requires a multidisciplinary approach accounting for the clinical severity of both disease processes.

Surgery

Bicket MC, Ladha KS, Haroutounian S, **McFarlin K**, Neff M, McDuffie RL, Waljee JF, Wijeysundera DN, Brummet C, and Li Y. Comparing Analgesic Regimen Effectiveness and Safety after Surgery (CARES): protocol for a pragmatic, international multicentre randomised trial. *BMJ Open* 2025; 15(4):e099925. PMID: 40187774. Full Text

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INTRODUCTION: Acute pain is commonly experienced by millions of patients who undergo outpatient surgical procedures. Moreover, an increasing number of procedures are performed on an outpatient

basis, requiring greater postoperative planning to ensure effective pain management. Analgesic approaches commonly involve prescription opioids and non-steroidal anti-inflammatory drugs (NSAIDs), but an optimal regimen that balances pain and adverse effects has not been identified. In addition, critical gaps in evidence exist regarding how opioids and NSAIDs compare as analgesic regimens after surgery. METHODS AND ANALYSIS: The Comparing Analgesic Regimen Effectiveness and Safety after Surgery (CARES) trial is a pragmatic, international, multicentre randomised trial that enrols adults undergoing three elective surgical procedures (laparoscopic cholecystectomy, breast lumpectomy, hernia repair). Participants are randomised to receive discharge analgesic prescriptions that consist of either NSAIDs or low-dose opioids (ie, 10 pills of oxycodone 5 mg or equivalent), with both groups prescribed acetaminophen around-the-clock. The primary effectiveness outcome is patient-reported worst daily pain intensity over the first 7 days after surgery. The primary safety outcome is the occurrence of opioid and/or NSAID side effects over the first 7 days after surgery. Secondary outcomes are assessed by patient report and medical record review at 1 week, 1 month, 3 months and 6 months after surgery and include sleep disturbance, patient perception of improvement/change after treatment, pain interference, anxiety, depression, health-related quality of life, clinically important adverse events, substance use, opioid misuse, chronic pain, healthcare utilisation related to pain and quality of recovery. ETHICS AND DISSEMINATION: Investigational review boards at the University of Michigan and other sites have approved the CARES trial. The first patient enrolled in CARES in February 2023, with recruitment anticipated through 2026. Dissemination builds on the input of patient partners and other members of an engaged Stakeholder Advisory Board, with activities spanning co-production of summaries to share results with study participants, publications in biomedical journals and lay press, presentations to scientific and community organisations, and other multimedia communication materials. TRIAL REGISTRATION NUMBER: NCT05722002.

Surgery

Chamseddine H, **Halabi M**, **Shepard A**, **Nypaver T**, **Weaver M**, **Peshkepija A**, **Kavousi Y**, **Onofrey K**, **Miletic K**, and **Kabbani L**. Comparative Analysis of Arch Vessel Revascularization Techniques in Proximal Arch Thoracic Endovascular Aortic Repair. *J Vasc Surg* 2025; Epub ahead of print. PMID: 40180163. Full Text

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OBJECTIVE: Endovascular stent-grafting extending into the ascending aorta (Zone 0) is increasingly used in the treatment of aortic arch disease. This study aims to evaluate the risk of stroke in patients undergoing Zone 0 arch thoracic endovascular aortic repair (TEVAR) based on the technique used for head vessel revascularization. METHODS: Patients undergoing Zone 0 Arch TEVAR covering all the aortic arch vessels were identified in the Vascular Quality Initiative (VQI) between 2014 and 2023. Patients treated for aortic rupture or trauma were excluded. Head vessel revascularization techniques were classified into three groups: open revascularization (OR), endovascular revascularization (ER), and hybrid revascularization (HR). Multivariate logistic regression analysis was used to evaluate the association of head vessel revascularization technique with the primary outcomes of perioperative mortality and stroke. RESULTS: A total of 409 patients underwent Zone 0 Arch TEVAR covering all the aortic arch vessels, of which 50% (207/409) underwent OR, 20% (80/409) underwent ER, and 30% (122/409) underwent HR of the head vessels. The in-hospital mortality and stroke rates were 9% and 12% respectively. Survival at 30 days, 1 year, and 2 years were 88%, 79%, 74% respectively. Patients undergoing ER of the head vessels had significantly higher stroke compared to those undergoing OR and HR (OR 11%, ER 21%, HR 8%, p=0.02). ER was associated with a two-fold higher risk of perioperative stroke compared to OR (odds ratio = 2.16; 95% confidence interval, 1.08-4.30; p=0.03), whereas no difference in perioperative stroke was observed between OR and HR (p=0.40). While OR and HR of the head vessels had a significantly lower rate of perioperative stroke compared to ER in 2017-2020 (OR 10% vs ER 30% vs HR 10%, p=0.02), this difference diminished over time with no significant difference

observed in the most recent interval (2021-2023) studied (OR 9% vs ER 12% vs HR 8%, p=0.76). Trends revealed an increase in the use of HR (from 4% in 2014 to 57% in 2023) alongside a significant decline in ER (from 39% in 2020 to 14% in 2023). CONCLUSION: Stroke remains a significant concern during Zone 0 Arch TEVAR. Total endovascular repair of the aortic arch is associated with a greater than two-fold higher risk of stroke compared to open and hybrid revascularization of the head vessels. However, advances in ER techniques and increased use of hybrid strategies highlight an ongoing evolution toward safer and less invasive approaches resulting in a reduction in perioperative stroke rates over time.

Surgery

Djapri GM, Constantinou C, Albright J, Balogun Y, Chanamolu P, Frisbie J, Henke P, **Kabbani LS**, Kazmers A, Mouawad NJ, Osborne N, and Postol C. Impact of rural status on lower extremity bypass outcomes for patients with chronic limb threatening ischemia. *Ann Vasc Surg* 2025; Epub ahead of print. PMID: 40233893. Full Text

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OBJECTIVES: Previous studies noted that the rural population experienced higher peripheral artery disease (PAD) related mortality than their urban counterparts. Our study aimed to assess the impact of rural status on lower extremity bypass (LEB) outcomes for patients with chronic limb threatening ischemia (CLTI). METHODS: We analyzed data from the Blue Cross Blue Shield Michigan Cardiovascular Consortium (BMC2) registry data from 2016 to 2022. Primary exposure included patient's residence based on rural-urban commuting area (RUCA) codes. Primary outcome was major adverse cardiac events (MACE). Secondary outcomes include 30-day and 1-year mortality, hospital readmission, bypass revision, wound complications, amputations, and 30-day renal failure requiring dialysis. We conducted univariate and multivariate analysis to evaluate association between rural status and LEB outcomes. RESULTS: Rural patients tended to be White (p<.001), had insurance (p<.001), were current smokers (p<.001), had hyperlipidemia (p<.001), prior CHF (p=.031), COPD (p<.001), prior CVD/TIA (p=.005), and take pre-procedure aspirin (p=.011) and statin (p=.007), and were less likely to live in a distressed community (p<.001). They were not at increased risks of 30-day and 1-year MACE. They had higher odds of bypass revision (p=.028) at 1-year. However, they did not have higher odds of amputation at 30-days and 1-year. CONCLUSIONS: Rural status does not impact LEB outcomes. Rural patients achieve comparable outcomes compared their urban counterparts due to overwhelmingly White rural demographics, optimal medical therapy, socioeconomic status (SES) and increased healthcare utilization.

Surgery

Fridell JA, Chen JM, **Kerby EA**, Marshall WA, Lutz AJ, Powelson JA, and Mangus RS. Impact of Gastroparesis on Outcomes After Pancreas Transplantation. *Transplant Direct* 2025; 11(5):e1788. PMID: 40225743. Full Text

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BACKGROUND: Gastroparesis (GP) is a chronic disorder of the stomach characterized by delayed gastric emptying and frequently associated with longstanding diabetes. This is a single-center retrospective analysis designed to establish the prevalence and assess the impact on posttransplant outcomes of GP among pancreas transplant recipients. METHODS: Medical records for all recipients of pancreas transplants performed between January 2003 and December 2023 were reviewed. GP was defined by abnormal gastric-emptying scintigraphy or other motility study or a history of symptoms. Primary outcomes included graft loss and patient death. Clinical outcomes included length of stay after transplant and readmissions, including specifically for GP symptoms. RESULTS: Of 731 recipients, 156 (21%) were diagnosed with GP before transplant. Patients with GP were younger and more likely to be female individuals. Posttransplant, there was no difference in length of stay, graft survival, or patient survival. Patients with GP were more likely to be readmitted and to be specifically admitted for GP symptoms. Requirement for interventions was more common in patients with GP. CONCLUSIONS: GP is identified with increased frequency among the specific patient population referred for pancreas transplant, and although it does not seem to affect allograft or patient survival, it does seem to have an impact on readmissions and the need for interventions.

Surgery
Grewal JS, **Diffley M**, **Greenberg Y**, **Alzouhayli S**, **Springer K**, Westreich R, and **Deeb RH**. Endonasal dome bind with incorporation of a columellar strut reduces Infratip fullness: a quantitative photographic analysis. *Am J Otolaryngol* 2025; 46(3):104619. PMID: 40273632. Full Text

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OBJECTIVE: To demonstrate the effectiveness of the dome bind suture technique with incorporation of a columellar strut in reducing infratip lobule fullness in closed rhinoplasty by use of quantitative photographic analysis. METHODS: A retrospective review of patients who underwent rhinoplasty by two senior authors was carried out. All surgical maneuvers were documented. Photographic analysis was performed quantitatively using Rhinobase software. Results were recorded as ratio of change relative to a stable anatomic reference. This was chosen as the intercanthal distance on frontal view and lateral canthus to lateral commissure distance on lateral view. RESULTS: Sixty-three patients were included who underwent the dome bind suture technique. On frontal view, the ratio of the infratip lobule on post-surgical images versus preintervention was 0.88, which represents a reduction of 12 % ($P < 0.01$). This was not apparent on lateral view, with a postoperative/preoperative ratio of 1.02 ($P = 0.53$). CONCLUSION: We have demonstrated that the endonasal dome bind technique with incorporation of a columellar strut is useful at reducing infratip lobule fullness on frontal view and is a valuable tool in the armamentarium of the rhinoplasty surgeon.

Surgery
Klump BM, **Alruwaii FI**, Alruwaii ZI, **Chang Q**, **Asai M**, and **Al-Obaidy KI**. Neuroendocrine Tumors Arising in a Sacrococcygeal Teratoma: Report of Two Tumors. *Int J Surg Pathol* 2025; Epub ahead of print. PMID: 40275701. Full Text

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Surgery
Magyar CTJ, Jones O, Rajendran L, Carrique L, Lynch MJ, Li Z, Claasen M, **Ivanics T**, Choi WJ, Gaviria F, Ghanekar A, Winter E, Bucur R, Shwaartz C, Reichman T, Sayed BA, Selzner M, Bhat M, Tsien C, Jaeckel E, Lilly LB, McGilvray ID, Cattral MS, Sapisochin G, and Selzner N. Living Donor Liver Transplantation for Alcohol-related Liver Disease: An Intention-to-treat Analysis. *Transplantation* 2025; Epub ahead of print. PMID: 40269339. Full Text

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BACKGROUND: Alcohol-associated liver disease (ALD) is the leading indication for liver transplantation (LT) in the Western world. Although 6 mo of abstinence is no longer a criterion for patients with ALD, the outcomes of living donor LT (LDLT) versus deceased donor LT (DDLT) are not well established. METHODSS: We performed an intention-to-treat analysis to evaluate the impact of listing and pursuing primary LDLT (pLDLT) compared with primary DDLT (pDDLT). The primary endpoint was overall survival from date of listing, evaluated using Cox regression (hazard ratios). RESULTS: Two hundred thirty-three patients with ALD were listed for LT, of which 27 (12%) were pLDLT. The overall median model for end-stage liver disease (MELD) score at listing was 20 and Na-MELD 24, a median abstinence of 4.5 mo, and 128 (55%) underwent transplantation. There was no statistically significant adjusted difference at 3-y overall survival between pLDLT versus pDDLT (adjusted hazard ratio [HR] 0.72; P = 0.550) and in the as-treated analysis (HR 1.22; P = 0.741). No patients were delisted in the pLDLT group, whereas 86 (42%) patients were delisted in the pDDLT group; primarily because of death (46 [50%]) and medical improvement (24 [28%]). Alcohol use since the time of listing was documented in 29 (13%) patients; immortal time bias adjusted analysis found no significant difference between pLDLT and pDDLT (adjusted HR 1.07; P = 0.900) and the as-treated analysis (HR 2.95; P = 0.130). CONCLUSIONS: Patients with ALD benefit from intention pLDLT with lower rates of waitlist dropout and delisting, attributable to mortality or medical deterioration, and should be encouraged to pursue this option.

Surgery
Mosher E, Nassereldine H, McKibben JC, Johanning J, Arya S, Massarweh NN, **Shah R**, Shinall M, Shireman P, Varley PR, George EL, Youk A, Backhus L, Brown AJ, Christie N, Dhupar R, Donnellan N, Giori NJ, Goede MR, Guido R, Lee J, Griffin Miller JL, Siebler JC, Tonetti DA, Vincent SA, Reitz KM, and Hall DE. Frailty and Survival for Diagnoses Feasibly Managed Operatively or Nonoperatively. *Ann Surg* 2025; Epub ahead of print. PMID: 40293277. Full Text

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OBJECTIVE: Compare outcomes, stratified by frailty, of patients with eight common conditions with plausible operative and nonoperative management strategies. SUMMARY BACKGROUND DATA: A surgical pause, evaluating potential adverse outcomes among frail patients, improves postoperative outcomes; however, the outcomes among patients opting for nonoperative management are unknown. METHODS: In an observational cohort study across a multi-hospital healthcare system including adults presenting to outpatient surgical clinics (2016-2023) for evaluation of eight conditions feasibly managed operatively or nonoperatively as defined by modified Delphi consensus. In a landmarked analysis, we compared 2-year survival by management strategies across frailty categories (robust, normal, frail, very frail) as defined by the Risk Analysis Index (RAI). Secondarily we compared 365-day hospital free days (HFD-365), postoperative length of stay, and discharge disposition. RESULTS: Among 49,169 patients (mean±SD age, 60.4±14.6 y; 54.6% female), operative management was associated with lower observed and adjusted mortality (1.3% vs 2.5%; aHR=0.55 [95% CI, 0.47-0.66], P<0.0001) overall and among all frailty categories expect the very frail (8.1% vs 12.1%, P=0.1). Additionally, operative management was associated with fewer HFD-365 again overall which was specifically prominent among the very frail (median 365 [IQR, 358-365] vs 361 days [IQR, 357-363], P<0.0001). Postoperatively, frailty portended more protracted recoveries with greater postoperative lengths of stay (1.7±2.6 vs 1.2±2.1) days, P<0.0001) and fewer discharges home (370 [85.1%] vs 5,087 [91.8%], P<0.0001; odds ratio=2.0 [95%CI 1.5-2.6]). CONCLUSIONS: Considering the protracted postoperative recovery of very frail patients, nonoperative management might be the preferred treatment option for those presenting with these eight clinical conditions.

Surgery

Reffi AN, **Kalmbach DA**, **Cheng P**, **Moore DA**, **Jennings MB**, **Mahr GC**, Seymour GM, **Jankowiak L**, and **Drake CL**. Nightmares and insomnia within the acute aftermath of trauma prospectively predict suicidal ideation. *J Clin Sleep Med* 2025; Epub ahead of print. PMID: 40265245. Full Text

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STUDY OBJECTIVE: Acute trauma patients are vulnerable to suicidality following hospitalization. Research suggests nightmares and insomnia may interact to potentiate suicidality, possibly due to nightmares worsening co-occurring insomnia. Nightmares and insomnia are common stress reactions to acute trauma and might compound suicide risk within acutely traumatized patients. We tested the prospective relationship between nightmares and insomnia immediately after trauma on future suicidal ideation (SI). METHODS: Patients hospitalized in Detroit, MI following traumatic injury (M (age) = 39.53 ± SD 14.31 years, 67.0% male, 67.0% Black) completed surveys at three post-trauma timepoints: one week (T1; N = 88), one month (T2; n = 61), and two months (T3; n = 59). RESULTS: Patients with clinically significant nightmares and comorbid insomnia symptoms at T2 reported the highest rates of SI at T3 (42.9%), whereas patients with insomnia alone (8.0%) or neither sleep disturbance (6.7%) had the lowest SI rates (ps < .05). We observed an interaction effect wherein insomnia symptoms at T2 predicted increased SI at T3, but only among patients with comorbid nightmares at T2. This interaction remained after accounting for acute stress symptoms at T2. Post-hoc analyses showed nighttime awakenings and total wake time at T2 predicted increased SI at T3 with nightmares also moderating this prospective effect. CONCLUSIONS: These novel results suggest clinically significant nightmares strengthen the association between insomnia and suicidality after trauma. As nearly half of acute trauma patients with nightmares and insomnia experience SI two months after trauma, early interventions that target both may curb SI rates.

Urology
Bazzi M, **Chabot M**, **Rambhatla A**, and Chung E. Diagnostic algorithm in men suspected with nonobstructive azoospermia. *Asian J Androl* 2025; Epub ahead of print. PMID: 40275557. Full Text

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This review focuses on the diagnostic algorithm for nonobstructive azoospermia (NOA), a significant male factor contributing to infertility. NOA, characterized by the absence of sperm in the ejaculate, requires a systematic diagnostic approach to identify reversible conditions, genetic factors, and prognosis for achieving pregnancy. The diagnostic pathway involves semen analysis and a comprehensive evaluation for hormonal deficiencies, anatomical abnormalities, and genetic factors. The importance of medical history, physical examination, endocrine evaluation, imaging, and genetic testing is emphasized. This review highlights the significance of differentiating NOA from obstructive azoospermia (OA) and outlines key considerations for effective management, including surgical sperm retrieval and assisted reproductive techniques. Testicular biopsy is discussed as a definitive method to distinguish obstructive cases from nonobstructive cases, providing valuable prognostic information. Overall, a thorough and systematic diagnostic approach is essential for the effective management of men suspected with NOA, offering insights into potential treatment options and reproductive outcomes.

Urology
Çayan S, Farkouh A, Agarwal A, Atmoko W, Wyns C, Arafa M, Zini A, Shah R, Alipour H, Chung E, Saleh R, Pinggera GM, Konstantinidis C, Al Hashimi M, Pescatori E, **Rambhatla A**, Toprak T, Calogero AE, Gül M, Park HJ, Altay B, Falcone M, Rashed A, Le TV, Bahar F, Shatylko T, Görür S, El-Sakka AI, Saylam B, Sarikaya S, Smith RP, Boeri L, Efesoy O, Ceyhan E, Russo GI, Ozer C, Ho CCK, Gungor ND, Özlü DN, Molina JMC, Musa MU, Tsujimura A, Gokalp F, Mohamed MS, Okada K, Khalafalla K, Kuroda S, Binsaleh S, Motawi AT, Shamohammadi I, Mogharabian N, Manh MT, Taha EA, Makarounis K, Mak SK, Shedeed SA, Thomas C, and Mostafa T. Global Andrology Forum Clinical Guidelines on the Relevance of Sperm DNA Fragmentation in Reproductive Medicine. *World J Mens Health* 2025; Epub ahead of print. PMID: 40263962. Full Text

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PURPOSE: To evaluate the evidence on sperm DNA fragmentation (SDF) and its clinical applications in reproductive medicine, highlighting benefits, limitations, and guidelines for its use to assist clinicians in objective decision-making. MATERIALS AND METHODS: A multidisciplinary team of clinicians and reproductive experts from the Global Andrology Forum (GAF) reviewed the latest evidence on SDF, covering indications, testing methods, recurrent pregnancy loss, varicocele and its repair, assisted reproductive technologies (ART), treatment of associated conditions, antioxidant therapy, and sperm selection for ART. Expert statements and recommendations were developed and graded with the GRADE system using a modified Delphi process. RESULTS: Based on the GAF surveys, systematic reviews, and meta-analyses related to SDF, 52 experts introduced and scored 24 statements and recommendations using the GRADE system. Of these, 87.5% (21/24) achieved strong ratings, reflecting broad consensus, while 12.5% (3/24) were rated weak. The guidelines provide evidence-based recommendations for clinical scenarios, including the role of SDF in infertility, recurrent pregnancy loss, and ART outcomes. CONCLUSIONS: While there is growing interest and evidence regarding the clinical benefit of SDF testing and its utility in managing male infertility, significant gaps in the literature limit its routine use in clinical practice. The guidelines offer a structured framework for integrating SDF testing into male infertility management, emphasizing a tailored approach based on individual clinical scenarios. Clinicians must balance the benefits and limitations of SDF testing and antioxidant treatment to optimize care in reproductive medicine. These guidelines are critical for advancing evidence-based practices in male infertility management.

Urology
Çayan S, Pinggera GM, Atmoko W, Hamoda T, Shah R, Zini A, Chung E, Colpi GM, **Rambhatla A**, Alipour H, Ko EY, Tadros N, Kavoussi P, Al Hashimi M, Mostafa T, Park HJ, Fode M, Ho CCK, Pescatori E, El-Sakka A, Arafa M, Rashed A, Falcone M, Calik G, Ryzhkov AI, Le TV, Russo GI, Toprak T, Dimitriadis F, Mutambirwa SBA, Musa MU, Shamohammadi I, Kandil H, Gül M, Elbardisi H, Motawi AT, Micic S, Dursun M, Shatylko T, Kaya C, Smith RP, Mogharabian N, Khalafalla K, Kadihasanoglu M, Kosgi R, Rajmil O, Mohammed YJ, and Agarwal A. Global Andrology Forum (GAF) Clinical Guidelines on the Management of Infertile Men with Varicocele. *World J Mens Health* 2025; Epub ahead of print. PMID: 40263959. Full Text

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PURPOSE: Varicocele is among the most common reversible causes of male infertility. Although varicocele is prevalent and there is a growing body of literature on the subject, there are still numerous debates surrounding the matter. This study presents Global Andrology Forum (GAF) clinical guidelines on the management of infertile men with varicocele. MATERIALS AND METHODS: A team of clinicians and reproductive experts reviewed contemporary evidence on all aspects of varicocele, including systematic reviews, meta-analyses, and the results of the GAF global survey of practices. They then formulated expert statements and recommendations, subject to a modified Delphi process until a consensus was reached. The final statements and recommendations were rated using the GRADE system. RESULTS: A total of 31 statements and recommendations on the evaluation and management of varicocele were introduced and scored by 24 experts. All experts agreed with the final statements. Varicocele is a significant contributor to male infertility. Its diagnosis is based mainly on physical examination, although imaging can be used in certain cases. Clinical varicocele associated with abnormal sperm parameters is the primary unanimous indication of varicocele repair. However, other indications can still be considered, and recommendations for a tailored approach to controversial situations have been presented. There is inadequate evidence on the use of medical therapy for varicocele. CONCLUSIONS: These clinical guidelines on the management of infertile men with varicocele, based on the GAF surveys, systematic reviews, and meta-analyses, point out the pivotal importance of varicocele in modern Andrology. Continued research is crucial to improving diagnostic accuracy and treatment outcomes, ultimately enhancing reproductive health for men with varicocele. Therefore, the current guidelines allow clinicians to develop effective management strategies for a common issue and address practical questions where evidence is lacking.

Urology
Considine J, **Tinsley S**, **Rambhatla A**, **Dabaja A**, and Hubbard L. Assessing Public Interest in Online Men's Health Services: A Cross-Sectional Google Trends Analysis of "Hims". *Urology* 2025; Epub ahead of print. PMID: 40188963. Full Text

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OBJECTIVE: To evaluate public interest in "Hims," a men's health platform, to assess its impact on healthcare access, and identify geographic trends reflecting gaps in traditional healthcare availability. METHODS: Relative search volume (RSV) data for erectile dysfunction and early climax terms in "Hims" were collected via Google Trends from November 2017 to December 2023 across the United States. Data were analyzed in two intervals (2017-2020 and 2020-2023) using paired t tests to compare RSV and Kruskal-Wallis tests to assess differences among terms. Geographic regions were examined to identify underserved regions. RESULTS: Public interest in "Hims" increased significantly, with median RSV rising from 0 (interquartile range (IQR): 0-33) in 2017-2020 to 62 (IQR: 30-95) in 2020-2023 (P <.05). Searches related to erectile dysfunction rose from a median RSV of 18 (IQR: 0-100) to 46 (IQR: 0-100) (P <.001), with similar growth observed in searches related to early climax. High RSV was noted in states like Colorado, Wyoming, and Maine, highlighting increased interest in regions with limited healthcare resources. A marked rise in telehealth engagement during the COVID-19 pandemic further emphasized the role of digital platforms in healthcare delivery during periods of restricted access. CONCLUSION: The rise in search interest for "Hims" underscores the increasing demand for telehealth services to for men's

health, particularly in underserved regions. These findings highlight the potential of digital platforms to bridge gaps in healthcare access.

Urology

Ditonno F, Franco A, Bologna E, Veccia A, Bertolo R, Wang L, **Abdollah F**, **Finati M**, Simone G, Tuderti G, Helstrom E, Correa A, De Cobelli O, Ferro M, Porpiglia F, Amparore D, Checcucci E, Tufano A, Perdonà S, Bhanvadia R, Margulis V, Broenimann S, Singla N, Puri D, Derweesh IH, Mendiola DF, Gonzalgo ML, Ben-David R, Mehrazin R, Moon SC, Rais-Bahrami S, Yong C, Sundaram CP, Moghaddam FS, Ghoreifi A, Djaladat H, Autorino R, Wu Z, and Antonelli A. A pretreatment nomogram to predict muscle-invasiveness in high-risk upper tract urothelial carcinoma (ROBUUST 2.0 collaborative group). *Minerva Urol Nephrol* 2025; 77(1):57-68. PMID: 40183183. Full Text

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BACKGROUND: The ability to predict muscle invasion in the final pathology of upper tract urothelial carcinoma (UTUC) patients after radical nephroureterectomy (RNU) potentially influences the selection of the most appropriate treatment modality. The present study aims to develop a model predicting muscle-invasive status in high-risk UTUC. METHODS: The ROBUUST (RObotic surgery for Upper tract Urothelial cancer - UTUC - STudy) 2.0 dataset is an international, multicenter registry of patients undergoing curative surgery for UTUC between 2015 and 2022. Data about high-risk patients, classified according to EAU and NCCN prognostic stratification criteria, who underwent RNU were retrieved. The primary outcome was the identification of muscle-invasiveness. Two multivariable models, differing in the inclusion of biopsy-related data, were fitted with pT stage results at final pathology. Their predictive ability was calculated using the area under the receiver operating characteristic curve and decision curve analysis (DCA). A nomogram was developed using the model demonstrating the highest area under the curve (AUC) and clinical net benefit. RESULTS: In the overall cohort, 1558 patients met the inclusion criteria, with 934 patients having ≥pT2 disease. Patients in the ≥pT2 cohort had significantly worse oncological outcomes in terms of metastases, all-cause, and cancer-specific deaths (all P<0.001). The biopsy-related model had the highest AUC (74%) and the highest net benefit in DCA. The DCA showed an improvement in the clinical risk prediction of muscle-invasiveness, and a reduction in the number of upfront or unnecessary RNU, at every ≥pT2 probability threshold. CONCLUSIONS: The proposed prognostic model is a valuable tool for estimating the risk of muscle-invasiveness in high-risk UTUC patients, owing to its optimal predictive ability and user-friendly design.

Urology

Eraky A, Ben-David R, Bignante G, Wu Z, Wang L, Lee R, Correa AF, Eun DD, Antonelli A, Veccia A, Ditonno F, **Abdollah F**, **Stephens A**, **Tinsley S**, Sidhom D, Sundaram CP, Moon SC, Rais-Bahrami S, Gonzalgo ML, Nativ OF, Porpiglia F, Amparore D, Checcucci E, Tufano A, Perdonà S, Brönimann S, Singla N, De Cobelli O, Ferro M, Simone G, Tuderti G, Meagher MF, Derweesh IH, Yoshida T, Kinoshita H, Bhanvadia R, Zahalka AH, Margulis V, Moghaddam FS, Djaladat H, Autorino R, and Mehrazin R. Combined neoadjuvant and adjuvant therapy versus adjuvant therapy in high-risk upper tract urothelial carcinoma: a propensity matched multicenter analysis (ROBUUST 2.0 International Collaborative Group). *World J Urol* 2025; 43(1):234. PMID: 40251401. Full Text

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INTRODUCTION: The efficacy of combined neoadjuvant and adjuvant therapy (CNAT) in upper tract urothelial carcinoma (UTUC) remains unclear despite its demonstrated potential in bladder urothelial carcinoma. High-risk features- clinical stage ≥ T3, node-positive disease, multifocality, high-grade pathology, hydronephrosis, and large tumor size - are associated with poor prognosis in UTUC. We investigated the oncological outcomes of CNAT versus adjuvant therapy (AT) alone in high-risk UTUC patients. MATERIALS AND METHODS: We analyzed perioperative data from 2433 patients with UTUC (2015-2023) across 17 centers in the US, Europe, and Asia. Propensity score matching was performed using preoperative clinical T and N stages. Kaplan-Meier curves and Cox proportional hazards models were used to evaluate overall survival (OS), cancer-specific survival (CSS), recurrence-free survival (RFS), and metastasis-free survival (MFS). RESULTS: Among 285 high-risk UTUC patients, 76 matched patients (38 CNAT, 38 AT) were analyzed after matching, with a median follow-up of 15 months. CNAT and AT groups had comparable oncological outcomes: 2-year OS (72.9% vs. 71.8%; p = 0.89), CSS (76.7% vs. 75.3%; p = 0.92), RFS (30.1% vs. 39%; p = 0.97), or MFS (45.5% vs. 44.7%; p = 0.91), respectively. Cox regression showed no significant survival benefit of CNAT over AT after adjusting for clinical and pathological factors (HR for OS: 1.06; p = 0.9). CONCLUSION: In this large multicenter international cohort, our findings suggest that CNAT does not provide a clear advantage over AT alone in patients with high-risk UTUC. Prospective randomized trials are needed to clarify the role of multimodal therapy in UTUC management.

Urology

Hamoda TA, Wyns C, Pinggera GM, Alipour H, Avidor-Reiss T, Mostafa T, Chung E, Ramsay J, Çayan S, **Rambhatla A**, Henkel RR, Colpi GM, Saleh R, Shah R, and Agarwal A. Artificial Intelligence in Scientific Writing: Balancing Innovation and Efficiency with Integrity: Perspectives and Position Statements of Global Andrology Forum Expert Group. *World J Mens Health* 2025; Epub ahead of print. PMID: 40263957. Full Text

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Urology

Rambhatla A, Kavoussi PK, Shah R, and Agarwal A. Management of non-obstructive azoospermia: advances, challenges, and expert recommendations. *Asian J Androl* 2025; Epub ahead of print. PMID: 40275560. Full Text

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Conference Abstracts

Administration

Parke DM, **Clement J**, **Fuller D**, **Morrow E**, **Robinson S**, and **Wisdom K**. The importance of role and setting in health system social determinants of health screening results. *Health Serv Res* 2025; 60:11-12. Full Text

Background: With recent regulations requiring health systems to conduct social determinants of health (SDOH) screening among patients, more information is needed on best practices to conduct screening. Objective: Analyze differences in SDOH screening rates by screener role and setting at Henry Ford Health based in Detroit, Michigan. Methods: A report of 2023 SDOH screening data was generated and analyzed. Informational interviews and participant observation were also conducted with Medical Assistants (MAs) and Community Health Workers (CHWs). Results: In 2023, 1,066,651 SDOH screenings were conductedby a total of 240 unique job titles. MAs conducted the majority (50.7%) of screenings; however, they identified a low percentage of needs (4.3%). Patient self-reported screens via MyChart comprised 34.8% of screens with 15.6% identifying a need. Conversely, Ambulatory Case Managers (ACM), CHWs, and Mobile Integrated Health (MIH) paramedics conducted far fewer screens, but identified needs in over 70% of screens. Shadowing revealed CHWs used a more conversational approach than MAs. Conclusion: Roles and setting clearly impact SDOH screening. Roles that traditionally better establish trust with patients (i.e., CHW, ACM) are well placed to obtain honest answers regarding needs; however, staffing resources are limited. Empathic inquiry training would benefit MAs to obtain more accurate screens. Patients are also more likely to reveal needs when they are in acomfortable setting (MIH screens occur in patients' homes) or they self-report via MyChart; however, inequities in digital access and technology literacy must be addressed.

Allergy and Immunology

Eapen A, **Loveless I**, **Pan MM**, Thompson E, Ober C, **Zoratti E**, **Johnson CC**, and **Levin A**. The impact of the cord blood methylome on early-onset atopic dermatitis. *J Allergy Clin Immunol* 2025; 155(2):AB433. Full Text

Rationale: Atopic dermatitis (AD) affects 30% of children worldwide, contributing to significant health and social burdens, particularly those with early-onset disease. DNA methylation (DNAm) is associated with AD, but little is known of its role at birth in predicting early-onset AD. We aimed to characterize cord-blood DNAm in those with and without early-onset AD by age 2 years. Methods: The custom Asthma&Allergy array was applied to 302 cord DNA samples in the Wayne County, Health, Environment, Allergy, and Asthma Longitudinal Study(WHEALS). A single-site epigenome wide association study(EWAS) was performed to identify CpG sites associated with early-onset AD(q-value < 0.01). Combp was used to identify differentially methylated regions(DMR) within 1 kb range (false discovery rate(FDR) < 0.001). An early-onset AD poly-CpG score was created by performing CpG site feature selection (p < 0.01) using an elastic net penalized logistic regression model for CpG sites associated with early-onset AD. Results: There were 75 early-onset AD cases and 227 no-AD controls. 16 DMRs (FDR adjusted p-value < 0.001) were significantly associated with early-onset AD. Pathway analyses identified enrichment for T-cell receptor signaling, MHC class II antigen presentation, and IFNg signaling pathways. For our poly-CpG score, 1,275 met the nominal feature selection p-value < 0.01, with 180 CpG sites in the final model. Our poly-CpG score was highly predictive of early-onset AD with an area under the receiver operator characteristic curve of 93.7% (sensitivity=84.9%, specificity=86.3%). Conclusions: Differential cord-blood DNAm is associated with risk of early-onset AD by age 2. Future studies would include larger, diverse cohorts to assess the validity of our findings.

Allergy and Immunology

Gao YY, Choi T, Devries M, Tetreault K, Gangnon R, Bacharier L, Busse WL, Camargo C, Cohen R, Demuri G, Fitzpatrick A, Gergen P, Grindle K, Gruchalla R, Hartert T, Hasegawa K, Hershey GK, Holt P, Homil K, Jartti T, Kattan M, Kercsmar C, **Kim H**, Laing I, Le Souef P, Liu AD, Mauger D, Pappas T, Lee KSE, Patel S, Phipatanakul W, Pongracic J, Seroogy C, Sly P, Tisler C, Wald E, Wood R, Lemanske R, Jackson D, Bochkov Y, Gern J, and Wilson J. Association of Host CDHR3 rs6967330 Genotype with Rhinovirus Infections in Children from 1997-2018. *J Allergy Clin Immunol* 2025; 155(2):AB296. Full Text

Rationale: The single-nucleotide polymorphism rs6967330 in the rhinovirus C (RV-C) receptor cadherin related family member 3 (CDHR3) gene is associated with increased CDHR3 expression on airway epithelial cells and risk of asthma in children. We hypothesize that RV-C types rarely found during childhood infection are more common in hosts with AA/AG risk CDHR3 genotypes compared to GG homozygotes due to increased receptor density mediating greater viral binding and entry. Methods: We pooled multicenter data from 6 cohorts with RV typing from partially sequenced nasal samples from 1997-2018 (n=2095 patients age 0-18, 6325 samples, 5515 with genotype). We compared the proportions of infections in AA/AG to GG participants for each RV type and performed linear regression analysis grouped by species (RV-A, RV-B, and RV-C). Pearson correlations were calculated to evaluate linear relationship. Results: Children with AA/AG genotypes had higher rates of RV-C infections compared to children with GG genotype (slope=1.17). This was not true for RV-A or RV-B infections (slope=0.791 and 0.864, respectively). Pearson correlations revealed similarly strong linear relationship for all 3 RV species (RV-A, RV-B, and RV-C) with overlapping 95% confidence intervals (r=0.86 [0.79,0.91], r=0.90 [0.80,0.95], and r=0.89 [0.82,0.93], respectively). Conclusions: We demonstrated that children carrying the rs6967330 risk allele (A) have more RV-C infections within our large multicenter population. Contrary to our hypothesis, the CDHR3 risk genotypes AA/AG increased infections with all RV-C types and not just the less common viruses. These findings suggest that increased receptor density on airway epithelial cells generally increases susceptibility to RV-C infection.

Allergy and Immunology
Ryan P, **Sitarik A**, Zanobetti A, Gold D, Gern J, Hartert T, **Johnson C**, Spoljaric KR, **Eapen A**, and Singh AM. Neighborhood Socioeconomic Characteristics and Skin Barrier Disruption at Age One. *J Allergy Clin Immunol* 2025; 155(2):AB181. Full Text

Rationale: Neighborhood characteristics influence childhood allergic diseases, but their relationship to epidermal barrier disruption is unknown. We sought to determine the relationship between neighborhood socioeconomic status (SES) and transepidermal water loss (TEWL) among young children. Methods: Children enrolled in the Childhood Allergies and the NeOnatal Environment (CANOE) birth cohort were included. TEWL was measured at age one year, and participants' address at birth was geocoded and linked to an index of neighborhood deprivation (range 0-1, higher values indicate increased deprivation) and US Census tract data including the percent of the population: 1) in poverty, 2) without health insurance, 3) having less than high school education, and 4) with vacant housing. The association between each neighborhood SES indicator and TEWL was determined using separate linear regression models adjusting for child's sex, parental-reported race, and study location. Results: Among 252 CANOE participants at age 1 (55% female; 68% White, 19% Black, 13% other race), the average (SD) TEWL measurement was 12.7 (12.4) g/m 2 /h. Overall neighborhood deprivation index (β = 1.5, 95% CI 0.0 – 3.1 per 0.1 increase), poverty (β = 2.5, 95% CI 0.8 – 4.2 per 10% increase), and vacant housing (β = 2.3, 95% CI 0.1 – 4.6 per 10% increase) were significantly and positively associated with increased TEWL, while health insurance status and education were not. Conclusions: Lower neighborhood SES, rather than health insurance or parental factors, is associated with increased TEWL in young children. Addressing neighborhood deprivation could improve skin barrier function, and possibly reduce associated atopic disease.

Allergy and Immunology
Shen W, **Elisa A**, and **Derrow A**. Reintroduction of Food Allergens Following Negative Oral Food Challenges: A Pediatric Study. *J Allergy Clin Immunol* 2025; 155(2):AB175. Full Text

Rationale: Reintroducing allergen-containing foods consistently after negative oral food challenges (OFCs) is crucial for preventing the recurrence of allergies. Notably, several pediatric cases have demonstrated the reemergence of peanut allergies, possibly due to the inadequate reintroduction of peanuts or peanut-containing foods. Methods: This study involved twenty families with children aged 6 or younger who underwent OFCs at the ProMedica Allergy and Immunology Clinic in Perrysburg, Ohio, from January to May 2024. On the day of the OFC, parents provided informed consent. Follow-up sessions occurred weekly for four weeks post-OFC. Results: Among thirteen children with negative OFCs, nine were successfully reintroduced the allergens at least once a week starting the week following their OFCs.

Three children were not reintroduced the allergens (one with milk and two with peanut) until two weeks post-OFC. One child was not reintroduced baked egg during the entire follow-up period. Based on the Precaution Adoption Process Model, the four families who delayed reintroduction were either unengaged with the issue, contemplated but chose not to reintroduce, or decided to reintroduce but had not yet done so. One family reported that they were scared about the reintroduction process and fear about the adverse outcomes. Conclusions: The findings underscore the complexities and challenges families face in reintroducing allergens after negative OFCs. These results highlight the need for enhanced educational interventions and support systems to facilitate the consistent and timely reintroduction of allergens in pediatric patients. Such measures could potentially prevent the recurrence of allergies and improve long-term health outcomes.

Allergy and Immunology

Stenehjem K, Gadd S, Barrera L, Elahi S, Jung K, Lang A, Pongracic J, Bacharier L, Gruchalla R, Gill M, Hershey GK, Sherenian M, Liu A, O'Connor G, **Zoratti E**, Sheehan W, Teach S, Kattan M, Visness C, Gern J, Busse W, Coleman A, Gergen P, Becker P, Jackson D, Altman M, Lovinsky-desir S, and Kumar R. Very Low Childhood Opportunity Index is associated with increased epithelial inflammation but decreased T2 and Th17 pathway expression in children with Asthma. *J Allergy Clin Immunol* 2025; 155(2):AB188. Full Text

Rationale: The Child Opportunity Index (COI), a nationally available measure of relative educational, health/environmental, and social/economic opportunity, has been associated with asthma incidence. We sought to determine the association of COI to airway gene expression patterns. Methods: Analysis included a subset of 220 children with exacerbation-prone asthma in urban neighborhoods enrolled in the MUPPITS-2 clinical trial. We dichotomized census tract-level COI at the median COI of 8 into low (L, n=123) and very low (VL, n=97) groups. Baseline gene expression modules previously defined by weighted gene correlation network analysis (WGCNA) were summarized for each participant, and differential module enrichment was compared in children from L versus VL COI census tracts. Further, differential biological pathway enrichment analyses were performed using Gene Set Enrichment Analysis (GSEA). Results: The participants averaged 10.9 years of age and 44.5% were female. There were fewer Hispanic and White participants in the VL group, but no differences in sex, age, or BMI between groups. There were 722 differentially expressed genes. WCGNA-derived modules associated with TGFb/ SMAD3 mediated epithelial remodeling, squamous epithelium, and IL-33 responses were positively enriched in VL COI. Positive enrichment of ciliary, and reactome pathways and negative enrichment of immune-associated pathways (IL-4, IL-5, IL-6, and IL-17) were detected by GSEA in the VL COI group. Conclusions: Very low COI scores in urban children with exacerbation-prone asthma were associated with epithelial remodeling, and comparatively less Th2 and Th17 enrichment. These patterns of airway gene expression may reflect adverse effects of environmental exposures, such as pollution, in these neighborhoods.

Cardiology/Cardiovascular Research

Cogswell R, Cascino T, **Cowger J**, and Kanwar M. Status 1 Listing Post Allocation Change: Center Level Variation in Exception Use and Ongoing Disparities Limit Equitable Access to Transplant. *J Heart Lung Transplant* 2025; 44(4):S30. Full Text

Purpose: We sought to 1) assess overall trends and center-level heterogeneity in status 1 (highest acuity) heart transplant (HT) listing in the US 2) identify subgroups of status 1 candidates with inequitable outcomes. Methods: Adult waitlist candidates listed for a first time, single organ HT as status 1 in OPTN between 10/2018 until 9/15/2023 were included. Trends in status 1 listing and the proportion of status 1 exception (1E) by center size were plotted. Wait list outcomes by blood group, sex, race, diagnosis type, and exception use were investigated using Fine Gray competing risk analyses. Results: The study cohort consisted of 2,296 candidates who were listed for HT as a Status 1. Status 1 use increased over time (7.0 % in 2018 vs.12.8 % 2023, $p < 0.001$), including increased in Status1E listing (3.3% - 7.7%, $p < 0.001$). There was wide variation in exception use by center (5 % to 100 %, Figure). Compared to Status 1 candidates, those listed by exception had a lower rate of delisting for death or deterioration (HR 0.58, 95% CI 0.41 to 0.8, $p < 0.001$) but a similar at 30 days cumulative incidence of HT. Among status 1 waitlist candidates, disparities in access to transplant were observed for women, blood group O, and

Black populations, which persisted after multivariable adjustment (Table). Blood group O (8.5 %) and congenital heart disease (9.5 %) patients suffered the highest rates of delisting for death or clinical deterioration at 30 days compared to other groups (restrictive 3.3% and ischemic 2.8%). Conclusion: Status 1 use has increased over time and wide variation in Status 1 E listing patterns exist by center. Ongoing disparities exist among multiple underserved populations of high acuity patients. These findings suggest that goal of equitable access to HT is not currently being achieved among the highest acuity patients. Monitoring center-level variation in care and including these identified factors in continuous allocation could reduce disparities and promote equitable access. [Formula presented]

Cardiology/Cardiovascular Research
Fang JX. TCTAP C-238 Fish and CHIP: Concurrent Percutaneous Left-Ventricular Thrombus Retrieval and Complex Coronary Intervention With Hemodynamic Support. *J Am Coll Cardiol* 2025; 85(15):S493-S495. Full Text

Clinical Information Relevant Clinical History and Physical Exam: A77-year-old female with ACS, LM-triple vessel disease, LVEF 20% and a 1.8cm LVT(Figure 1), with prohibitive surgical risk and cardiac index of 1.5 L/min/m2on inotropic support, was offered percutaneous coronary intervention (PCI) with concurrent thrombus aspiration with the AngioVAC system (AngioDynamic, USA) per heart team decision. [Formula presented] Relevant Test Results Prior to Catheterization: ECG: TWI I, V5-V6, late precordial R transition Echo: LVEF 20%. Apical aneurysm. 1.8 LV apical thrombus. Moderate mitral regurgitation. Relevant Catheterization Findings: Elevated filling pressures. RA 10mmHg PA 52/12 mmHg mean 32 mmHg, PCWP 28 mmHg Fick Cardiac output/index 2.6 / 1.5 Coronary arteriogram: LM bifurcation medina 1,1,1 disease mLAD subtotal occlusion pLCx 70-80% calcified lesion pRCA CTO, left-to-right collaterals [Formula presented] Interventional Management Procedural Step: Right femoral vein access with a 26-French sheath with hemostatic valve (DrySeal, Gore Medical USA) preclosed with two proglides (Abbott Cardiovascular, USA) was obtained. Biradial accesses were used for cerebral embolic protection (figure 2, panel A). Transeptal puncture(B) and septostomy(C) followed by balloon-assisted tracking(D) brought a 22 French AngioVAC cannula into the left atrium (E), followed by mitral valve crossing to reach the LV apex via a Confida wire(G-I) (Medtronic, USA), followed by thrombectomy, all under transesophageal echocardiography (TEE) guidance (H-J). Blood was returned through an oxygenator into a 15 French cannula place in 16 French Dryseal sheath via right femoral artery access preclosed with proglides. After thrombectomy, the suction cannula was pulled back into the right atrium with the funnel retracted. At a flow rate of 3.5 liters-per-minute, it served as a venoarterial-extracorporeal membranous oxygenation (VA-ECMO) circuit (figure 3, panel A). Complex high-risk indicated PCI (CHIP) was performed via left femoral artery access to left anterior descending artery (LAD), left circumflex artery (LCx) and LM bifurcation (B-P) with good result on final angiogram (figure 4, panel A). Contrast echocardiography showed no further LV thrombus (B) and unchanged mitral regurgitation (C) after the thrombus was fished out (D). The patient recovered and was discharged. [Formula presented] [Formula presented] [Formula presented] Conclusions: Acute coronary syndrome (ACS) with concurrent left main bifurcation disease, reduced left ventricular ejection fraction (LVEF) and left-ventricular thrombus (LVT) is a challenging situation where the micro axial flow pump for supporting coronary intervention is contraindicated owing to embolic risk. Off-label AngioVAC use for concurrent left-sided thrombectomy and hemodynamic support for CHIP is possible. Operator proficiency with large bore access and careful cannula positioning to avoid suctioning is required

Cardiology/Cardiovascular Research
Kai M, Villavicencio M, Lozonschi L, Ohira S, **Williams C**, Haft J, Schroder J, Couper G, Malyala R, Pal J, Selzman C, Shudo Y, Daneshmand M, Chan J, Skipper E, Klein L, Gruber P, Ikonomidis J, Esmailian F, Pham D, D'Alessandro D, Patel P, Itoh A, Takeda K, Meyer D, Sun B, Salerno C, Goldstein D, Shah A, Kaczorowski D, Sulemanjee N, Funamoto M, Durham L, Pretorius V, Kilic A, Shaffer A, Peltz M, Stehlik J, Milano C, Farr M, Pinney S, and Anyanwu A. Organ Care System Heart Perfusion (OHP) Registry Annual Report 2024 - Donation After Brain Death (DBD) Donors. *J Heart Lung Transplant* 2025; 44(4):S51. Full Text

Purpose: We report one-year outcomes of donor after brain dead (DBD) hearts procured with the organ care system (OCS) compared to static cold storage (SCS) with data from Organ Procurement and

Transplantation Network (OPTN) and Organ Care System Heath Perfusion (OHP) registry. Methods: OHP Registry was created to collect donor and recipient's characteristics, and post-transplant outcomes for all OCS heart transplant cases in the real-world setting in the US. The DBD donor cohort perfused with the OCS and those transported using SCS were identified using OPTN database during the same time period. Donor, recipient data as well as transplant outcomes were compared. Additionally, utilization rate after OCS perfusion and primary graft dysfunction (PGD) rate was collected for the OCS arm, using the OHP registry. Cohorts were propensity matched on the UNOS status, ventricular assist device (VAD), ventilator support, and recipient diagnosis to evaluate the survival. Results: A total of 549 OCS and 3559 SCS patients were included. Utilization rate on OCS was 97.7% (549/562) after OCS perfusion. The number of donors over the age 40 and 55 were significantly higher in the OCS arm (33.9% vs 25.9% and 4.2% vs 1.7% respectively). The donor to recipient center distance was over twice as long (median 698 miles vs 286; $p<0.05$) in the OCS arm, with longer total cross-clamp time (mean 414.9 min vs 221.4 min; $p<0.05$). Donors in the OCS cohort arm were more than twice more likely to be refused prior to acceptance than the SCS arm (median refusal 11 vs 5; $p<0.05$). The OCS recipients were significantly older (51.8 years old vs 49.4 years old), less dialysis dependent (4.2% vs 7.5%), less status 1 (13.7% vs 20.9%), more status 4 (17.3% vs 13.2%) and more status 1-3 with durable VAD (13.1% vs 8.7%), ($p<0.05$, respectively). Severe PGD rate was 10.4% in the OCS arm, which captured 80.3% of the whole OCS recipients. When matched 1:1 (549 patients in each), OCS cohort had similar 6-month (90.4% vs 91.3%) and 12-month (89.1% vs 90.7%) survival compared to the SCS cohort ($p=0.147$). Conclusion: Despite OCS was being utilized for higher risk donors and recipients, the outcomes were similar to SCS. This suggests that the OCS approach can lead to expansion of the donor pool and expansion of recipient access to donors without compromising early outcome.

Cardiology/Cardiovascular Research

Mittal A, **Alalwan Y**, and **Cowger J**. The ART of HAART: Rapid Recovery of HIV Associated Cardiomyopathy. *J Heart Lung Transplant* 2025; 44(4):S246. Full Text

Introduction: Acute systolic heart failure can have a myriad of etiologies. Evaluation of underlying pathophysiology is imperative for subsequent management. Infectious disease etiology remains an important factor, as it may often be reversible in nature. Case Report: A 28 year-old male with no past medical or high risk social history presented to an outside ED with difficulty breathing. He was treated for bronchitis 10 days prior. Due to increased work of breathing on presentation, he was intubated, with subsequent PEA arrest. TTE demonstrated EF 17% without LVH and catheterization revealed no coronary artery disease but low cardiac output and high filling pressures. An Impella CP device was placed for shock support. The course was complicated by altered mentation, hemolysis secondary to MCS, acute kidney injury requiring hemodialysis, congestive hepatopathy, and worsening respiratory status. He was then transferred for care escalation. Myocarditis workup revealed acute HIV infection with viral load 3,819,201 copies/mL and CD4 148 cells/mm3. Hypoxia continued to worsen secondary to PJP Pneumonia. After a multidisciplinary team discussion, the decision was made to escalate to Impella 5.5 as a bridge to recovery or LVAD candidacy; GDMT was started. He was deemed not a cardiac transplant candidate due to his high HIV viral load and immune incompetence. He was started on Bactrim with rapid improvement in respiratory status and his viral load dropped (444 copies/mL) within 3 weeks of HAART. A repeat echocardiogram showed an improvement in the LV function to 35%. Improvement in clinical status allowed Impella wean. He was eventually discharged with full renal recovery. At the last outpatient appointment, he was successfully walking 10,000 steps daily without restriction. Summary: Early recognition of acute decompensated heart failure and consideration of acute HIV illness is imperative. Early intervention can allow for recovery of cardiac function and improvement in functional status. [Formula presented]

Cardiology/Cardiovascular Research

Zghouzi M, **Jabri A**, Maligireddy A, Bista R, Paul T, Nasser F, Lichaa H, **Aronow H**, Vallabhajosyula S, **Kelly B**, **Grafton G**, **Awdish R**, **Basir MB**, **Alaswad K**, **Alqarqaz M**, **Koenig G**, and **Aggarwal V**. Association Between Frailty, Use of Advanced Therapies, In-Hospital Outcomes, and 30-Day Readmission in Elderly Patients Admitted With Acute Pulmonary Embolism. *JACC Cardiovasc Interv* 2025; 18(4). Full Text

Background: Clinical decision-making when assessing elderly patients with acute PE often involves an assessment of frailty that may impact the use of advanced therapies. We sought to evaluate the use of advanced therapies and associated in-hospital outcomes by frailty status in such patients. Methods: We utilized the National Readmission Database (NRD) to identify acute PE admissions in older patients (> 75 years) from 2016 to 2020. We defined high-risk PE by the presence of one or more of the following: shock, progressive hypoxia, vasopressor use, or ECMO requirement. Frailty was determined using a previously validated hospital frailty risk score (HFRS). Results: Overall, 233,091 nationally representative patients with acute PE met the study inclusion criteria; 50.9% of patients with no frailty risk (score > 5), while 49.1% of patients with increased frailty risk (score 5-30). A total of 7.4% (17,277) of patients with high-risk features were identified, of whom 79.9% (13,810) patients were frail. Receipt of catheter-directed thrombolysis (CDT) and embolectomy (CDE) were comparable among high-risk frail and non-frail patients. Compared to non-frail patients, increased frailty was associated with higher in-hospital mortality. This increase was 2.3-fold in those without high-risk features and 1.2-fold in those with high-risk features. There is a similar increase in intracranial hemorrhage, gastrointestinal bleeding, and hematuria. Similarly, frailty and high-risk PE were associated with higher length of stay (LOS), increased resource utilization and cost, and fewer home discharges. Conclusion: Catheter-based therapies were utilized at similar rates in frail individuals compared to non-frail elderly individuals with high-risk PE. Increased frailty conferred an increased risk of in-hospital adverse events in elderly patients with PE.

Center for Individualized and Genomic Medicine Research

Lin D, Gomez JC, **Li J**, **Ze M**, Ownby D, **Zoratti E**, **Johnson C**, and Lynch S. Asthma-protective Fecal Protoporphyrin IX Inhibits NFkB-mediated Inflammation and Basophil Activation. *J Allergy Clin Immunol* 2025; 155(2):AB315. Full Text

Rationale: Gut microbial metabolites promote allergic asthma. Mechanisms by microbial-derived products promote protection against asthma remain elusive. Methods:
Comparative analysis of fecal metabolomic profiles from 1 month old infants in the Wayne County Health, Environment, Allergy and Asthma Longitudinal Study (WHEALS) who did (n=23; A+) or did not (n=72; A-) have current atopic (2+ allergic sensitizations) asthma at 10 years was performed. Metabolites associated with asthma protection were assessed for their capacity to inhibit allergic inflammation. Results: Thirty-five fecal metabolites associated with asthma protection were screened for their capacity to inhibit macrophage NFκB-mediated inflammation; the heme precursor, Protoporphyrin IX (PPIX) exhibited the greatest inhibitory capacity. Bulk RNAseq analysis of PBMCs from 3 donors exposed to PPIX exhibited significant transcriptional reprogramming, including increased expression of the heme oxygenase-1 gene (HO-1), which is known to suppress basophil maturation. Human basophil KU812 cells exposed to PPIX exhibited significantly fewer CD31 + CD123 + cells and increased CD31 + CCR3 + and CD31 + CD203c + cells, consistent with the effect of known inhibitors of basophil maturation/activation. Infant fecal metagenomic data indicated a difference in microbiome functional capacity of one-month old A+ and A- infants (PERMAONOVA; p = 0.018, R2=0.03). Weighted gene correlation network analysis of identified two microbial gene modules enriched in A- infants, both of which included bacterial genes involved in porphyrin biosynthesis. ShortBRED analysis indicated that fecal Escherichia coli encoded these genes. Conclusions: Intestinal E. coli capable of PPIX production in the infant gut may prevent atopic asthma by suppressing macrophage-derived inflammation and maintaining basophils in an immature state.

Dermatology

Tallman A, Greiwe J, Sublett JW, Hebert A, Rosmarin D, Brown P, Rubenstein D, and **Gold LS**. Tapinarof Cream 1% Once Daily: Consistent Efficacy Across All Body Regions, Including Head And Neck, In Adults And Children Down 2 Years Of Age With Atopic Dermatitis. *J Allergy Clin Immunol* 2025; 155(2):AB192. Full Text

Rationale: In the ADORING 1 and 2 phase 3 trials, tapinarof cream 1% (VTAMA®, Dermavant Sciences, Inc.) once daily (QD) demonstrated significant efficacy and was well tolerated in patients with atopic dermatitis (AD) down to age 2 years. Efficacy and tolerability of topicals may vary by body region, particularly sensitive areas including the face/neck. We present Eczema Area and Severity Index (EASI) scores by body region. Methods: 813 patients were randomized to tapinarof or vehicle QD for 8 weeks. EASI, a composite score of 0–72, measures AD severity and extent across four regions: head/neck,

trunk, upper extremities, and lower extremities. Results: Mean baseline EASI scores were 12.2–13.5 (standard deviation 4.7–5.6), indicating moderate-to-severe AD. Achievement of ≥ 75% improvement in EASI at Week 8 (tapinarof versus vehicle) was 55.8% vs 22.9% and 59.1% vs 21.2% (both P < 0.0001) in ADORING 1 and 2. At Week 8, least squares (LS) mean overall EASI score improvements from baseline were –8.4 vs –4.1 and –10.1 vs –5.2 (both P < 0.0001). LS mean changes in EASI scores by body region at Week 8 were: head/neck –8.7 vs –4.4 and –8.8 vs –4.7; trunk –5.9 vs –2.6 and –7.2 vs –3.8; upper extremities –12.0 vs –5.2 and –15.0 vs –6.6; and lower extremities –8.6 vs –4.4 and –9.9 vs –5.5 (all P < 0.0001). Tapinarof was well tolerated across sensitive areas, including the face/neck. Conclusions: Tapinarof demonstrated consistent efficacy and was well tolerated across body regions, including the head/neck, supporting its use in treating patients with AD down to age 2 years.

Family Medicine

Parke DM, **Zack RA**, **Bossick A**, and **Perkins DW**. Empathic inquiry training: A successful approach to assessing social needs amongpatients. *Health Serv Res* 2025; 60:e14562. Full Text

Background: Health systems are increasingly screening patients for social needs. At Henry Ford Health based in Detroit, Michigan, food security screening was incorporated into the clinical work-flow for Medical Assistants (MAs) across all primary care clinics in April 2021. Analysis of screening data in June 2021 showed MAs were not consistently screening patients and responses indicating food insecurity were lower than expected. Objective: Improve social needs screening rates and results among patients through MA training. Methods: A survey revealed MAs were uncomfortable asking sensitive questions, MAs felt patients were uncomfortable answering honestly, and MAs were unclear on next steps for patients who identified as food insecure. The team then developed and implemented a 30-min Empathic Inquiry (EI) training curriculum for MAs to provide details on the screening process to answer any patient questions, and equip MAs with empathy and communication skills to build trust so both MAs and patients feel more comfortable during screening. The live training used videos, scenarios, and roleplay. Pre- and post-training surveys collected feedback and assessed participant knowledge. Results: From January to May 2022, 43 trainings were held with 380+ primary care staff. 203 pre-surveys and 109 post-surveyswere analyzed. The majority found the presentation style (88.1%) and the videos/scenarios (85.3%) to be helpful. 98.4% knew the definition of ‘empathy’ at baseline. Correctly defining ‘implicit bias’ rose from 76.6% to 89.1% after the training. Qualitative data revealed participants had improved knowledge on the screening process and how to practice empathy (i.e., “put myself in the patients' shoes”). Importantly, correct screening rates improved: at baseline, 19% of patients who were eligible to be screened were missed; this dropped to 13% post-trainings. Conclusion: Empathy is a critical skill for healthcare providers screening patients for social needs. EI training helped many participants better understand and feel more comfortable with the screening process. Future work must optimize training frequency for continuous improvement.

Internal Medicine

Mittal A, **Alalwan Y**, and **Cowger J**. The ART of HAART: Rapid Recovery of HIV Associated Cardiomyopathy. *J Heart Lung Transplant* 2025; 44(4):S246. Full Text

Introduction: Acute systolic heart failure can have a myriad of etiologies. Evaluation of underlying pathophysiology is imperative for subsequent management. Infectious disease etiology remains an important factor, as it may often be reversible in nature. Case Report: A 28 year-old male with no past medical or high risk social history presented to an outside ED with difficulty breathing. He was treated for bronchitis 10 days prior. Due to increased work of breathing on presentation, he was intubated, with subsequent PEA arrest. TTE demonstrated EF 17% without LVH and catheterization revealed no coronary artery disease but low cardiac output and high filling pressures. An Impella CP device was placed for shock support. The course was complicated by altered mentation, hemolysis secondary to MCS, acute kidney injury requiring hemodialysis, congestive hepatopathy, and worsening respiratory status. He was then transferred for care escalation. Myocarditis workup revealed acute HIV infection with viral load 3,819,201 copies/mL and CD4 148 cells/mm3. Hypoxia continued to worsen secondary to PJP Pneumonia. After a multidisciplinary team discussion, the decision was made to escalate to Impella 5.5 as a bridge to recovery or LVAD candidacy; GDMT was started. He was deemed not a cardiac transplant candidate due to his high HIV viral load and immune incompetence. He was started on Bactrim with rapid

improvement in respiratory status and his viral load dropped (444 copies/mL) within 3 weeks of HAART. A repeat echocardiogram showed an improvement in the LV function to 35%. Improvement in clinical status allowed Impella wean. He was eventually discharged with full renal recovery. At the last outpatient appointment, he was successfully walking 10,000 steps daily without restriction. Summary: Early recognition of acute decompensated heart failure and consideration of acute HIV illness is imperative. Early intervention can allow for recovery of cardiac function and improvement in functional status. [Formula presented]

Nephrology

Fagan T, **Henkin D**, and **Shaban H**. Safety of Buprenorphine for Cancer Related Pain in Pregnancy: A Case Series. *J Pain Symptom Manage* 2025; 69(5):e565-e566. Full Text

Outcomes: 1. Recognize buprenorphine as a safe option to treat cancer related pain in pregnancy for both mother and fetus. 2. Consider the utilization of different analgesics in treating cancer related pain in pregnancy. Key Message: Current evidence supports the safety and efficacy of buprenorphine for maternal opioid use disorder; however, there are no established guidelines for its use to manage cancer-related pain in pregnancy. We present three cases demonstrating the safe use of buprenorphine achieving varying levels of analgesia for cancer related pain in pregnant women. Opioids are often the mainstay of treatment for cancer related pain; however, managing cancer related pain in pregnancy can present challenges due to associated risk to the fetus in utero. Evidence supports the use of buprenorphine for opioid use disorder (OUD) treatment during pregnancy; however, there are no best practices or guidance established in this population for cancer pain management. Here we present three cases where buprenorphine products were utilized to manage cancer related pain in pregnancy. Patient A, a 36-year-old G3P2 female with a metastatic neoplasm of the pancreas, achieved pain control at 27 weeks gestation on buprenorphine films. Her baby did not experience any neonatal abstinence syndrome (NAS) at birth. Patient B, a 32-year-old female with pancreatic cancer, started on full agonist opioid therapy at 25 weeks gestation, received a celiac plexus block and eventually buprenorphine, but switched back to full agonist opioid therapy before delivery at 32 weeks. Her baby required morphine for NAS after birth. Patient C, a 26-year-old female with stage IV lung cancer with metastasis to liver and adrenals, was started on a buprenorphine transdermal patch at 24 weeks gestation and then transitioned to hydromorphone PCA at 31 weeks before delivering at 32 weeks. Baby C required treatment for NAS after birth. In our experience, buprenorphine is safe to use in pregnancy for both mother and fetus but may not always be tolerated or provide appropriate and timely analgesia. Our recommendation is a tailored approach to each pregnant patient with cancer related pain. Given buprenorphine's safety to both mother and fetus and ACOG's stance on OUD in pregnancy supporting use of buprenorphine, we recommend considering its use as first line treatment for cancer related pain during pregnancy. References: Suarez, E. A., Huybrechts, K. F., Straub, L., Hernández-Díaz, S., Jones, H. E., Connery, H. S., Davis, J. M., Gray, K. J., Lester, B., Terplan, M., Mogun, H., & Bateman, B. T. (2022). Buprenorphine versus methadone for opioid use disorder in pregnancy. New England Journal of Medicine, 387(22), 2033–2044. https://doi.org/10.1056/nejmoa2203318 Opioid use and opioid use disorder in pregnancy. Committee Opinion No. 711. American College of Obstetricians and Gynecologists. Obstet Gynecol 2017;130:e81–94.

Nephrology

Huang TS, **Rajanayagam J**, and **Reddy S**. A RARE CASE OF CONCOMITANT PRIMARY MEMBRANOUS NEPHROPATHY AND ANTI-GBM NEPHRITIS. *Am J Kidney Dis* 2025; 85(4):S39. Full Text

Membranous nephropathy (MN) is one of the most common causes of nephrotic syndrome. Crescent formation from severe glomerular damage is often associated with lupus, antineutrophil cytoplasmic antibody positive glomerulonephritis, or anti-glomerular basement membrane (GBM) nephritis. Concomitant primary membranous nephropathy and anti-GBM is rare. A 51-year-old gentleman who presented with an acute rise of creatinine along with bilateral lower extremities edema for one month. On presentation, blood pressure 154/88 mmHg, heart rate 114 bpm. He had 1+ bilateral lower extremity pitting edema. Laboratory studies showed BUN 23 mg/dL and creatinine 2 mg/dL which is doubled from his baseline creatinine of 1 mg/dL. Urinalysis showed large amount of blood and proteins. UACR 1547

mg/g, UPCR 2.6 mg/mg. Imaging showed bilateral non-obstructing nephrolithiasis with mild right hydronephrosis for which urological intervention was not indicated. Serology testing including ANA, ANCA, dsDNA, anti-Smith, C3, C4, monoclonal protein screen, HIV, and hepatitis was all negative. His creatinine continued to worsen and underwent renal biopsy which showed necrotizing and crescentic glomerulonephritis and PLA2R-positive membranous glomerulopathy. His renal function worsened and was instituted on hemodialysis. Anti GBM level resulted to 219 U which suggested moderate to strong activity despite no classic linear pattern on immunofluorescence was seen. Pulse dose steroids were initiated then transitioned to prednisone and started plasmapheresis and cyclophosphamide. MN is not often presented as RPGN. Necrotizing and crescentic glomerulonephritis with primary PLA2R membranous nephropathy has been described before but is rare and atypical. A complete serology evaluation should be carried out even in patients who do not have other apparent autoimmune diseases to minimize misdiagnosis and guide the management plan.

Nephrology

Kaur S, and **Uduman J**. FROM DIALYSIS TO RECOVERY: RENAL REVERSAL AFTER SURGICAL INTERVENTION FOR INFERIOR VENA CAVA OBSTRUCTION. *Am J Kidney Dis* 2025; 85(4):S46. Full Text

Vascular obstruction can cause severe kidney injury, leading to outcomes such as the need for dialysis. In some cases, surgical intervention to relieve such obstructions can result in significant renal recovery, even in patients with advanced kidney impairment. An 84-year-old male with a history of stage 3b chronic kidney disease (CKD) presented with right-sided abdominal pain and chest pain. Imaging revealed multiple hepatic cysts, with the largest measuring 12.3 x 16.2 x 14.7 cm. His hospital course was further complicated by supraventricular tachycardia (SVT), with heart rates exceeding 200 beats per minute, along with new-onset heart failure with reduced ejection fraction. An attempt at SVT ablation was aborted after the discovery of bilateral femoral vein thrombosis. Interventional radiology was consulted for inferior vena cava (IVC) filter placement, but a venogram revealed severe narrowing of the intrahepatic IVC due to extrinsic compression from the large hepatic cyst. Additionally, the infrarenal IVC was occluded due to complete thrombosis, with multiple collateral veins, preventing the placement of an IVC filter. During this time, the patient developed oliguric acute kidney injury (AKI), necessitating the initiation of dialysis. Over the following days, he underwent bilateral lower extremity and caval thrombectomy, along with hepatic cyst decompression and drain placement. Post-procedure, the patient showed significant improvement in renal function, allowing for successful weaning from dialysis. His renal function ultimately stabilized at stage 4 CKD. The resolution of vascular obstruction resulted in a remarkable recovery of renal function in a patient with AKI who initially required dialysis. Vascular obstruction, particularly involving the IVC, increases venous pressure, causes renal congestion, and impairs renal perfusion. Following infrarenal thrombectomy and suprarenal cyst decompression, the patient no longer required dialysis, an outcome rarely seen in the literature for such severe and multifactorial renal impairment. This case underscores the importance of early identification and intervention of underlying vascular pathologies to restore renal function and potentially prevent long-term dialysis dependence.

Nephrology

Mahfouz R, **Kaur S**, and **Atchison D**. SYPHILIS-INDUCED MEMBRANOUS NEPHROPATHY. *Am J Kidney Dis* 2025; 85(4):S52. Full Text

Membranous nephropathy (MN) can be primary or secondary, with causes including autoimmune diseases, infections, and malignancies. Syphilis is increasingly recognized as a trigger for MN through immune complex deposition causing renal damage. A 22-year-old man with asthma presented to the ED with abdominal pain, diarrhea, and a rash on his ankles and feet. He reported high-risk sexual activity one month earlier. Stool studies showed Shigella, treated with ciprofloxacin. The rash was initially treated as a fungal infection. He returned with severe leg swelling and hypertension (169/96 mmHg). Labs showed creatinine 1.34 mg/dL (baseline 0.9), albumin 1.3 g/dL, UA with RBC 0, WBC 5, UACR 4,200 mg/g, and UPCR 7 g/g. Workup revealed normal C3/C4, reactive HIV Ag/Ab (on repeat was negative), positive RPR titers (1:256), and ANA (1:640). ANCA, anti-GBM, HBV, and HCV were negative. Kidney ultrasound showed cortical thinning and mildly hypertrophic kidneys (13 cm) without hydronephrosis. He was treated for syphilis with IM penicillin G. Kidney biopsy LM showed no sclerosis, necrosis, crescents, or fibrosis,

and normal glomerular basement membranes (GBM). EM revealed subepithelial electron-dense deposits along the GBM and severe foot process effacement, consistent with MN (Figure 1). IF showed a full house pattern (IgG, IgM, IgA, C3, C1q, albumin, fibrinogen, kappa/lambda light chains). PLA2R and EXT2 were negative. Despite non-compliance with ACE inhibitors, UPCR improved to 2.3 g/g after syphilis treatment. MN in syphilis is due to immune complex deposition. Neuron-derived neurotrophic factor (NDNF) is a novel antigen linked to this condition, enhancing understanding of its mechanisms. Syphilis-associated MN improves significantly with antibiotics. Syphilis should be considered in secondary MN, especially in patients with STI risk factors. Early diagnosis and treatment can significantly improve outcomes, highlighting the reversible nature of this condition.

Nephrology

Monk M, **Sharma Y**, and **Shaban H**. PERCUTANEOUS TRANSESOPHAGEAL GASTROSTOMY TUBE PLACEMENT IN THE SETTING OF PERITONEAL DIALYSIS. *Am J Kidney Dis* 2025; 85(4):S173. Full Text

PD). While PD provides advantages including preservation of renal function and lifestyle flexibility, many patients are at increased risk of malnutrition which can lead to increased morbidity and mortality1. Additionally, percutaneous endoscopic gastrostomy (PEG) tube placement can be challenging in this population due to risk of peritonitis and tube leaks. In 1994, Percutaneous Transesophageal Gastrostomy (PTEG) tube placement was developed in Japan as an alternative modality for providing enteral nutrition for patients unable to tolerate PEG tube placement. The procedure involves percutaneous access of the esophagus via the thorax and has shown to be safe and effective, though is not commonly performed in the United States2. We present a case of successful PTEG tube placement in a patient on peritoneal dialysis An 85 year old male with a past medical history of ESRD, prostate cancer, and tongue and laryngeal cancer presented for evaluation of decreased oral intake and cough. The patient had a long history of dysphagia, with intolerance to solid food and productive cough attributed to aspiration for one week prior to admission. The patient had a PD catheter placed 11 days before presentation and hemodialysis was deferred due to difficulties with transportation as an outpatient. He received video fluoroscopy demonstrating 100% aspiration and was not considered a candidate for PEG tube placement due to risk of peritonitis. The patient was treated for aspiration pneumonia with antibiotics and had a PTEG tube placed without any complications. After the procedure, the patient’s complaints resolved, and he was able to receive PD and tube feeding without incident While PTEG tube placement has commonly been used in the setting of gastrointestinal malignancies, patients receiving PD should be considered for PTEG tube placement for treatment of malnutrition. There is anecdotal evidence suggesting this modality is useful in patients on PD3, however data regarding outcomes is limited. To our knowledge, this is the 1st reported case of PTEG tube insertion in a patient on PD in the United States. Additional study of this procedure's outcomes would b

Neurology

Agarwal U, **Fu S**, **Albanna AJ**, **Qureshi M**, **Bulica B**, and **Newman DS**. Case Report: New Onset Hyperkinetic Movement Disorder in IgA Lambda Myeloma. *Parkinsonism Relat Disord* 2025; 134. Full Text

Introduction: We report a case of new-onset movement disorder and encephalopathy in a 57-year-old female with IgA lambda multiple myeloma. Case Description: The patient was evaluated for persistent encephalopathy and hyperkinetic movements. Previously, she was hospitalized for hypercalcemia and diagnosed with IgA lambda myeloma (IgA >6000 mg/dL, positive bone marrow biopsy). Her hospital course included sepsis, respiratory failure requiring intubation, and fluctuating mentation. She exhibited persistent upper extremity hyperkinetic movements. A hyperviscosity panel showed elevated plasma viscosity of 1.91 (normal <1.6), prompting transfer for plasmapheresis. At our institution, examination revealed encephalopathy with frequent hyperkinetic movements in bilateral upper extremities, including abduction, choreiform, and near-ballistic patterns. MRI brain showed microbleeds at the gray-white junction without other abnormalities. EEG indicated mild-to-moderate encephalopathy. Lumbar puncture revealed elevated lactate (3.1 mmol/L), with unremarkable autoimmune and viral studies. Lab work showed anemia (Hb 7.4 g/dL) and elevated IgA (5525 mg/dL). The patient underwent plasmapheresis to reduce IgA below 2000 mg/dL, followed by three cycles of bortezomib and dexamethasone. Over three

weeks, her mentation improved, and she regained the ability to follow commands and answer yes/no questions. Her hyperkinetic movements resolved. Unfortunately, her hospital stay was prolonged by complications, and she expired two months later. Discussion: This case highlights hyperviscosity-associated encephalopathy and hyperkinetic movement disorder in IgA lambda myeloma, managed effectively with plasmapheresis and chemotherapy. It also highlights the importance of CSF lactate as a surrogate marker for microvascular hypoxia leading to encephalopathy and chorea. The existing literature lacks reports of choreiform or other hyperkinetic movement disorders linked to IgA myeloma or other monoclonal gammopathies. Hyperviscosity-induced movement disorders, however, are documented in polycythemia vera. It has been hypothesized that similar hyperviscosity-driven mechanisms underlie diabetic striatopathy via cytotoxic edema affecting basal nuclei. This case underscores the importance of early recognition and treatment of hyperviscosity to address neurological complications in myeloma.

Neurology

Rascol O, Isaacson S, **LeWitt P**, Poewe W, Ferreira J, Lopes N, Sopromadze S, and Pereira J. Effect of ND0612 Continuous Infusion on Motor Performance and Experiences of Daily Living in Patients With Parkinson's Disease. *Parkinsonism Relat Disord* 2025; 134. Full Text

Background: In the phase 3, active-controlled BouNDless study (NCT04006210), investigational ND0612 (24-hour subcutaneous levodopa/carbidopa infusion) demonstrated superiority in reducing motor fluctuations and improving motor experiences of daily living (m-EDL; MDS-UPDRS Part II), compared to oral immediate-release levodopa/carbidopa (IR-LD/CD). Our aim was to use the MDS-UPDRS to evaluate the efficacy of ND0612 in improving motor signs of PD and m-EDL. Methods: In the present study, we evaluated MDS-UPDRS Part II and Part III (at OFF-state) subscores at the time of ND0612 initiation (ie, start of open-label ND0612 treatment) and at Weeks 8 and 12 of the double-blind double-dummy maintenance period. Descriptive analyses of changes from start of ND0612 treatment to each double-blind visit are presented here. Additionally, we performed a post hoc analysis with grouped symptom-related items (from Parts II and III) for several parameters, including tremor, rigidity, bradykinesia, postural instability-gait disorder (PIGD), speech and oral health, and self-care, using a Mixed Model for Repeated Measures. P values are displayed nominally with no adjustment. Results: Mean [95%CI] treatment differences (ND0612 vs IR-LD/CD) in Part II subscores were –2.4 [–3.5, –1.3] at Week 8 and –3.1 [–4.3, –1.8] at Week 12. Similarly, treatment differences in Part III subscores favored ND0612 treatment and were –4.2 [–6.7, –1.7] at Week 8 and –2.4 [–5.2, 0.4] at Week 12. Additionally, we observed differences favoring ND0612 vs IR-LD/CD for the following parameters: PIGD (–0.26 vs 0.02, p=0.0012), speech and oral health (–0.11 vs 0.05, p=0.0140), tremor (–0.15 vs –0.05, p=0.0992), and self-care (–0.08 vs 0.09, p=0.0528). No relevant differences were observed for rigidity and bradykinesia. Conclusions: In addition to reducing motor fluctuations, these results provide further evidence supporting the clinical benefit of ND0612 therapy across different symptom domains of MDS-UPDRS II and III.

Palliative Medicine

Fagan T, **Henkin D**, and **Shaban H**. Safety of Buprenorphine for Cancer Related Pain in Pregnancy: A Case Series. *J Pain Symptom Manage* 2025; 69(5):e565-e566. Full Text

Outcomes: 1. Recognize buprenorphine as a safe option to treat cancer related pain in pregnancy for both mother and fetus. 2. Consider the utilization of different analgesics in treating cancer related pain in pregnancy. Key Message: Current evidence supports the safety and efficacy of buprenorphine for maternal opioid use disorder; however, there are no established guidelines for its use to manage cancer-related pain in pregnancy. We present three cases demonstrating the safe use of buprenorphine achieving varying levels of analgesia for cancer related pain in pregnant women. Opioids are often the mainstay of treatment for cancer related pain; however, managing cancer related pain in pregnancy can present challenges due to associated risk to the fetus in utero. Evidence supports the use of buprenorphine for opioid use disorder (OUD) treatment during pregnancy; however, there are no best practices or guidance established in this population for cancer pain management. Here we present three cases where buprenorphine products were utilized to manage cancer related pain in pregnancy. Patient A, a 36-year-old G3P2 female with a metastatic neoplasm of the pancreas, achieved pain control at 27 weeks gestation on buprenorphine films. Her baby did not experience any neonatal abstinence syndrome (NAS) at birth. Patient B, a 32-year-old female with pancreatic cancer, started on full agonist opioid

therapy at 25 weeks gestation, received a celiac plexus block and eventually buprenorphine, but switched back to full agonist opioid therapy before delivery at 32 weeks. Her baby required morphine for NAS after birth. Patient C, a 26-year-old female with stage IV lung cancer with metastasis to liver and adrenals, was started on a buprenorphine transdermal patch at 24 weeks gestation and then transitioned to hydromorphone PCA at 31 weeks before delivering at 32 weeks. Baby C required treatment for NAS after birth. In our experience, buprenorphine is safe to use in pregnancy for both mother and fetus but may not always be tolerated or provide appropriate and timely analgesia. Our recommendation is a tailored approach to each pregnant patient with cancer related pain. Given buprenorphine's safety to both mother and fetus and ACOG's stance on OUD in pregnancy supporting use of buprenorphine, we recommend considering its use as first line treatment for cancer related pain during pregnancy.

Public Health Sciences

Eapen A, **Loveless I**, **Pan MM**, Thompson E, Ober C, **Zoratti E**, **Johnson CC**, and **Levin A**. The impact of the cord blood methylome on early-onset atopic dermatitis. *J Allergy Clin Immunol* 2025; 155(2):AB433. Full Text

Rationale: Atopic dermatitis (AD) affects 30% of children worldwide, contributing to significant health and social burdens, particularly those with early-onset disease. DNA methylation (DNAm) is associated with AD, but little is known of its role at birth in predicting early-onset AD. We aimed to characterize cord-blood DNAm in those with and without early-onset AD by age 2 years. Methods: The custom Asthma&Allergy array was applied to 302 cord DNA samples in the Wayne County, Health, Environment, Allergy, and Asthma Longitudinal Study(WHEALS). A single-site epigenome wide association study(EWAS) was performed to identify CpG sites associated with early-onset AD(q-value < 0.01). Combp was used to identify differentially methylated regions(DMR) within 1 kb range (false discovery rate(FDR) < 0.001). An early-onset AD poly-CpG score was created by performing CpG site feature selection (p < 0.01) using an elastic net penalized logistic regression model for CpG sites associated with early-onset AD. Results: There were 75 early-onset AD cases and 227 no-AD controls. 16 DMRs (FDR adjusted p-value < 0.001) were significantly associated with early-onset AD. Pathway analyses identified enrichment for T-cell receptor signaling, MHC class II antigen presentation, and IFNg signaling pathways. For our poly-CpG score, 1,275 met the nominal feature selection p-value < 0.01, with 180 CpG sites in the final model. Our poly-CpG score was highly predictive of early-onset AD with an area under the receiver operator characteristic curve of 93.7% (sensitivity=84.9%, specificity=86.3%). Conclusions: Differential cord-blood DNAm is associated with risk of early-onset AD by age 2. Future studies would include larger, diverse cohorts to assess the validity of our findings.

Public Health Sciences

Lin D, Gomez JC, **Li J**, **Ze M**, Ownby D, **Zoratti E**, **Johnson C**, and Lynch S. Asthma-protective Fecal Protoporphyrin IX Inhibits NFkB-mediated Inflammation and Basophil Activation. *J Allergy Clin Immunol* 2025; 155(2):AB315. Full Text

Rationale: Gut microbial metabolites promote allergic asthma. Mechanisms by microbial-derived products promote protection against asthma remain elusive. Methods:
Comparative analysis of fecal metabolomic profiles from 1 month old infants in the Wayne County Health, Environment, Allergy and Asthma Longitudinal Study (WHEALS) who did (n=23; A+) or did not (n=72; A-) have current atopic (2+ allergic sensitizations) asthma at 10 years was performed. Metabolites associated with asthma protection were assessed for their capacity to inhibit allergic inflammation. Results: Thirty-five fecal metabolites associated with asthma protection were screened for their capacity to inhibit macrophage NFκB-mediated inflammation; the heme precursor, Protoporphyrin IX (PPIX) exhibited the greatest inhibitory capacity. Bulk RNAseq analysis of PBMCs from 3 donors exposed to PPIX exhibited significant transcriptional reprogramming, including increased expression of the heme oxygenase-1 gene (HO-1), which is known to suppress basophil maturation. Human basophil KU812 cells exposed to PPIX exhibited significantly fewer CD31 + CD123 + cells and increased CD31 + CCR3 + and CD31 + CD203c + cells, consistent with the effect of known inhibitors of basophil maturation/activation. Infant fecal metagenomic data indicated a difference in microbiome functional capacity of one-month old A+ and A- infants (PERMAONOVA; p = 0.018, R2=0.03). Weighted gene correlation network analysis of identified two microbial gene modules enriched in A- infants, both of which included bacterial genes involved in

porphyrin biosynthesis. ShortBRED analysis indicated that fecal Escherichia coli encoded these genes. Conclusions: Intestinal E. coli capable of PPIX production in the infant gut may prevent atopic asthma by suppressing macrophage-derived inflammation and maintaining basophils in an immature state.

Public Health Sciences
Parke DM, **Zack RA**, **Bossick A**, and **Perkins DW**. Empathic inquiry training: A successful approach to assessing social needs amongpatients. *Health Serv Res* 2025; 60:e14562. Full Text

Background: Health systems are increasingly screening patients for social needs. At Henry Ford Health based in Detroit, Michigan, food security screening was incorporated into the clinical work-flow for Medical Assistants (MAs) across all primary care clinics in April 2021. Analysis of screening data in June 2021 showed MAs were not consistently screening patients and responses indicating food insecurity were lower than expected. Objective: Improve social needs screening rates and results among patients through MA training. Methods: A survey revealed MAs were uncomfortable asking sensitive questions, MAs felt patients were uncomfortable answering honestly, and MAs were unclear on next steps for patients who identified as food insecure. The team then developed and implemented a 30-min Empathic Inquiry (EI) training curriculum for MAs to provide details on the screening process to answer any patient questions, and equip MAs with empathy and communication skills to build trust so both MAs and patients feel more comfortable during screening. The live training used videos, scenarios, and roleplay. Pre- and post-training surveys collected feedback and assessed participant knowledge. Results: From January to May 2022, 43 trainings were held with 380+ primary care staff. 203 pre-surveys and 109 post-surveyswere analyzed. The majority found the presentation style (88.1%) and the videos/scenarios (85.3%) to be helpful. 98.4% knew the definition of ‘empathy’ at baseline. Correctly defining ‘implicit bias’ rose from 76.6% to 89.1% after the training. Qualitative data revealed participants had improved knowledge on the screening process and how to practice empathy (i.e., “put myself in the patients' shoes”). Importantly, correct screening rates improved: at baseline, 19% of patients who were eligible to be screened were missed; this dropped to 13% post-trainings. Conclusion: Empathy is a critical skill for healthcare providers screening patients for social needs. EI training helped many participants better understand and feel more comfortable with the screening process. Future work must optimize training frequency for continuous improvement.

Public Health Sciences
Ryan P, **Sitarik A**, Zanobetti A, Gold D, Gern J, Hartert T, **Johnson C**, Spoljaric KR, **Eapen A**, and Singh AM. Neighborhood Socioeconomic Characteristics and Skin Barrier Disruption at Age One. *J Allergy Clin Immunol* 2025; 155(2):AB181. Full Text

Rationale: Neighborhood characteristics influence childhood allergic diseases, but their relationship to epidermal barrier disruption is unknown. We sought to determine the relationship between neighborhood socioeconomic status (SES) and transepidermal water loss (TEWL) among young children. Methods: Children enrolled in the Childhood Allergies and the NeOnatal Environment (CANOE) birth cohort were included. TEWL was measured at age one year, and participants’ address at birth was geocoded and linked to an index of neighborhood deprivation (range 0-1, higher values indicate increased deprivation) and US Census tract data including the percent of the population: 1) in poverty, 2) without health insurance, 3) having less than high school education, and 4) with vacant housing. The association between each neighborhood SES indicator and TEWL was determined using separate linear regression models adjusting for child’s sex, parental-reported race, and study location. Results: Among 252 CANOE participants at age 1 (55% female; 68% White, 19% Black, 13% other race), the average (SD) TEWL measurement was 12.7 (12.4) g/m 2 /h. Overall neighborhood deprivation index (β = 1.5, 95% CI 0.0 – 3.1 per 0.1 increase), poverty (β = 2.5, 95% CI 0.8 – 4.2 per 10% increase), and vacant housing (β = 2.3, 95% CI 0.1 – 4.6 per 10% increase) were significantly and positively associated with increased TEWL, while health insurance status and education were not. Conclusions: Lower neighborhood SES, rather than health insurance or parental factors, is associated with increased TEWL in young children. Addressing neighborhood deprivation could improve skin barrier function, and possibly reduce associated atopic disease.

Pulmonary and Critical Care Medicine

Zghouzi M, **Jabri A**, Maligireddy A, Bista R, Paul T, Nasser F, Lichaa H, **Aronow H**, Vallabhajosyula S, **Kelly B**, **Grafton G**, **Awdish R**, **Basir MB**, **Alaswad K**, **Alqarqaz M**, **Koenig G**, and **Aggarwal V**. Association Between Frailty, Use of Advanced Therapies, In-Hospital Outcomes, and 30-Day Readmission in Elderly Patients Admitted With Acute Pulmonary Embolism. *JACC Cardiovasc Interv* 2025; 18(4). Full Text

Background: Clinical decision-making when assessing elderly patients with acute PE often involves an assessment of frailty that may impact the use of advanced therapies. We sought to evaluate the use of advanced therapies and associated in-hospital outcomes by frailty status in such patients. Methods: We utilized the National Readmission Database (NRD) to identify acute PE admissions in older patients (> 75 years) from 2016 to 2020. We defined high-risk PE by the presence of one or more of the following: shock, progressive hypoxia, vasopressor use, or ECMO requirement. Frailty was determined using a previously validated hospital frailty risk score (HFRS). Results: Overall, 233,091 nationally representative patients with acute PE met the study inclusion criteria; 50.9% of patients with no frailty risk (score > 5), while 49.1% of patients with increased frailty risk (score 5-30). A total of 7.4% (17,277) of patients with high-risk features were identified, of whom 79.9% (13,810) patients were frail. Receipt of catheter-directed thrombolysis (CDT) and embolectomy (CDE) were comparable among high-risk frail and non-frail patients. Compared to non-frail patients, increased frailty was associated with higher in-hospital mortality. This increase was 2.3-fold in those without high-risk features and 1.2-fold in those with high-risk features. There is a similar increase in intracranial hemorrhage, gastrointestinal bleeding, and hematuria. Similarly, frailty and high-risk PE were associated with higher length of stay (LOS), increased resource utilization and cost, and fewer home discharges. Conclusion: Catheter-based therapies were utilized at similar rates in frail individuals compared to non-frail elderly individuals with high-risk PE. Increased frailty conferred an increased risk of in-hospital adverse events in elderly patients with PE.

Surgery

Loor G, Fernandez R, Patel K, Belli E, Lee A, Smith M, Salerno C, Song T, Siddique A, Langer N, Kukreja J, **Nemeh H**, Hartwig M, Daneshmand M, Chan J, Schwartz G, Toyoda Y, Durham L, Ardehali A, Bush E, Suarez E, Hertz M, Garcha P, and Huddleston S. Use of Organ Care System (OCS) Lung in Donation After Circulatory Death (DCD) and Donation After Brain Death (DBD) Lung Transplants. *J Heart Lung Transplant* 2025; 44(4):S513-S514. Full Text

Purpose: DCD is an important and underutilized source of donor lungs for transplant. The current study analyzes a large contemporary prospective registry comparing post-lung transplant outcomes associated with DCD versus DBD donors preserved with OCS Lung. Methods: The Thoracic Organ Perfusion (TOP) registry collects prospective data from consented individuals transplanted with donor lungs preserved using the OCS Lung, a portable cellular ex vivo lung perfusion platform. We compared post-transplant primary graft dysfunction grade 3 (PGD3) and survival outcomes in patients transplanted with OCS-DCD versus OCS-DBD donors. Results: This study included 111 (24%) OCS-DCD lung transplants and 347 (76%) OCS-DBD lung transplants from the TOP registry. Out of all donors, 17.5% were >55 years of age, 8.5% had a PaO2:FiO2 ratio < 300 prior to retrieval, and 8.5% had a significant smoking history. Mean cross clamp time was 641 min. Except for abnormal findings on physical examination prior to retrieval, which were more common in the OCS-DBD group (60.5% vs 47.8%, p=0.021), there were no differences in donor characteristics or cross clamp times between OCS-DCD and OCS-DBD groups. Recipients in the OCS-DCD group were older (60 vs 57 years, p=0.024), less likely to be on ECMO (5.4% vs 13%, p=0.03), and less likely to have a history of prior solid organ transplant (1.8% vs 7.5%) compared to OCS-DBD. The average final PaO2:FiO2 ratio on OCS perfusion was 431 in the OCS-DCD group and 428 in the OCS-DBD group (p=0.778). The incidence of PGD3 within 72 hours (inclusive of 6 hrs post-reperfusion) was 64% in the OCS-DCD group and 53.8% in the OCS-DBD group (p=0.06). The incidence of PGD3 at 72 hours was 31.5% in the OCS-DCD group and 24.1% in the OCS-DBD group (p=0.13). Survival was similar between the two groups (p=0.38). Conclusion: In the current analysis of a large prospective registry of OCS Lung transplants, there were no significant differences in PGD3 or survival noted between DCD and DBD. [Formula presented]

Books and Book Chapters

Center for Health Policy and Health Services Research
Braciszewski JM, and Colby SM. Motivational interviewing for smoking cessation. *Motivational interviewing in the treatment of psychological problems., 3rd ed.* The Guilford Press US; 2025**:** 206-228.
Full Text

Despite progress in recent decades, cigarette smoking continues to be the leading cause of morbidity and premature mortality in the United States, accounting for the deaths of roughly half a million people per year, primarily from lung cancer, chronic obstructive pulmonary disease, ischemic heart disease, and stroke. Young people meet a number of criteria that have been proposed to classify groups as priority populations for tobacco cessation. Tobacco use is increasingly concentrated within certain disadvantaged and minoritized populations. Motivational interviewing (MI) has been successfully applied to a broad range of substance use behaviors in youth and young adults. There is evidence supporting the use of MI for adolescent smoking cessation; however, the state of the literature has many of the same limitations described earlier for youth cessation interventions overall. This chapter describes the intervention protocol as delivered in several randomized controlled trials that provided initial support for using MI for smoking in young people. Integrating MI for smoking into health care delivery in a comprehensive way could dramatically and fruitfully expand access to treatment for adolescent smokers.