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HENRY FORD HEALTH

Henry Ford Health Publication List – January 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 PubMed, Embase, Web of Science, CINAHL, PsycINFO, and Google Books during the month, and then imported into EndNote for formatting. There are 215 unique citations listed this month, including 154 articles and 61 conference abstracts.

Articles are listed first, followed by conference abstracts. Because of 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

Articles

Allergy and Immunology

Craig T, **Baptist AP**, Anderson J, Zaragoza-Urdaz RH, Burnette AF, Kelbel TE, Riedl MA, Vanegas A, Boyle K, Bartsch JL, Darden C, Brown TM, Schultz BG, Blair C, Sing K, Fox D, and Juethner S. Hereditary angioedema: patient healthcare experiences within underrepresented racial and ethnic groups in the United States. *Ann Allergy Asthma Immunol* 2025; Epub ahead of print. PMID: 39842773. Full Text

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BACKGROUND: Hereditary angioedema (HAE) is a rare disorder in which unpredictable angioedema attacks significantly impact patient quality of life (QoL). There is limited information regarding patient experiences and perspectives of HAE management within underrepresented racial and ethnic groups. OBJECTIVE: To gain insight into the experiences and perspectives of medical care and treatment for HAE among underrepresented racial and ethnic groups in the US. METHODS: Adult patients with an HAE diagnosis who self-identified as a member of an underrepresented racial and/or ethnic group were recruited to participate in a non-interventional observational, web-based patient survey. Questions included medical history, current and past treatments, resource utilization, and perceived disease severity. Patient-perceived impact of HAE on QoL was also measured. RESULTS: Overall, 139 patients participated in the survey; 33.1% identified solely as "African American or Black" and 30.2% solely as "Hispanic, Latin American, Latine, or Latinx". Before diagnosis, 12.3% of patients were satisfied with their HAE-related healthcare experiences. Many participants experienced difficulties obtaining an HAE diagnosis. Barriers to treatment included insufficient provider knowledge of HAE and misdiagnoses. More than 90% were satisfied with their care; however, patients reported 6 HAE attacks (median) over the past year and only 10.4% of patients were attack free. Additionally, 38.1% found it difficult/very difficult to cover monthly out-of-pocket costs for HAE-related treatments, and 24.6% felt that their provider sometimes/rarely/never considered their individual background when making medical decisions. CONCLUSION: Barriers to HAE diagnosis and effective treatment persist among US patients from underrepresented racial and ethnic groups.

Allergy and Immunology

Eapen AA, **Ma T**, **Sitarik AR**, **Meng Z**, Ownby DR, **Cassidy-Bushrow AE**, **Wegeinka G**, **Zoratti EM**, **Lynch SV**, **Johnson CC**, and **Levin AM**. The relationship between the early-life gastrointestinal microbiome and childhood nocturnal cough. *J Allergy Clin Immunol* 2025; Epub ahead of print. PMID: 39814146. Full Text

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BACKGROUND: Nocturnal cough affects approximately 1 in 3 children, can negatively affect child health, and is often attributable to asthma. The association of the gut microbiome with nocturnal cough has not been investigated. OBJECTIVE: We investigated the association between early-life gut microbiome composition and nocturnal cough overall and in the context of asthma. METHODS: Gut microbiota 1-month (neonate) and 6-month (infant) specimens from 512 children in the Wayne County, Health, Environment, Allergy, and Asthma Longitudinal Study were profiled using 16S ribosomal RNA V4 sequencing. Nocturnal cough (parental report) and asthma (parent-reported doctor's diagnosis) were assessed at age 4 years. Microbiome regression-based kernel association tests (MiRKAT) were used to assess the relationship between gut microbiota composition and nocturnal cough overall and in the context of asthma. Operational taxonomic unit (OTU) associations were conducted using negative binomial regression, adjusting for multiple comparisons using the false discovery rate. RESULTS: Stool microbial composition differences during infancy were associated with nocturnal cough (weighted UniFrac $P = .045$); 78 OTUs were significantly associated with nocturnal cough overall (false discovery rate < 0.05); and 110 OTUs were significantly associated with nocturnal cough and differed by asthma status (interaction false discovery rate < 0.05), with a predominance of Lachnospiraceae genera Blautia and Dorea. Thirty-two OTU were identified as having both overall effects and differences by asthma status. Among OTUs with significant nocturnal cough-by-asthma interactions, 84 retained significance in children with asthma, with 45 exclusive to those with asthma (predominance of Bacteroidaceae genus Bacteroides and Lachnospiraceae genus Dorea). CONCLUSION: Infantile gut microbiome development is associated with nocturnal cough and differed by asthma status by age 4 years. Further studies are needed to determine if the gut microbiome may provide additional information for the early identification of children at risk for nocturnal cough, with and without asthma.

Allergy and Immunology

Gaberino CL, Altman MC, Gill MA, Bacharier LB, Gruchalla RS, O'Connor GT, Kumar R, Khurana Hershey GK, Kattan M, Liu AH, Teach SJ, **Zoratti EM**, Becker PM, Togias A, Visness C, Gern JE, Busse WW, and Jackson DJ. Dysregulation of airway and systemic interferon responses promotes asthma exacerbations in urban children. *J Allergy Clin Immunol* 2025; Epub ahead of print. PMID: 39788435. Full Text

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BACKGROUND: Determining why some upper respiratory illnesses provoke asthma exacerbations remains an unmet need. OBJECTIVE: We sought to identify transcriptome-wide gene expression changes associated with colds that progress to exacerbation. METHODS: Two hundred eight urban children (6-17 years) with exacerbation-prone asthma were prospectively monitored for up to 2 cold illnesses. Exacerbation illnesses (Ex(+)), defined as colds leading to asthma exacerbations requiring systemic corticosteroids within 10 days, were compared to colds that resolved without exacerbation (Ex(-)). Peripheral blood and nasal lavage samples were collected at baseline and during colds for RNA sequencing. Interferon gene expression was compared between Ex(+) and Ex(-) illnesses. Generalized additive modeling revealed interferon response kinetics. Multiple linear regression models compared interferon expression to clinical variables. RESULTS: One hundred six participants were evaluated during 154 colds. There was greater upregulation of differentially expressed interferon genes during Ex(+) illnesses compared to Ex(-). Ex(+) illnesses had greater average and steeper rise in interferon expression. Within 3 days of illness, interferon expression was positively associated with nasal rhinovirus quantity (nasal: adjusted $R(2) = 0.48$, $P = .015$; blood: adjusted $R(2) = 0.22$, $P = .013$), and interferon expression was negatively associated with percentage predicted forced expiratory volume in 1 second (nasal: $\beta = -0.010$, $P = .048$; blood: $\beta = -0.008$, $P = .023$). Participants with lower baseline interferon expression had shorter time to exacerbation, higher risk for exacerbation with viral illnesses, and greater increase in interferon expression during viral colds (nasal: $\beta = -0.80$, $P < .0001$; blood: $\beta = -0.75$, $P < .0001$). CONCLUSION: Dysregulated interferon responses are important contributors to asthma exacerbation risk in children. Low baseline interferon expression followed by greater upregulation of interferon pathways in airway and blood during respiratory illnesses increased exacerbation risk. Targeting this pathway in at-risk individuals holds promise for the personalized prevention of asthma exacerbations.

Allergy and Immunology

Larson PS, Steiner AL, O'Neill MS, **Baptist AP**, and Gronlund CJ. Chronic and infectious respiratory mortality and short-term exposures to four types of pollen taxa in older adults in Michigan, 2006-2017. *BMC Public Health* 2025; 25(1):173. PMID: 39815234. Full Text

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INTRODUCTION: Levels of plant-based aeroallergens are rising as growing seasons lengthen and intensify with anthropogenic climate change. Increased exposure to pollens could increase risk for mortality from respiratory causes, particularly among older adults. We determined short-term, lag associations of four species classes of pollen (ragweed, deciduous trees, grass pollen and evergreen trees) with respiratory mortality (all cause, chronic and infectious related) in Michigan, USA. METHODS: We obtained records for all Michigan deaths from 2006-2017 from the Michigan Department of Health and Human Services (MDHHS). Deaths from infectious and chronic respiratory-related causes were selected using International Classification of Diseases (ICD-10) codes. Pollen data were obtained from a prognostic model of daily pollen concentrations at 25 km resolution. Case-crossover models with distributed lag non-linear crossbases for pollen were used to estimate associations between lags of daily pollen concentrations with mortality and to explore effect modification by sex and racial groups. RESULTS: 127,163 deaths were included in the study. Cumulative daily high concentrations (90th percentile) of deciduous broadleaf, grass and ragweed were associated with all-cause respiratory mortality at early lags with e.g., a 1.81 times higher risk of all respiratory deaths at cumulative 7 day lag exposure to deciduous broadleaf pollen at the 90th percentile (95% confidence interval: 1.04, 3.15). Exposure to high concentrations of grass and ragweed pollens was associated with increased risk for death from chronic respiratory causes. No association was found for any pollen species with death from infectious respiratory causes though there was a positive but non-significant association of exposure to deciduous broadleaf and ragweed pollens. We found no evidence to suggest effect modification by race or sex. CONCLUSIONS: Modelled exposures to high concentrations of pollen taxa were associated with increased all-cause and chronic respiratory mortality among older adults. Results suggest that pollen exposure may become more important to respiratory mortality as the temperatures increase and pollen seasons lengthen.

Allergy and Immunology

Parsons AJ, **Franco-Palacios D**, **Kelly B**, **Grafton G**, **McIntosh J**, **Coleman D**, **Abdul Hameed AM**, and **Sayf AA**. Common Variable Immunodeficiency Associated With Noninfectious Pulmonary Complications and Its Treatment: Beyond Immunoglobulin Therapy. *Pulm Circ* 2025; 15(1):e70034. PMID: 39744645. Full Text

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Common variable immunodeficiency (CVID) is a type of primary immunodeficiency that presents as a heterogenous disorder characterized by hypogammaglobinemia, poor response to vaccines, recurrent sinopulmonary infections, and can have noninfectious systemic manifestations. We performed a single-center, retrospective, observational study of five patients with noninfectious complications of CVID. All patients had CVID as defined by the European Society of Immunodeficiencies criteria and had received intravenous immunoglobulin therapy. There were multiple pulmonary manifestations of CVID including frequent pneumonias, bronchiectasis, granulomatous lung disease, and pulmonary hypertension. All our patients were treated with pulmonary vasodilators for severe precapillary pulmonary hypertension along with individualized immunosuppression regimen for interstitial lung disease. Despite treatment for interstitial lung disease and PH, their conditions worsened over 2-3 years with all patients progressing toward organ transplant evaluation. Idiopathic thrombocytopenia and non-cirrhotic portal hypertension were common, with three patients probably suffering from nodular regenerative hyperplasia. Noninfectious complications of CVID can affect different organs and progress despite advanced therapies. Single or multiorgan transplantation is a treatment option for patients with end-stage organ involvement refractory to medical therapy.

Allergy and Immunology

Togias A, Gergen PJ, Liu AH, **Kim H**, Wood RA, O'Connor GT, Makhija M, Khurana Hershey GK, Kercsmar CM, Gruchalla RS, Lamm C, Bacharier LB, Patel SJ, Gern JE, Jackson DJ, Visness CM, Calatroni A, and Busse WW. Rhinoconjunctivitis symptoms in children and adolescents with asthma: Longitudinal clustering analysis. *J Allergy Clin Immunol* 2025; Epub ahead of print. PMID: 39755282. Full Text

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BACKGROUND: Rhinoconjunctivitis phenotypes are conventionally described on the basis of symptom severity, duration and seasonality, and aeroallergen sensitization. It is not known whether these phenotypes fully reflect the patterns of symptoms seen at a population level. OBJECTIVE: We sought to identify phenotypes of rhinoconjunctivitis on the basis of symptom intensity and seasonality using an unbiased approach and to compare their characteristics. METHODS: A cohort of children with asthma in low-income urban environments was prospectively followed with a rhinoconjunctivitis activity questionnaire, and their upper and lower airway disease was managed for 12 months with every 2-month visit based on standardized algorithms. We identified individual rhinoconjunctivitis symptom trajectories and clusters of those trajectories and compared the clusters focusing on atopic characteristics. RESULTS: Data obtained from 619 children yielded 5 symptom clusters: 2 had high symptoms (22.5%) but differed in seasonal pattern, 1 had medium symptoms (13.6%), 1 had medium nasal congestion only (20.4%), and 1 had low symptoms (43.6%). The latter was further split into 2 subgroups if nasal corticosteroids were frequently prescribed (23.6%) or not (20.0%). Seasonal variation was absent in the low symptom clusters. The number of allergic sensitizations and family history of allergic airway disease were higher in the high symptom clusters, but allergic sensitization did not explain differences in seasonality. CONCLUSIONS: This study identified rhinoconjunctivitis phenotypes that have not been previously reported and were not differentiated by demographics or by measures of atopy and type 2 inflammation. Factors beyond allergy need to be investigated to better understand the pathobiology of rhinoconjunctivitis.

Anesthesiology

Elnahla A, and **Guerra-Londono CE**. Transforming hyperthermic intraperitoneal chemotherapy: using computer simulation to improve HIPEC treatments. *J Gastrointest Oncol* 2024; 15(6):2745-2747. PMID: 39816021. Full Text

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Anesthesiology
Frank Y, Dexter F, and **Guerra-Londono CE**. Percentage contribution of anesthetic induction on total case fresh gas flow under inhalational anesthesia: A retrospective cohort study. *J Clin Anesth* 2025; 102:111767. PMID: 39862527. Full Text

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Anesthesiology
Guerra-Londono CE, **Uribe-Marquez S**, **Shah R**, and Gottumukkala V. The increasing global burden of cancer: implications for anaesthesia and peri-operative medicine. *Anaesthesia* 2025; 80 Suppl 2:3-11. PMID: 39777643. Full Text

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INTRODUCTION: Most patients with cancer will require surgery at some point in their lifetime. As the global burden of cancer continues to increase, changes and challenges in cancer epidemiology and care are also borne peri-operatively. METHODS: Due to its broad scope, a formal systematic electronic literature search was not performed. This narrative review examines how an increasing global burden of cancer affects anaesthesia and peri-operative medicine. We aimed to describe current cancer statistics; economic implications; the increasing survival of individuals with cancer; and the role of anaesthetists in enhancing the quality of life and survival after oncological surgery. RESULTS: Epidemiological reports show wide variation in cancer incidence and mortality worldwide. Countries with a lower human development index will be disproportionately affected by greater increases in cancer burden. At the same time, these countries will also suffer larger deficits in the surgical and anaesthetic workforce. Cancer has significant macro- and micro-economic implications. Thus, public health and policy should address the large economic burden of cancer surgery and care. The improvement in cancer-related survival can be attributed to research focused on a deeper understanding of tumour biology; effective awareness education campaigns and screening programmes; early diagnosis; newer cancer therapies; and patient-centred precision care. Increasing survival brings new global challenges, such as delivering an adequate survivorship care plan and addressing long-term psychosocial concerns in survivors. Anaesthetists are involved in all phases of a patient's cancer journey including facilitating diagnostic procedures; providing comprehensive peri-operative care needs for ablative procedures; provision of critical care; addressing acute and chronic pain; and provision of integrative and palliative care services. DISCUSSION: Deeper engagement of anaesthetists in cancer care programmes will be instrumental in reducing postoperative complications; improving the quality of life for patients; enhancing population health; and contributing to improved global economies.

Anesthesiology
Shaikh A, Martin A, **Waqar SM**, and **Galusca D**. The Role of Fluoroscopic Guidance in Spinal Drain Placement for Thoracoabdominal Aneurysm Repair Patients: A Retrospective Study. *J Cardiothorac Vasc Anesth* 2024; Epub ahead of print. PMID: 39814667. Full Text

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OBJECTIVES: To evaluate outcomes after implementation of a preoperative protocol requiring fluoroscopic guidance in patients undergoing thoracoabdominal aortic aneurysm (TAAA) repair identified as being at risk for spinal drain placement complications. DESIGN: This retrospective analysis included

patients who underwent spinal drain placement for TAAA repair between November 2013 and November 2018. Patient outcomes were assessed before (control) and after (study) protocol implementation. SETTING: Single tertiary care hospital. PARTICIPANTS: A total of 58 patient records were analyzed. INTERVENTION: The protocol was implemented in November 2015 to identify at-risk patients for difficult spinal drain placement undergoing TAAA repair who would benefit from placement under fluoroscopic guidance. MEASUREMENT AND MAIN RESULTS: The mean operating room arrival time to drain placement was lower in the study group than in the control group (44.9 ± 12.7 minutes v 80.5 ± 55.8 minutes; p = 0.03). The mean time to incision was lower in the study group than in the control group (114.9 ± 38.1 minutes v 172.4 ± 32.0 minutes; p < 0.001), and fewer drain placement attempts were done in the study group than in the control group (mean, 1.3 ± 0.7 attempts v 2.7 ± 2.5 attempts; p = 0.006). The mean length of stay was lower in the study group (9.5 ± 6.7 days v 18.7 ± 22.7 days; p = 0.04). CONCLUSIONS: Preoperative identification of at-risk patients before TAAA repair may reduce operating room arrival to the incision time, operating room to spinal drain placement time, number of spinal drain placement attempts, length of hospital stay, and complications associated with spinal drain placement.

Anesthesiology

Shaygan L, Patel N, Kucharski D, Truxillo T, Hackman D, **Sanders JA**, Kertai MD, Grichnik K, Hensley NB, Bollen BA, and Rhee AJ. Quality Improvement Methodologies: An Application in Cardiac Anesthesiology. *J Cardiothorac Vasc Anesth* 2025; Epub ahead of print. PMID: 39884905. Full Text

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Quality improvement (QI) in medicine serves as the cornerstone of best practices. It enhances medical care by maximizing safety and efficiency while minimizing errors and waste. For a QI initiative to succeed it requires careful strategizing and effective change management plans, including the application of established QI methodologies to ensure sustainable success. Today, QI processes are integral to foundational learning for students and trainees, as well as for maintaining board certification for anesthesiologists. However, many anesthesiologists, including those actively pursuing QI efforts, are often unaware of these methodologies and their associated tools. A successful QI program that leads to sustainable improvement in outcomes relies on methodologies that assess the true current state, define value-added measures, evaluate defects and opportunities for enhancement, implement solutions through a robust change management plan, and ensure the sustainability of the process. This document provides a concise summary of methodologies that can be effectively led and executed by process improvement teams. We examine these methods within the context of cardiac anesthesiology, highlighting one institution's experience in reducing surgical site infections following coronary artery bypass graft surgery. However, these principles are applicable to various healthcare situations and beyond.

Behavioral Health Services/Psychiatry/Neuropsychology

Haley E, **Coyne P**, **Carlin A**, **Santarossa S**, **Loree A**, **Braciszewski J**, **Brescacin C**, and **Matero L**. Characteristics and Clinical Outcomes of Women with Polycystic Ovary Syndrome After Bariatric Surgery. *Obes Surg* 2025; Epub ahead of print. PMID: 39821895. Full Text

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BACKGROUND: Polycystic ovary syndrome (PCOS) commonly co-occurs with obesity, medical comorbidities, and psychiatric symptoms. Bariatric surgery is an effective treatment for co-occurring obesity and PCOS. While the incidence of PCOS declines substantially after bariatric surgery, the condition is still present for a subset of women. Examining characteristics and clinical outcomes of those with and without PCOS post-surgery may underscore potential risk factors or intervention targets. METHODS: Individuals up to four years after bariatric surgery were invited to participate in this cross-sectional survey study, which included validated measures of depression, anxiety, eating disorder pathology, and quality of life. Post-surgical weight outcomes, medical comorbidities, and mental health treatment engagement were also assessed. Regression analyses were performed to examine differences in outcomes between those with and without a PCOS diagnosis after bariatric surgery. RESULTS: Of the 657 female (sex assigned at birth) participants who underwent bariatric surgery, 7% (n = 46) reported having a current diagnosis of PCOS. All females identified as women. Women with PCOS were significantly younger ($p < 0.001$) and were more likely to endorse migraines ($p < 0.007$) and loss of control (LOC) eating episodes (< 0.001) since undergoing surgery. Additionally, 47.8% of women with PCOS endorsed clinically significant anxiety, compared to 25.7% of women without PCOS ($p = 0.03$). There were no differences in other demographic, psychiatric, or medical characteristics. CONCLUSION: Despite the low prevalence of PCOS diagnoses in the four years after bariatric surgery, this subpopulation may be particularly susceptible to migraines, disinhibited eating behavior, and anxiety, although weight and cardiometabolic outcomes were comparable to those without a diagnosis of PCOS post-surgically.

Behavioral Health Services/Psychiatry/Neuropsychology

Miller-Matero LR, **Joseph-Mofford GE**, **Vagnini KM**, **Haley EN**, **Vanderziel AM**, **Loree AM**, and **Hecht LM**. Social support among women with infertility: Associations with psychiatric symptoms, disordered eating, and substance use. *J Health Psychol* 2025; 13591053251313588. Epub ahead of print. PMID: 39865692. Full Text

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Though social support in the broader population is related to better psychosocial outcomes, little work has examined the relationship between social support and patient-reported outcomes among women with infertility. The purpose of this study was to investigate whether perceived social support was associated with psychiatric symptoms, disordered eating, and substance use among women with an infertility diagnosis. Individuals who received a diagnosis of female-factor infertility (N = 188) completed measures of perceived social support, psychiatric symptoms, disordered eating, and substance use. Approximately two-thirds of participants endorsed having high levels of perceived social support (63.3%) with smaller proportions indicating moderate (28.2%) or low levels (8.5%). Compared to those with high levels of support, participants with low/moderate levels were more likely to report greater symptoms of anxiety

($p < 0.001$), greater symptoms of depression ($p < 0.001$), and hazardous cannabis use ($p = 0.03$). Clinicians could consider screening women with infertility for level of social support.

Cardiology/Cardiovascular Research

Alhuneafat L, Ghanem F, **Jabri A**, Naser A, Bilal MI, Al Akeel M, Elliott A, Alexy T, **Alqarqaz M**, **Villablanca P**, and **Basir MB**. Temporary mechanical circulatory support utilization and outcomes in cardiogenic shock phenotypes: A comparative analysis of heart failure and acute myocardial infarction. *Cardiovasc Revasc Med* 2025; Epub ahead of print. PMID: 39880770. Full Text

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INTRODUCTION: Cardiogenic shock (CS) is marked by substantial morbidity and mortality. The two major CS etiologies include heart failure (HF) and acute myocardial infarction (AMI). The utilization trends of mechanical circulatory support (MCS) and their clinical outcomes are not well described. METHODS: This study compares the rates of MCS utilization, factors associated with utilization, and clinical outcomes in patients who present with HF-CS and AMI-CS, using 2016-2020 National Inpatient Sample data. RESULTS: The study included 329,280 patients, comprising 204,660 cases of AMI-CS and 124,620 of HF-CS. MCS utilization increased over the study period with variable degree among devices, and CS-phenotype. AMI-CS had higher intraaortic balloon pump (32.4 % vs. 8.9 %), extracorporeal membrane oxygenation (2.8 % vs. 2.4 %), and percutaneous ventricular assist device use (14.5 % vs. 8.1 %) compared to HF-CS ($p < 0.01$). Factors linked to lower MCS use were female sex, age over 60 years, Black race, atrial fibrillation, chronic obstructive lung disease, diabetes mellitus, cirrhosis, previous stroke, or myocardial infarction. After adjusting for various factors, patients with HF-CS vs. AMI-CS had significantly fewer adverse outcomes, including inpatient death, stroke, tracheostomy, mechanical ventilation, and blood transfusion. However, HF-CS had higher odds of acute renal failure requiring dialysis. AMI-CS was associated with shorter hospital stays (8.8 vs. 15.0 days, $p < 0.001$), lower charges ($251,580 vs. $294,792, $p < 0.001$), and were less likely to discharge home. CONCLUSION: Despite the evolving trends in MCS utilization over time, CS patients still face high morbidity and mortality rates. The underlying shock etiology has a substantial impact on outcomes, with AMI cases demonstrating worse complications. This highlights the need for a standardized approach that also takes into consideration etiology, patient-specific factors, care availability, and equitable access.

Cardiology/Cardiovascular Research

Alrayes H, **Alsaadi A**, Alkhatib A, Patel DA, **Alqarqaz M**, **Frisoli T**, **Fuller B**, Khandelwal A, **Koenig G**, **O'Neill BP**, **Villablanca P**, Zaidan M, **O'Neill W**, **Alaswad K**, and **Basir M**. Safety and complications associated with the use of protamine in percutaneous coronary intervention. *J Invasive Cardiol* 2025; Epub ahead of print. PMID: 39899698. Full Text

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OBJECTIVES: There is a paucity of data on the use of protamine after PCI. The purpose of this study was to assess the incidence of thrombotic complications of protamine after high-risk PCI. METHODS: The authors conducted a retrospective analysis of 168 patients. All patients received protamine intra- or immediately post-index PCI. Baseline characteristics and procedural characteristics including heparin dosing, protamine dosing, and bleeding and thrombotic complications were evaluated. The primary outcome was the incidence of acute stent thrombosis (ST), subacute ST, and 'other' thrombotic complications. Secondary outcomes included mortality within 24 hours and within 30 days of the index procedure. RESULTS: A total of 168 patients were included. The majority of patients received dual anti-platelet therapy prior to the index procedure (85%). The average procedure time was 202 ± 103 minutes, and an average of 2.59 (± 1.38) stents were deployed. An average protamine dose of 32mg was administered, and the median dose was 20mg (IQR 20). Seventy-three (43%) had a coronary perforation and five (3%) had access site related bleeding requiring transfusion. Four (2%) patients had acute ST, no patients experienced subacute ST, and 2 (1%) patients developed non-coronary arterial thrombosis. Eight (5%) died within 24 hours of their PCI and 14 (8%) patients died within 30 days after PCI. CONCLUSIONS: In our cohort, administration of protamine was well tolerated in the majority of patients, however, 3.6% of patients did experience coronary or peripheral arterial thrombosis warranting caution when using protamine in these challenging scenarios.

Cardiology/Cardiovascular Research

Banthiya S, **Chowdhury M**, **Govil D**, **Thacker H**, and **Saba S**. Exploring the causes of stiff left atrial syndrome: a case series. *Eur Heart J Case Rep* 2025; 9(2):702. PMID: 39902176. Full Text

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BACKGROUND: Stiff left atrial syndrome (SLAS) is a complication that occurs due to left atrial scarring following procedures such as radiofrequency catheter ablation for atrial fibrillation. CASE SUMMARY: We present a series of four patients with pre-existing conditions that ultimately were diagnosed as SLAS. In each case, clinical manifestations of SLAS may overlapped with other conditions and required a high index of clinical suspicion and diligent hemodynamic assessment to differentiate it from other concomitant cardiac conditions. DISCUSSION: We aim to highlight key differentiating diagnostic features from overlapping cardiac conditions and to summarize current treatment options for patients with SLAS.

Cardiology/Cardiovascular Research

Dunlay SM, Pinney SP, Lala A, Stewart GC, McIlvennan C, Wong RP, Morris AA, Pagani FD, Allen LA, Breathett K, Cogswell R, Colvin MM, **Cowger JA**, Drakos SG, Gelfman LP, Kanwar MK, Kiernan MS, Kittleson MM, Lewis EF, Moazami N, Ogunniyi MO, Pandey A, Rogers JG, Schumacher KR, Slaughter MS, Tedford RJ, Teuteberg J, Valantine HA, DeFilippis EM, Dixon DD, Golbus JR, Gulati G, Hanff TC, Hsiao S, Lewsey SC, McCormick AD, Nayak A, Fenton KN, Longacre LS, Shanbhag SM, Taddei-Peters WC, and Stevenson LW. Recognition of the Large Ambulatory C2D Stage of Advanced Heart Failure-A Call to Action. *JAMA Cardiol* 2025; Epub ahead of print. PMID: 39908057. Full Text

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IMPORTANCE: The advanced ambulatory heart failure (HF) population comprises patients who have progressed beyond the pillars of recommended stage C HF therapies but can still find meaningful life-years ahead. Although these patients are commonly encountered in practice, national databases selectively capture the small groups accepted for heart transplant listing or left ventricular assist devices. The epidemiology, trajectories, and therapies for other ambulatory patients with advanced HF are poorly understood. OBSERVATIONS: In December 2022, the National Heart, Lung and Blood Institute convened a team of experts to identify knowledge gaps and research priorities for the ambulatory population with limiting daily symptoms and transition toward refractory end-stage D HF, designated as stage C2D. This article summarizes the findings from that 3-day workshop. Workshop participants surveyed the initial challenges and knowledge gaps for (1) recognition of ambulatory C2D HF, (2) estimation of the magnitude of the affected population and identifiable subpopulations, and (3) physiologic phenotypes, such as low cardiac output, right HF, cardiorenal syndromes, congestive hepatopathy and frailty, which offer distinct targets for existing and emerging therapies. Social drivers of HF and patient preferences for quality/length of survival were highlighted as essential modifiers for personalization of therapies. CONCLUSIONS AND RELEVANCE: Ten key points summarized workshop findings, with target cohorts for study proposed as a crucial next step. This workshop summary is intended as a call for action to address knowledge gaps and develop new strategies to improve outcomes in the large ambulatory population with C2D HF.

Cardiology/Cardiovascular Research

Fang JX, **Engel Gonzalez P**, **Villablanca PA**, **Frisoli TM**, Kamel-Abusalha LB, **Lee JC**, **Giustino G**, Wang DD, **O'Neill WW**, and **O'Neill BP**. Flaring of Protruding Coronary Stents Before Transcatheter Aortic Valve Replacement to Minimize Interaction-A Feasibility Study. *Catheter Cardiovasc Interv* 2025; Epub ahead of print. PMID: 39745147. Full Text

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BACKGROUND: Protruding coronary artery stents can adversely affect transcatheter aortic valve replacement (TAVR) procedure. Current evidence on the topic is limited. AIMS: We aim to study the clinical feasibility and safety of flaring of protruding coronary artery stents before TAVR to reduce interaction with transcatheter heart valves. METHODS: Twenty consecutive patients with 22 protruding coronary stents were optimized with a dual-diameter balloon before TAVR. Procedural success, stent and valve geometry on angiogram, periprocedural and subsequent clinical outcomes as well as valve hemodynamics on echocardiography were evaluated. RESULTS: Procedural success was achieved in 100% of coronary procedure and TAVR without any major complication directly related to the flaring of stents. There was no coronary artery obstruction after TAVR or visible stent or valve deformity. All valves had normal hemodynamics immediately post-deployment with none having clinically significant aortic insufficiency. One patient had inpatient mortality unrelated to coronary stent optimization. One valve had hemodynamic valve degeneration on follow-up which was unrelated to coronary stent flaring and the patient was asymptomatic. CONCLUSION: Flaring of protruding coronary stents before TAVR is technically feasible and safe and can potentially minimize stent-valve interaction for during of after TAVR.

Cardiology/Cardiovascular Research
Fu W, Hou H, Likosky DS, **Keteyian SJ**, Ellimoottil C, and Thompson MP. Trends in the Use of Virtual Cardiac Rehabilitation in Medicare, 2019-2021. *J Cardiopulm Rehabil Prev* 2025; 45(1):75-76. PMID: 39746001. Full Text

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Cardiology/Cardiovascular Research
Garg J, Kabra R, Gopinathannair R, Di Biase L, **Wang DD**, Saw J, Hahn R, Freeman JV, Ellis CR, and Lakkireddy D. State of the Art in Left Atrial Appendage Occlusion. *JACC Clin Electrophysiol* 2024; Epub ahead of print. PMID: 39797854. Full Text

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Left atrial appendage occlusion (LAAO) has become an important therapeutic target for stroke prevention in patients with nonvalvular atrial fibrillation. Over the past 2 decades, several advancements in LAAO devices (percutaneous and surgical) have been made for stroke prevention and arrhythmia therapy. However, there are several unanswered questions regarding optimal patient selection, the preferred LAAO approach and device, the management of periprocedural and postprocedural complications,

including pericardial effusion, device-related thrombus, and device leaks. This review focuses on fundamental foundational concepts in various aspects of the left atrial appendage and management strategies as they relate to current clinical needs.

Cardiology/Cardiovascular Research
Giustino G, **Fang JX**, **Frisoli TM**, **Lee JC**, **Nguyen F**, **Engel P**, **Villablanca PA**, **O'Neill WW**, and **O'Neill BP**. Early Outcomes of Transjugular Transcatheter Tricuspid Valve Replacement. *JACC Cardiovasc Interv* 2024; Epub ahead of print. PMID: 39708017. Full Text

Cardiology/Cardiovascular Research
Haberman D, Estévez-Loureiro R, Czarnecki A, Melillo F, Adamo M, **Villablanca P**, Sudarsky D, Praz F, Perl L, Freixa X, Scotti A, Fefer P, Spargias K, Fam N, Manevich L, Masiero G, Nombela-Franco L, Pascual I, Crimi G, Ninios V, Beeri R, Benito-Gonzalez T, Arzamendi D, Fernández-Peregrina E, Giannini F, Mangieri A, Poles L, George J, Echarte Morales JC, Caneiro-Queija B, Denti P, Schiavi D, Latib A, Chrissoheris M, Danenberg H, Tarantini G, Dvir D, Maisano F, Taramasso M, and Shuvy M. Transcatheter edge-to-edge repair in severe mitral regurgitation following acute myocardial infarction - aetiology-based analysis. *Eur J Heart Fail* 2025; Epub ahead of print. PMID: 39809715. Full Text

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AIMS: To evaluate the association between transcatheter edge-to-edge repair (TEER) and outcomes in patients with significant mitral regurgitation (MR) following acute myocardial infarction (MI), focusing on

the aetiology of acute post-MI MR in high-risk surgical patients. METHODS AND RESULTS: The International Registry of MitraClip in Acute Mitral Regurgitation following Acute Myocardial Infarction (IREMMI) includes 187 patients with severe MR post-MI managed with TEER. Of these, 176 were included in the analysis, 23 (13%) patients had acute papillary muscle rupture (PMR) and 153 (87%) acute secondary MR. The mean age was 70 ± 10 years and 41% were female. PMR patients had fewer cardiovascular risk factors: hypertension (52% vs. 73%, p = 0.04), diabetes (26% vs. 48%, p < 0.01) but a higher left ventricular ejection fraction (45± 15% vs.35± 10%, p < 0.01) compared secondary MR patients. PMR patients were more likely to present in cardiogenic shock (91% vs. 51%, p = 0.001), require mechanical circulatory support (74% vs. 34%, p = 0.01), and had a higher EuroSCORE II (23± 13% vs. 13± 11%, p = 0.011). The median time from MI to TEER was shorter in PMR (6 days) versus secondary MR (20 days) (p < 0.01). Procedural success was similar (87% vs. 92%, p = 0.49) with comparable MR grade reduction. However, PMR patients had significantly higher in-hospital mortality rates (adjusted odds ratio [OR] 3.05, 95% confidence interval [CI] 1.15-8.12, p = 0.02), 30-day mortality rates (unadjusted OR 3.99, 95% CI 1.42-11.26, p = 0.01) and a higher rate of conversion to surgical mitral valve replacement (22% vs. 3%, p < 0.01) (unadjusted OR 8.17, 95% CI 2.15-30.96, p < 0.001). Aetiology of MR, cardiogenic shock, and procedure timing significantly impacted in-hospital mortality. After adjusting for EuroSCORE II and cardiogenic shock, MR aetiology remained the strongest predictor (adjusted OR 6.71; 95% CI 2.06-21.86, p < 0.01). CONCLUSION: Transcatheter edge-to-edge repair may be considered a salvage or bridge procedure in decompensated post-MI MR patients of both aetiologies; however, patients with PMR have a higher risk of mortality and conversion to surgery.

Cardiology/Cardiovascular Research

Jain V, Furman B, Huang J, **Gupta K**, Mekary W, Batia N, Leal MA, El-Chami MF, and Merchant FM. Protective Effect of Prior Cardiac Surgery in Patients Undergoing Transvenous Lead Extraction. *Heart Rhythm* 2025; Epub ahead of print. PMID: 39864483. Full Text

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Cardiology/Cardiovascular Research

Kumar S, Jalli S, Sandoval Y, **Alaswad K**, Patel NJ, Henry T, Doshi D, Pershad A, Seto A, Kumar G, Burke MN, and Brilakis ES. Systematic Review and Meta-Analysis of the Super High-Pressure Balloon (SIS-OPN) for Percutaneous Coronary Intervention. *Catheter Cardiovasc Interv* 2025; Epub ahead of print. PMID: 39806843. Full Text

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INTRODUCTION: The super high-pressure NC balloon (OPN NC; SIS Medical AG, Winterthur, Switzerland) is increasingly used in percutaneous coronary intervention (PCI). We performed a systematic review and meta-analysis of its efficacy and safety. METHODS: A systematic review was conducted using PubMed and the Cochrane Library to identify studies using the OPN NC balloon in PCI. Procedural success, major adverse cardiac events (MACE), coronary perforation, and other complications were pooled using weighted means, confidence intervals (CI), and I^2 statistics for heterogeneity assessment. RESULTS: Twenty-nine studies (5 prospective including 2 randomized-controlled trials, 12 retrospective, and 12 case reports) were included in the systematic review, of which 11 (3 prospective, 8

retrospective) were included in the meta-analysis. Of the 1015 meta-analysis patients, 50.7% presented with stable angina and 21.6% with an acute coronary syndrome. Mean lesion length was 22.8 ± 13.7 mm, the prevalence of moderate or severe calcification was 93.7%, and 40.4% of lesions were in-stent. Procedural success was 95.1% (95% CI 89.3%-98.8% with significant heterogeneity: I^2 = 84.9%). The incidence of periprocedural MACE was 1.9% (95% CI 1.1%-2.8%, I^2 86.9%), and the incidence of coronary perforation was 0.6% (95% CI 0.3%-1.5%, I^2 87.2%). CONCLUSIONS: Use of the OPN NC balloon is associated with high success and acceptable complication rates. The heterogeneity of outcomes underscores the need for additional studies and standardized definitions.

Cardiology/Cardiovascular Research

Lai LKL, **Alrayes H**, **Fram G**, **Lee JC**, **Zweig B**, **O'Neill BP**, **Frisoli TM**, **Gonzalez PE**, **O'Neill WW**, and **Villablanca PA**. Step-by-Step ICE-Guided Aspiration Thrombectomy: Gastrointestinal Bleeding Patient With Device-Related Thrombus on Watchman FLX. *JACC Case Rep* 2025; 30(3). PMID: Not assigned. Full Text

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Objectives: Device-related thrombus (DRT) remains a significant complication in the field of left atrial appendage occlusion (LAAO). In patients who have difficulty tolerating long-term anticoagulation, treatment options are limited. We present a step-by-step intracardiac echocardiography (ICE)–guided AngioVac (AngioDynamics) challenging case in a 71-year-old woman with a gastrointestinal bleeding tendency and a highly mobile thrombus on a Watchman FLX device (Boston Scientific). Key Steps: We obtained a 26-F DrySeal (Gore Medical) venous access, a 15-F extracorporeal membrane oxygenation cannula arterial access, and a 3-dimensional ICE access. We performed a challenging transseptal crossing using an Agilis medium curl catheter (Abbott) and an electrified Astato wire (Asahi Intecc Medical) as a result of a severely hypertrophic lipomatous septum. We snared the ICE catheter across the interatrial septum (IAS) with a 35-mm gooseneck snare in the inferior vena cava. We used a balloon-assisted technique to bring the F-18 AngioVac system across the IAS. The helicoptering technique with a J-wire assisted with suction of the DRT. Potential Pitfalls: Currently, there are no data to support which post-LAAO antithrombotic regimen predicts DRT. For patients who are unable to tolerate long-term anticoagulation, treatment options are limited. To our knowledge, this is the first reported ICE-guided LAAO thrombus aspiration. Take-Home Messages: ICE-guided aspiration thrombectomy of LAAO thrombus is feasible in high-risk patients who cannot tolerate long-term oral anticoagulation and to reduce the risk of clot embolization.

Cardiology/Cardiovascular Research

Mansour AI, Nuliyalu U, Thompson MP, **Keteyian S**, and Sukul D. Out-of-pocket spending for cardiac rehabilitation and adherence among US adults. *Am J Manag Care* 2024; 30(12):651-657. PMID: 39745509. Full Text

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OBJECTIVES: Although cardiac rehabilitation (CR) improves cardiovascular outcomes, adherence remains low. Higher patient-incurred out-of-pocket (OOP) spending may be a barrier to CR adherence. We evaluated the association between OOP spending for the first CR session and adherence. STUDY DESIGN: Retrospective analysis. METHODS: Commercial and Medicare supplemental beneficiaries with a CR-qualifying event between 2016 and 2020 who attended at least 1 CR session within 6 months of discharge were identified in the MarketScan Commercial Database. OOP spending for the first session was categorized as zero or into 1 of 3 increasing tertiles of OOP spending. Poisson regression was used to determine the association between OOP-spending tertile and CR adherence, defined as the number of CR sessions attended within 6 months of discharge. RESULTS: A total of 43,992 beneficiaries attended at least 1 CR session. Of these, 35,883 (81.6%) paid $0, 2702 (6.1%) paid $0.01 to $25.39, 2704 (6.1%) paid $25.40 to $82.41, and 2703 (6.1%) paid at least $82.42 for the first session, constituting the first,

second, and third OOP-spending tertiles, respectively. Compared with the zero-OOP cohort, the first-tertile cohort attended 13.5% (95% CI, 1.4%-27.1%; P = .028) more CR sessions and the second- and third-tertile cohorts attended 11.9% (95% CI, -16.4% to -7.1%; P < .001) and 30.9% (95% CI, -40.8% to -19.4%; P < .001) fewer CR sessions on average, respectively. For every additional $10 spent OOP on the first CR session, patients attended 0.41 fewer sessions on average (95% CI, -0.65 to -0.17; P < .001). CONCLUSION: Among patients with OOP spending, higher spending was associated with lower CR adherence, dose dependently. Reducing OOP costs for CR may improve adherence for beneficiaries with cost sharing.

Cardiology/Cardiovascular Research

Marinacci LX, Sethi SS, Paras ML, El Sabbagh A, Secemsky EA, Sohail MR, Starck C, Bearnot B, Yucel E, Schaerf RHM, Akhtar Y, Younes A, Patton M, **Villablanca P**, Reddy S, Enter D, Moriarty JM, Keeling WB, El Hajj Younes S, Kiell C, and Rosenfield K. Percutaneous Mechanical Aspiration for Infective Endocarditis: Proceedings From an Inaugural Multidisciplinary Summit and Comprehensive Review. *J Soc Cardiovasc Angiogr Interv* 2024; 3(12):102283. PMID: 39807229. Full Text

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The clinical presentation and epidemiology of infective endocarditis (IE) have evolved over time. While the cornerstones of IE treatment remain antimicrobial therapy and surgery, percutaneous mechanical aspiration (PMA) has emerged as an option for carefully selected patients as a complementary modality, based on retrospective data, case series, and expert experience. In this comprehensive review, we summarize the proceedings from an inaugural summit dedicated to the discussion of PMA in the global management of IE, consisting of experts across multiple disciplines from diverse geographic regions and care environments. After conceptualizing the 3 major roles of PMA as a bridge to decision, destination therapy, and adjunctive therapy, we then review the clinical scenarios in which PMA might be considered by IE subtype. We discuss patient selection, the rationale for intervention, and the most recent evidence for each. Next, we consider PMA for IE in the larger context of our health care system across 3 domains: clinical collaboration, financial considerations, and academic innovation, emphasizing the importance of interdisciplinary teams and cross-organizational partnerships, reimbursement models, and the need for

high-quality research. Finally, we outline what we determined to be the most pressing outstanding questions in this space. In doing so, we propose a national consortium to help organize efforts to move this field forward and share our progress in these endeavors to date. PMA for IE has great promise, but significant work remains if we are to fully realize its potential to safely and effectively improve outcomes for modern endocarditis patients.

Cardiology/Cardiovascular Research

Markson F, and **Raad M**. Conduction system pacing versus biventricular pacing for atrial fibrillation in patients undergoing atrioventricular junction ablation: a meta-analysis. *J Interv Card Electrophysiol* 2025; Epub ahead of print. PMID: 39891815. Full Text

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Cardiology/Cardiovascular Research

Mutlu D, Strepkos D, Carvalho PE, Alexandrou M, Al-Ogaili A, Jalli S, **Alaswad K**, Jaffer FA, Davies R, Poommipanit P, Frizzel J, Elbarouni B, Khatri JJ, Gorgulu S, Goktekin O, Ozdemir R, Uluganyan M, ElGuindy A, Sadek Y, Ahmad Y, **Basir MB**, Raj L, Ybarra L, Murad B, Rangan BV, Mastrodemos OC, Azzalini L, Sandoval Y, Burke MN, and Brilakis ES. Use of the Ostial Flash balloon in aorto-ostial chronic total occlusion percutaneous coronary intervention. *J Invasive Cardiol* 2025; Epub ahead of print. PMID: 39808454. Full Text

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BACKGROUND: The use of the Ostial Flash balloon (Ostial Corporation) has received limited study in aorto-ostial chronic total occlusion (CTO) percutaneous coronary artery intervention (PCI). METHODS: The authors evaluated the outcomes of Ostial Flash balloon use in a large CTO-PCI registry (PROGRESS-CTO, NCT02061436). RESULTS: The Ostial Flash balloon was used in 54 of 907 aorto-ostial CTO PCIs in 905 patients (6.0%). The mean patient age was 65.1 ± 10.7 and 80.6% were men, with a high prevalence of diabetes mellitus, hypertension, prior PCI, and prior myocardial infarction. The mean occlusion length was 40.5 ± 25.1 mm, 52.2% had moderate to severe calcification, and the mean Japanese-CTO score was 2.8 ± 1.1. Lesions treated with the Ostial Flash balloon were more frequently located in the right aorto-ostium (79.6% vs 66.0%, P = .002). In the Ostial Flash group, the most common successful CTO crossing technique was antegrade wiring (46.3%), followed by the retrograde approach

(40.7%); intravascular imaging was used in 61.1% of cases. Technical success (92.6% vs 87.9%, P = .300) and the incidence of major adverse cardiac events (MACE) (5.6% vs 3.6%, P = .450) was similar in the Ostial Flash vs non-Ostial Flash patients, respectively. In multivariable analysis, PCI of proximal right coronary artery CTOs was independently associated with use of the Ostial Flash balloon (odds ratio 2.2; 95% CI, 1.1-4.8; P = .036). CONCLUSIONS: The Ostial Flash balloon is infrequently used in aorto-ostial CTO PCI. Although there were no differences in MACE with use of the balloon, randomized controlled trials are needed to determine its effectiveness.

Cardiology/Cardiovascular Research

Pagani FD, Singletary B, Cantor R, Mehaffey JH, Nayak A, Teuteberg J, Shah P, **Cowger J**, Vega JD, Goldstein D, Kurlansky PA, Stehlik J, Jacobs J, Shahian D, Habib R, Dardas TF, and Kirklin JK. The Society of Thoracic Surgeons National Intermacs Database Risk Model for Durable Left Ventricular Assist Device Implantation. *Ann Thorac Surg* 2025; Epub ahead of print. PMID: 39864770. Full Text

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BACKGROUND: Statistical risk models for durable left ventricular assist device (LVAD) implantation inform candidate selection, quality improvement, and evaluation of provider performance. This study developed a 90-day mortality risk model using The Society of Thoracic Surgeons National Intermacs Database (STS Intermacs). METHODS: STS Intermacs was queried for primary durable LVAD implants from January 2019 to September 2023. Multivariable logistic regression was used to derive a model based on preimplant risk factors by using derivation (2019-2021 implants) and validation (2022-2023 implants) cohorts. Model performance (derivation and validation cohorts) was assessed using C-statistics, Brier scores, and calibration plots. A refined model (all patients) was generated to calculate observed-to-expected (O/E; 95% CI) ratios for each center. RESULTS: The study population consisted of 11,342 patients from 2019 to 2023 who were sequentially divided in time into derivation (n = 6775) and validation (n = 4567) cohorts. Ninety-day mortality was 8.0% (9.2% in the derivation cohort vs 7.4% in the validation cohort; P = .001). Logistic regression applied to derivation and validation cohorts produced similar discrimination (area under the curve [AUC], 0.714 [95% CI, 0.69-0.74]; and AUC, 0.707; [95% CI, 0.67-0.72], respectively) and calibration (Brier score, .08 vs .07), with overestimation of risk among patients with a predicted risk >0.4. The O/E analysis identified 22 (12.5%) centers with worse than expected mortality with a 95% CI >1.0 and 14 centers (8.0%) with better than expected mortality with a 95% CI <1.0 (all P < .05). CONCLUSIONS: The STS Intermacs risk model demonstrated satisfactory discrimination and calibration. This tool may be used to inform candidate selection, facilitate quality improvement, and assess provider performance.

Cardiology/Cardiovascular Research

Parsons AJ, **Franco-Palacios D**, **Kelly B**, **Grafton G**, **McIntosh J**, **Coleman D**, **Abdul Hameed AM**, and **Sayf AA**. Common Variable Immunodeficiency Associated With Noninfectious Pulmonary Complications and Its Treatment: Beyond Immunoglobulin Therapy. *Pulm Circ* 2025; 15(1):e70034. PMID: 39744645. Full Text

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Common variable immunodeficiency (CVID) is a type of primary immunodeficiency that presents as a heterogenous disorder characterized by hypogammaglobinemia, poor response to vaccines, recurrent sinopulmonary infections, and can have noninfectious systemic manifestations. We performed a single-center, retrospective, observational study of five patients with noninfectious complications of CVID. All patients had CVID as defined by the European Society of Immunodeficiencies criteria and had received intravenous immunoglobulin therapy. There were multiple pulmonary manifestations of CVID including frequent pneumonias, bronchiectasis, granulomatous lung disease, and pulmonary hypertension. All our patients were treated with pulmonary vasodilators for severe precapillary pulmonary hypertension along with individualized immunosuppression regimen for interstitial lung disease. Despite treatment for interstitial lung disease and PH, their conditions worsened over 2-3 years with all patients progressing toward organ transplant evaluation. Idiopathic thrombocytopenia and non-cirrhotic portal hypertension were common, with three patients probably suffering from nodular regenerative hyperplasia. Noninfectious complications of CVID can affect different organs and progress despite advanced therapies. Single or multiorgan transplantation is a treatment option for patients with end-stage organ involvement refractory to medical therapy.

Cardiology/Cardiovascular Research

Patzer RE, Schold JD, Hirose R, **Cowger JA**, Urbanski M, Budev M, Cardenas A, Giles K, Lawrence AC, Lentine KL, Maxmeister C, Oduor H, and Mohan S. Transforming Transplantation Access: A Federal Directive for Comprehensive Pre-Waitlisting Data Collection. *Am J Transplant* 2025; Epub ahead of print. PMID: 39880124. Full Text

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There is substantial variation in access to transplantation across the United States that is not entirely explained by the availability of donor organs. Barriers to transplantation and variation in care among patients with end-stage organ disease exist prior to patients' placement on a transplant waiting list as well as following waitlist placement. However, there are currently no national data available to examine rates and variations in key care processes related to pre-listing, including transplant referral, evaluation, or candidate selection. In February of 2024, the Health Resources and Services Administration (HRSA) released a directive and, in November 2024, released for public comment the proposed expansion of the Organ Procurement and Transplantation Network (OPTN) data collection to include pre-waitlist data for all solid organ transplant patients to promote transparency across the transplant continuum. While data elements and details have not been finalized, the purpose of this article is to detail the rationale and anticipated details for pre-waitlisting data collection to inform the transplant community. These data aim to examine care processes and barriers to care for patients with end-stage organ disease in the United States.

Cardiology/Cardiovascular Research

Rymer J, Abbott JD, Ali ZA, **Basir MB**, Busman D, Dangas GD, Kolansky DM, Naidu SS, Riley RF, Seto AH, Shah B, Shlofmitz E, Baumgard CS, Cavalcante R, Culbertson C, Gaalswyk C, Miltner RJ, Moretz J, Niebuhr J, Ollivier A, Ramakrishnan K, Serwer B, West NEJ, and Zizzo S. Intravascular Coronary Imaging. *J Soc Cardiovasc Angiogr Interv* 2024; 3(12):102399. PMID: 39807236. Full Text

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Cardiology/Cardiovascular Research

Strepkos D, Rempakos A, Alexandrou M, Mutlu D, Carvalho PEP, Bahbah A, Kostantinis S, Choi JW, Gorgulu S, Jaffer FA, Chandwaney R, **Alaswad K**, **Basir MB**, Azzalini L, Ozdemir R, Uluganyan M, Khatri J, Young L, Poommipanit P, Aygul N, Davies R, Krestyaninov O, Khelimskii D, Goktekin O, Tuner H, Rafeh NA, Elguindy A, Rangan BV, Mastrodemos OC, Voudris K, Al-Ogaili A, Burke MN, Sandoval Y, and Brilakis ES. Association of Proximal Vessel Tortuosity with Technical Success and Clinical Outcomes: Analysis From the Progress-CTO Registry. *Catheter Cardiovasc Interv* 2025; 105(1):1-10. PMID: 39660868. Full Text

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BACKGROUND: Proximal vessel tortuosity can hinder wiring and equipment delivery during chronic total occlusion (CTO) percutaneous coronary intervention (PCI). AIMS: We sought to examine the association of proximal vessel tortuosity with the short and long-term outcomes of patients undergoing CTO PCI. METHODS: We examined the association of proximal vessel tortuosity with clinical outcomes in patients who underwent CTO PCI at 50 US and non-US centers between 2012 and 2024. RESULTS: Of 14,141 patients, 3,974 (28.1%) had moderate or severe proximal vessel tortuosity. Patients with moderate or severe proximal vessel tortuosity had more comorbidities and more complex angiographic characteristics, such as longer lesion length and higher prevalence of side branch at the proximal cap. Lesions with moderate or severe proximal tortuosity required greater procedure and fluoroscopy time. On unadjusted analyses, moderate/severe proximal vessel tortuosity was associated with lower technical success and higher incidence of major adverse cardiac events (MACE). In multivariable analysis, moderate/severe proximal vessel tortuosity was associated with lower technical success (odds ratio [OR]: 0.77; 95% confidence intervals [CI]: 0.67, 0.89) but similar MACE (OR: 1.26; 95% CI: 0.91, 1.73). Higher operator volume (≥ 30 CTO PCI cases per year) was associated with higher technical (85.2% vs. 75.6%, $p < 0.001$) and procedural success (83.6% vs. 74.5%, $p < 0.001$) but also higher risk of perforation (6.49% vs. 3.57%, $p < 0.001$) but not pericardiocentesis, in lesions with moderate/severe proximal vessel tortuosity. CONCLUSIONS: Moderate or severe proximal vessel tortuosity is independently associated with lower technical success in CTO PCI but not with MACE. High-volume operators are more likely to successfully perform CTO PCI in lesions with moderate/severe tortuosity at the cost of higher risk of perforation, without higher MACE.

Cardiology/Cardiovascular Research

Zordok M, Buda KG, Etiwy M, Dani SS, Ganatra S, **Basir B**, **Alaswad K**, Brilakis ES, and Megaly M. Comparative analysis of the DanGer shock trial to randomized cardiogenic shock trials and real-world registries. *Cardiovasc Revasc Med* 2025; Epub ahead of print. PMID: 39890500. Full Text

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BACKGROUND: The Danish-German Cardiogenic (DanGer) Shock Trial reported lower mortality with a percutaneous micro-axial flow pump compared to standard care in patients with STEMI-related cardiogenic shock. It remains unclear how the DanGer Shock trial population compares to randomized controlled trials (RCTs) and real-world registries studying temporary mechanical circulatory support (tMCS) for acute myocardial infarction with cardiogenic shock (AMICS). METHODS: A systematic review and meta-analysis of RCTs and registries involving tMCS for AMICS was performed. Patient characteristics and outcomes were compared to those in the DanGer Shock Trial. RESULTS: From 2005

to 2023, seven RCTs (1201 patients) and ten registries (2100 patients) were analyzed. DanGer Shock patients had fewer comorbidities, lower blood pressure, lower Left ventricular ejection fraction (LVEF), higher heart rates, and shorter times to tMCS initiation (5.5 ± 2.7 vs. 19.1 ± 38.3 h, $p < 0.0001$) than RCT patients. They required shorter tMCS durations, less mechanical ventilation, and inotropic support. DanGer patients experienced fewer bleeding events, infections, and limb ischemia, with similar 30-day mortality but higher stroke rates. Compared to registry patients, DanGer Shock patients had fewer comorbidities but required longer tMCS, more mechanical ventilation, and inotropic support, with fewer complications and lower 30-day mortality. CONCLUSION: DanGer Shock patients had better survival despite worse initial hemodynamics, possibly due to fewer comorbidities, earlier tMCS initiation, and an algorithmic treatment approach.

Center for Health Policy and Health Services Research
Athey A, Shaff J, **Kahn G**, Brodie K, Ryan TC, Sawyer H, DeVinney A, Nestadt PS, and Wilcox HC. Association of substance use with suicide mortality: An updated systematic review and meta-analysis. *Drug Alcohol Depend Rep* 2025; 14:100310. PMID: 39830682. Full Text

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BACKGROUND: Rates of suicide mortality and substance use have increased globally. We updated and extended existing systematic reviews of the association between substance use and suicide. METHODS: This systematic review and meta-analysis explored the association between substance use and suicide mortality in peer reviewed, longitudinal cohort studies published from 2003 through 2024. Risk of bias was assessed using the Newcastle-Ottawa Scale. Pooled data were analyzed using a quality effects model. Meta-regression was used to assess the effect of moderation by study quality. Asymmetry in funnel plots and Doi plots were used to detect reporting bias. FINDINGS: The analysis involved 47 studies from 12 countries. Substance misuse (SMR: 5.58, 95 % CI: 3.63-8.57, I(2): 99 %) was significantly associated with risk for suicide. Alcohol (SMR: 65.39, 95 % CI: 3.02-19.62, I(2): 99 %), tobacco (SMR: 1.83, 95 % CI: 1.20-2.79, I(2): 83 %), opioid (SMR: 5.46, 95 % CI: 3.66-8.15, I(2): 96 %), cannabis (SMR 3.31, 95 % CI: 1.42-7.70, I(2): 95 %), and amphetamine (SMR 11.97, 95 % CI: 3.13-45.74, I(2): 99 %) misuse were each linked to higher rates of suicide mortality. The association between substance misuse and suicide was stronger for females (SMR: 12.37, 95 % CI: 7.07-21.63, I(2): 98 %) than males (SMR: 5.21, 95 % CI: 3.09-8.78, I(2): 99 %) overall and in analyses of specific substances. Further disaggregated data were not available to sufficiently explore for potential health inequities across social factors. CONCLUSIONS: This meta-analysis highlights that substance misuse remains a significant suicide risk factor. It underscores the need for universal and targeted prevention and equitable access to effective interventions.

Center for Health Policy and Health Services Research
Barnett NM, Vordenberg SE, Kim HM, Turnwald M, Strominger J, Leggett AN, Akinyemi E, Blow FC, **Vanderziel A**, **Pappas C**, and Maust DT. An Educational Intervention to Promote Central Nervous System-Active Deprescribing in Dementia: A Pilot Study. *Drugs Aging* 2025; Epub ahead of print. PMID: 39832105. Full Text

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BACKGROUND: Central nervous system (CNS)-active polypharmacy (defined as concurrent exposure to three or more antidepressant, antipsychotic, antiseizure, benzodiazepine, opioid, or nonbenzodiazepine benzodiazepine receptor agonists) is associated with significant potential harms in persons living with dementia (PLWD).We conducted a pilot trial to assess a patient nudge intervention's implementation feasibility and preliminary effectiveness to prompt deprescribing conversations between PLWD experiencing CNS-active polypharmacy and their primary care clinicians ("clinicians"). METHODS: We used the electronic health record to identify PLWD prescribed CNS-active polypharmacy in primary care clinics from two health systems. Clinics were assigned to intervention (n = 10) or control (n = 12), with PLWD in intervention clinics mailed an educational brochure to prompt discussion with clinicians about the appropriateness of their CNS-active regimen. We conducted chart reviews for evidence of documentation related to these medications and used the electronic health record (EHR) to assess preliminary effectiveness 120 days after sending the brochure (e.g., number of CNS-active medications prescribed, change in total standardized daily dose [TSDD] of CNS-active medications, and change in prevalence of CNS-active polypharmacy). We interviewed 10 clinicians from intervention clinics to assess their perceptions about the acceptability of the intervention. RESULTS: PLWD in the intervention group (n = 61) and control group (n = 68) had an average age of 72.4 years (standard deviation [SD] 9.7), 62.8% were female, and 84.5% were white. We did not find any documented evidence of conversations related to CNS-active medications between PLWD who received the brochure and their primary care clinicians. After 120 days, there was no significant between-group difference in the mean number of CNS-active medications prescribed (- 1.0 [SD 1.3] versus - 1.0 [SD 1.3]), mean TSDD (- 1.6 [SD 6.0] versus - 1.3 [SD 5.8]), or the percentage of patients with CNS-active polypharmacy (52.6% versus 50.4%). Interviews with clinicians suggested they were aware that combinations of CNS-active medications were not ideal; however, they reported inheriting patients who were already on these medications, and they did not have sufficient clinic time or access to safer alternatives to overcome patient hesitation to deprescribe. CONCLUSIONS: A direct-to-patient mailed educational brochure did not demonstrate feasibility in provoking deprescribing conversations between PLWD and clinicians or preliminary effectiveness in decreasing CNS-active polypharmacy.

Center for Health Policy and Health Services Research

Goldman ML, Elser A, **Yeh HH**, McDaniel M, **Ma L**, **Ahmedani BK**, and Foster AA. Demographic and Clinical Characteristics of Mental Health Crisis Line Callers Who Were Transferred to 911. *Psychiatr Serv* 2025; Epub ahead of print. PMID: 39789956. Full Text

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OBJECTIVE: This study aimed to describe the characteristics of callers to a statewide mental health crisis line who were transferred to 911 (active rescue). METHODS: This retrospective cohort study examined mental health crisis line calls transferred to active rescue (N=3,538 calls; N=3,132 unique callers) from the Georgia Crisis and Access Line (2016-2018). Chi-square analyses and t tests were used to examine descriptive differences between caller characteristics and call features. RESULTS: Of crisis line callers with a contact that resulted in active rescue, 53% were male, and 53% were Black. Youth callers represented 11% of all rescue calls; 74% of these callers had Medicaid. Active rescue most frequently occurred because of a danger to oneself (58%). Reasons for active rescue differed by race ($p<0.001$). CONCLUSIONS: Most crisis calls resulting in active rescue occurred because of concern about self-harm. Demographic differences by reason for active rescue reveal gaps in the understanding of crisis care delivery.

Center for Health Policy and Health Services Research

Haley E, **Coyne P**, **Carlin A**, **Santarossa S**, **Loree A**, **Braciszewski J**, **Brescacin C**, and **Matero L**. Characteristics and Clinical Outcomes of Women with Polycystic Ovary Syndrome After Bariatric Surgery. *Obes Surg* 2025; Epub ahead of print. PMID: 39821895. Full Text

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BACKGROUND: Polycystic ovary syndrome (PCOS) commonly co-occurs with obesity, medical comorbidities, and psychiatric symptoms. Bariatric surgery is an effective treatment for co-occurring obesity and PCOS. While the incidence of PCOS declines substantially after bariatric surgery, the condition is still present for a subset of women. Examining characteristics and clinical outcomes of those with and without PCOS post-surgery may underscore potential risk factors or intervention targets. METHODS: Individuals up to four years after bariatric surgery were invited to participate in this cross-sectional survey study, which included validated measures of depression, anxiety, eating disorder pathology, and quality of life. Post-surgical weight outcomes, medical comorbidities, and mental health treatment engagement were also assessed. Regression analyses were performed to examine differences in outcomes between those with and without a PCOS diagnosis after bariatric surgery. RESULTS: Of the 657 female (sex assigned at birth) participants who underwent bariatric surgery, 7% (n = 46) reported having a current diagnosis of PCOS. All females identified as women. Women with PCOS were significantly younger ($p < 0.001$) and were more likely to endorse migraines ($p < 0.007$) and loss of control (LOC) eating episodes (< 0.001) since undergoing surgery. Additionally, 47.8% of women with PCOS endorsed clinically significant anxiety, compared to 25.7% of women without PCOS ($p = 0.03$). There were no differences in other demographic, psychiatric, or medical characteristics. CONCLUSION: Despite the low prevalence of PCOS diagnoses in the four years after bariatric surgery, this subpopulation may be particularly susceptible to migraines, disinhibited eating behavior, and anxiety, although weight and cardiometabolic outcomes were comparable to those without a diagnosis of PCOS post-surgically.

Center for Health Policy and Health Services Research

Hu J, and **Nerenz DR**. Outpatient chemotherapy drug costs and expensive chemotherapy drug use in 340B and Non-340B hospitals: an observational study. *BMC Health Serv Res* 2025; 25(1):157. PMID: 39871245. Full Text

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BACKGROUND: The 340B Drug Pricing Program has been controversial since its inception in 1992, a major criticism being that 340B hospitals use more outpatient drugs, and more expensive drugs, because of financial incentives to "make money" through the program. The goal of this study was to determine whether characteristics of patients treated at 340B hospitals, and affiliation of hospitals with NCI-designated cancer centers, would explain higher Part B drug costs and use of more expensive

chemotherapy drugs. METHODS: This is an observational study using data from SEER-Medicare and 340B entity database. Fee-for-service Medicare beneficiaries who were first diagnosed with cancer between 1/1/2013 and 12/31/2015 were included. Hospital, patient, and cancer/clinical characteristics were used as predictors of both overall Part B drug costs and use of expensive chemotherapy drugs. Patient characteristics and cancer conditions were compared between those who were treated at 340B and non-340B hospitals, and between those who used and who did not use any expensive chemotherapy treatment. Independent relationships between overall Part B drug costs and patients' 340B status, and between patients' use of expensive chemotherapy drug and patients' 340B status were evaluated in multivariate analyses, using a "stepwise" generalized estimating equation modeling approach. RESULTS: We found that patients at 340B hospitals had a somewhat higher chance of using one of the ten expensive chemotherapy drugs, and somewhat higher overall drug costs, but these relationships became non-significant when patient, cancer/clinical factors, and cancer center status were considered. Compared to the reference patients, patients who were treated in an NCI-designated cancer center or a hospital affiliated with such center, who had certain types of cancers (e.g., B-cell), or had advanced-stage disease had a higher chance to use expensive chemotherapy treatment; patients who were older, survived the first 12 months upon diagnosis, had advanced-stage disease, or had more drug claims had higher drug costs. CONCLUSIONS: Hospital 340B status was not significantly associated with use of more expensive cancer drugs or drug costs once other relevant factors (e.g., cancer center status, advanced-stage disease) were taken into account.

Center for Health Policy and Health Services Research

Miller-Matero LR, **Joseph-Mofford GE**, **Vagnini KM**, **Haley EN**, **Vanderziel AM**, **Loree AM**, and **Hecht LM**. Social support among women with infertility: Associations with psychiatric symptoms, disordered eating, and substance use. *J Health Psychol* 2025; 13591053251313588. Epub ahead of print. PMID: 39865692. Full Text

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Though social support in the broader population is related to better psychosocial outcomes, little work has examined the relationship between social support and patient-reported outcomes among women with infertility. The purpose of this study was to investigate whether perceived social support was associated with psychiatric symptoms, disordered eating, and substance use among women with an infertility diagnosis. Individuals who received a diagnosis of female-factor infertility (N = 188) completed measures of perceived social support, psychiatric symptoms, disordered eating, and substance use. Approximately two-thirds of participants endorsed having high levels of perceived social support (63.3%) with smaller proportions indicating moderate (28.2%) or low levels (8.5%). Compared to those with high levels of support, participants with low/moderate levels were more likely to report greater symptoms of anxiety ($p < 0.001$), greater symptoms of depression ($p < 0.001$), and hazardous cannabis use ($p = 0.03$). Clinicians could consider screening women with infertility for level of social support.

Center for Health Policy and Health Services Research

Rabinowitz JA, Wells JL, **Kahn G**, Ellis JD, Strickland JC, Hochheimer M, and Huhn AS. Predictors of treatment attrition among individuals in substance use disorder treatment: A machine learning approach. *Addict Behav* 2025; 163:108265. PMID: 39889364. Full Text

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BACKGROUND: Early treatment discontinuation in substance use disorder treatment settings is common and often difficult to predict. We leveraged a machine learning approach (i.e., random forest) to identify individuals at risk for treatment attrition, and specific factors associated with treatment discontinuation. METHOD: Participants (N = 29,809) were individuals ≥ 18 years who attended substance use disorder treatment facilities in the United States. Using random forest, we aimed to predict three outcomes (1) leaving against medical advice (AMA), (2) discharging involuntarily, and (3) discharging early for any reason. Predictors included participant demographics, substance use the month before and at intake, indices of mental and physical health, as well as treatment center and program type. FINDINGS: We observed low to moderate area under the curve (range = 0.631-0.671), high negative predictive values (range = 0.853-0.965), and low positive predictive values (0.088-0.336) across the three treatment attrition outcomes. The most robust predictors of the three outcomes included treatment center, treatment type, and participant age. Additional predictors of the three outcomes included employment status; reason for treatment; primary drug at intake and frequency of use; prescription opioid, benzodiazepine, or heroin use at intake; living status at intake; and driving under the influence prior to treatment. CONCLUSIONS: Our models were able to accurately identify individuals who remained in treatment, but not those who left treatment prematurely. The most robust predictors of treatment discontinuation were treatment center and program type, suggesting that targeting treatment facility features may have a significant impact on reducing treatment attrition and improving long-term recovery.

Center for Health Policy and Health Services Research

Santarossa S, **Blake RA**, **Buchanan H**, **Price M**, **Guzzardo R**, **Guzzardo C**, **Johnson LM**, **Morshall JM**, **Bate A**, **Bate W**, **Bakari R**, **Copeland L**, **Murphy D**, **Redding A**, and **Loree A**. Beyond the Status of Health: A Collection of Stories Representing Diverse Maternal Mental Health Perspectives. *J Patient Cent Res Rev* 2025; 12(1):35-49. PMID: 39906610. Full Text

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Dermatology

Arora N, Wittmer A, Shalabi MMK, Jing F, **Nadir U**, Kelley BF, and Tolkachjov SN. Surgical outcomes of Adenoid cystic carcinoma treated with Mohs Micrographic Surgery and excision: a systematic review. *Arch Dermatol Res* 2025; 317(1):335. PMID: 39893263. Full Text

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Adenoid cystic carcinoma (ACC) is a rare cancer that most commonly occurs in the salivary glands, making up approximately 2-4% of all head and neck malignancies. Treatment for ACC varies, with combinations of surgical excision, adjuvant radiotherapy, and chemotherapy reported in the literature. In this study, we aim to assess ACC recurrence rates with Mohs Micrographic Surgery (MMS) treatment compared to traditional wide local excision (WLE). In June of 2024, a comprehensive review of the literature was performed using the following keywords: "Adenoid Cystic Carcinoma" and/or "Mohs Micrographic Surgery" and/or "MMS" and/or "excision." Between the two databases, 25 articles were identified which included a total of 30 patients. Among all the articles, 30 procedures were documented - 8 MMS and 22 WLE. Patients with ACC treated with WLE had a higher rate of recurrence (40.9%)

compared to those treated with MMS (12.5%). Limitations include a small number of tumors treated and reporting bias. MMS for the treatment of ACC demonstrated a decreased recurrence rate compared to WLE. Further studies with larger sample sizes are needed to confirm the benefit of MMS over WLE.

Dermatology
Baldwin H, Harper JC, Zeichner JA, Draelos ZD, Eichenfield LF, Gold M, **Gold LS**, and Kircik LH. Clindamycin Phosphate 1.2%/Adapalene 0.15%/Benzoyl Peroxide 3.1% Gel in Participants With Moderate-to-Severe Acne: The Patient Journey. *J Drugs Dermatol* 2024; 23(11):1017-1024. PMID: 39496135. Full Text

INTRODUCTION: Topical clindamycin phosphate 1.2%/adapalene 0.15%/benzoyl peroxide 3.1% (CAB) gel is the only fixed-dose, triple-combination formulation approved for acne treatment. In 3 clinical studies of participants with moderate-to-severe acne, CAB demonstrated superior efficacy to vehicle and component dyads, with good safety and tolerability. Detailed efficacy/safety data from individual clinical study participants are presented. METHODS: In two phase 3 (NCT04214652, NCT04214639) randomized, double-blind, 12-week studies, participants aged at least 9 years with moderate-to-severe acne were randomized to once-daily CAB or vehicle gel. Descriptive data - including lesion count changes, treatment success (at least 2-grade reduction from baseline in Evaluator's Global Severity Score and clear/almost clear skin), compliance, treatment-emergent adverse events (AEs), and cutaneous safety/tolerance assessments - were summarized from 6 CAB-treated cases. RESULTS: By week 12, all cases achieved >70% lesion reductions, 4/6 achieved treatment success, and 1/6 achieved a 2-grade reduction in severity. All cases were compliant with CAB treatment. No cases reported serious AEs. Transient increases occurred on cutaneous safety and tolerability assessments, with scores generally decreasing back to/below baseline levels by week 12. CONCLUSIONS: In two phase 3 clinical trials, fixed-dose, triple-combination CAB demonstrated good efficacy/safety. All 6 CAB-treated cases achieved substantial (>70%) lesion reductions, with 5/6 achieving treatment success or 2-grade reduction in severity by week 12. Transient cutaneous safety/tolerability severity increases generally resolved to baseline values by week 12. These clinical study cases reinforce the importance of patient education regarding adherence, expectations, and AEs. J Drugs Dermatol. 2024;23(11):1017-1024. doi:10.36849/JDD.8639.

Dermatology
Burshtein J, Armstrong A, Chow M, DeBusk L, Brad G, Gottlieb AB, **Gold LS**, Korman NJ, Lio P, Merola J, Rosmarin D, Rosenberg A, Van Voorhees A, and Lebwohl M. The association between obesity and efficacy of psoriasis therapies: An expert consensus panel. *J Am Acad Dermatol* 2024; Epub ahead of print. PMID: 39709077. Full Text

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BACKGROUND: Psoriasis is a chronic inflammatory skin disease often associated with obesity. Psoriasis therapies may be less effective in patients with obese. The purpose of this expert consensus panel is to

evaluate the relationship between obesity and efficacy of psoriasis therapies, thereby optimizing patient care. METHODS: A comprehensive literature search was completed on July 19, 2024, using the keywords "psoriasis," "obesity," "efficacy," "treatments," and "therapies." A panel of 11 dermatologists with significant expertise in treatment of psoriasis gathered to review the articles and create consensus statements. A modified Delphi process was used to approve each statement and a strength of recommendation was assigned. RESULTS: The literature search produced 500 articles. A screening of the studies resulted in 22 articles that met criteria. The panel unanimously voted to adopt 10 consensus statements and recommendations, 6 were given a strength of "A," 2 were given a strength of "B," and 2 were given a strength of "C." CONCLUSION: Psoriasis and obesity have a strong association. Obesity decreases efficacy of biologics and may decrease efficacy and potentiate side effects of conventional therapies. It also impacts drug survival. Weight control is a vital component of caring for patients with psoriasis and the number of therapeutic options available is rising.

Dermatology
Clark M, and **Powers M**. Tacking Sutures for Single Surgeon Post-Auricular Surgery. *J Am Acad Dermatol* 2025; Epub ahead of print. PMID: 39863172. Full Text

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Dermatology
de Troya-Martín M, Rodríguez-Martínez A, Rivas-Ruiz F, Subert A, Arellano-Mendoza MI, Calzavara-Pinton P, de Gálvez MV, Gilaberte Y, Goh CL, **Lim HW**, Schalka S, Wolf P, and González S. Personalized Photoprotection: Expert Consensus and Recommendations From a Delphi Study Among Dermatologists. *Photodermatol Photoimmunol Photomed* 2025; 41(1):e70001. PMID: 39868505. Full Text

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BACKGROUND: Recommending comprehensive personalized photoprotection requires an accurate assessment of the patient's skin, including phototype, lifestyle, exposure conditions, environmental factors, and concomitant cutaneous conditions as well as deep knowledge of the available options: sunscreen ingredients (type of filters, spectrum coverage, sun protection factor, enhanced active ingredients), oral photoprotection, and other methods of sun protection and avoidance. OBJECTIVES: To establish consensus-based recommendations endorsed by an international panel of experts for personalized medical photoprotection recommendations that are applicable globally. METHODS: A two-round Delphi study was designed to determine the degree of agreement and relevance of aspects related to personalized medical photoprotection. Items with ≥ 80% agreement and relevance were considered approved. RESULTS: A list of 28 recommendations for personalized medical photoprotection was approved by a panel of dermatology professionals from seven different countries. Recommendations were categorized as: (1) updated perspectives in photoprotection, (2) clinical management, (3) skin cancer prevention, (4) dark skin phototypes and skin prone to hyperpigmentation, and (5) age and lifestyle. CONCLUSION: This study established recommendations for the implementation of personalized medical photoprotection worldwide, highlighting areas needing further scientific and clinical evidence.

Dermatology

Del Rosso J, **Hamzavi I**, and Grimes P. Vitiligo Exchange: An Expert Panel Discussion of Two Clinical Cases. *J Clin Aesthet Dermatol* 2024; 17(12 Suppl 3):S9-s18. PMID: 39830989. Full Text

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Dr. Hamzavi is with Henry Ford Hospital in Detroit, Michigan; Hamzavi Dermatology Specialists; Board Member and Past President of the Global Vitiligo Foundation.
Dr. Grimes is the Founder and Director at the Vitiligo & Pigmentation Institute of Southern California in Los Angeles, California; Clinical Professor of Dermatology at the University of California, Los Angeles. Current President of the Global Vitiligo Foundation.

This article is based on a roundtable discussion in which three panelists review clinically relevant insights about vitiligo and discuss two cases that illustrate the multiple challenges faced by both patients and clinicians in managing this complex disease. The first is a 32-year-old White female patient with Fitzpatrick Skin Type III/IV with extensive depigmentation in the trunk area. The patient achieved 90-percent repigmentation with a combination therapy approach. Treatment included systemic corticosteroids, oral antioxidants, narrowband ultraviolet B phototherapy, and topical therapy initially with tacrolimus ointment followed by topical ruxolitinib cream. Patient counseling around variable rates of progressive repigmentation over time, the significance of combining therapeutic approaches, and the importance of treatment consistency are discussed. The second case is that of a White pediatric female patient with vitiligo, who was treated from the ages of 5 to 11 years, with a break in treatment due to the patient's desire to discontinue treatment. Once treatment recommenced, the patient ultimately achieved 75-percent repigmentation within six months using a combination of narrowband ultraviolet B phototherapy, topical corticosteroids, and topical calcineurin inhibitors. The emotional burden of pediatric vitiligo for patients and their caregivers are discussed, along with joint decision making with this patient and her parents. This was followed by a discussion of the significance of the patient's anti-nuclear antibody positivity and how this affects treatment approach in patients with vitiligo.

Dermatology

Dimitrion PM, **Krevh R**, **Veenstra J**, **Ge J**, **Siddiqui A**, **Ferguson D**, **Hans A**, **Zuniga B**, **Sidhu K**, **Daveluy S**, **Hamzavi I**, **Zhou L**, **Adrianto I**, and **Mi QS**. High-throughput proteomics identifies inflammatory proteins associated with disease severity and genetic ancestry in patients with hidradenitis suppurativa. *Br J Dermatol* 2025; Epub ahead of print. PMID: 39778115. Full Text

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BACKGROUND: Hidradenitis Suppurativa (HS) is a chronic inflammatory skin condition with a greater prevalence and disease burden in patients who identify as African American and those with a family history of HS, suggesting a strong genetic component to its pathogenesis. OBJECTIVE: To evaluate the relationship between plasma inflammatory protein expression, HS disease severity, and genetic ancestry in a diverse cohort of patients with Hidradenitis Suppurativa. METHODS: We performed a case-control study of patients with HS compared to age-, sex-, and ethnicity-matched healthy controls. We profiled circulating inflammatory proteins using Olink High-throughput proteomics and determined genetic ancestry from whole-genome sequencing data. RESULTS: Using linear regression, we identified novel

proteins associated with HS after adjusting for age, sex, and ethnicity. Our analysis also revealed differences in the inflammatory proteome linked to disease severity. Specifically, we found that plasma IL6 levels can distinguish between different Hurley stages, indicating that IL6 may serve as a marker of disease severity. Additionally, we observed variations in inflammatory protein levels based on genetic ancestry: patients with predominantly African ancestry exhibited higher levels of inflammatory proteins associated with neutrophilic inflammation, while those with predominantly European ancestry showed increased levels of Th1-related inflammatory proteins. LIMITATIONS: Single-center study. Limited sample size. Unable to account for treatment status or comorbidities that may influence the level of inflammatory cytokines. CONCLUSION: Genetic ancestry and disease severity influence the plasma inflammatory profile in patients with HS.

Dermatology

Eichenfield LF, Hebert AA, Harper JC, Baldwin H, Bhatia N, **Gold LS**, Kircik LH, Graber E, Tanghetti EA, Alexis AF, and Del Rosso JQ. Triple-Combination Clindamycin Phosphate 1.2%/Adapalene 0.15%/Benzoyl Peroxide 3.1% Gel for Moderate-to-Severe Acne in Children and Adolescents. *J Drugs Dermatol* 2024; 23(12):1049-1057. PMID: 39630680. Full Text

BACKGROUND: Topical clindamycin phosphate 1.2%/adapalene 0.15%/benzoyl peroxide 3.1% (CAB) gel is the only fixed-dose triple-combination approved for acne (indicated in patients 12 years and older). As topical acne treatment in pediatric patients may be complicated by tolerability and/or a perceived lack of efficacy, post hoc analyses were used to investigate efficacy/safety of CAB in children and adolescents. METHODS: Data were pooled from 2 phase 3, double-blind, 12-week studies (NCT04214639; NCT04214652). Participants aged 9 years and older with moderate-to-severe acne were randomized (2:1) to once-daily CAB or vehicle gel. Endpoints included treatment success (at least 2-grade reduction from baseline in Evaluator's Global Severity Score and clear/almost clear skin) and least-squares mean percent change from baseline in inflammatory/noninflammatory lesions. Treatment-emergent adverse events (TEAEs) and cutaneous safety/tolerability were evaluated. Post hoc analyses were conducted in adolescents aged 12 to 17 years (CAB, n=123; vehicle, n=50) with descriptive data shown for children aged 10 to 11 (CAB, n=3; vehicle, n=2). RESULTS: At week 12, 51.5% of CAB-treated adolescents achieved treatment success vs 24.9% with vehicle (P<0.01). CAB also provided inflammatory/noninflammatory lesion reductions of 78.3%/73.7% vs 50.5%/42.9% with vehicle (P<0.001, both). Most TEAEs were of mild-to-moderate severity, and <2.5% of participants discontinued due to adverse events. Only the 3 children treated with CAB achieved treatment success, with lesion reductions ranging from 76% to 100%. One CAB-treated child experienced TEAEs and none discontinued. CONCLUSIONS: In 2 pooled phase 3 studies, once-daily CAB gel was well tolerated and efficacious in pediatric participants with acne, with over half achieving treatment success at week 12. J Drugs Dermatol. 2024;23(12):1049-1057. doi:10.36849/JDD.8643.

Dermatology

Gold LS, Del Rosso J, Ehst BD, Zirwas MJ, Green LJ, Brown PM, Rubenstein DS, Piscitelli SC, and Tallman AM. Tapinarof cream 1% once daily was well tolerated in adults and children with atopic dermatitis in two phase 3 randomized trials. *J Dermatolog Treat* 2025; 36(1):2444489. PMID: 39799945. Full Text

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Background: Tapinarof cream 1% once daily (QD) demonstrated significant efficacy in patients down to age 2 years with atopic dermatitis (AD) in the ADORING 1 and 2 phase 3 trials. We report local tolerability outcomes.Methods: Patients received Tapinarof or vehicle cream QD for 8 weeks. Tolerability was evaluated using patient/parent/caregiver and investigator 5-point Local Tolerability Scales (LTS).

Investigators assessed tolerability for sensitive skin areas, including face/neck.Results: 813 patients were randomized (~80% pediatric). Mean pretreatment baseline overall LTS scores were similar across groups and trials: 1.0-1.9 (patient-assessed) indicating slight burning/stinging and itching; and 0.3-0.6 (investigator-assessed) indicating no-to-minimal irritation. Tapinarof was well tolerated with improvement from pretreatment baseline and no-to-minimal burning/stinging and itching from first application through Week 8 (patient-reported): mean Week 8 LTS scores were 0.2-0.4 (burning/stinging) and 0.6-0.8 (itching). Investigators reported improvement from pretreatment baseline with no-to-minimal irritation (dryness/erythema/peeling) from first Tapinarof application through Week 8 (mean LTS scores: 0.2 and 0.1 in ADORING 1 and 2, respectively). Across sensitive skin, investigators reported no-to-minimal irritation from first application through Week 8 (mean scores [Tapinarof versus vehicle]: 0-0.3 versus 0-1.0).Conclusion: Tapinarof was well tolerated locally from first application through Week 8, including on sensitive skin areas. Clinicaltrials.gov numbers NCT05014568, NCT05032859.

Dermatology

Lane BN, **Hamzavi IH**, **Lim HW**, Rodrigues M, Elbuluk N, and **Mohammad TF**. Concurrent management of vitiligo and acquired disorders of hyperpigmentation: a comprehensive literature review and current practice gaps. *Int J Dermatol* 2025; Epub ahead of print. PMID: 39817312. Full Text

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Few studies discuss the co-management of vitiligo and acquired hyperpigmentation disorders (AHD) such as melasma, erythema dyschromicum perstans, post-inflammatory hyperpigmentation, drug-induced hyperpigmentation, and lichen planus pigmentosus. This review discusses clinical studies examining co-management strategies and identifies current practice gaps. Dermatology Life Quality Index scores are higher in individuals with vitiligo or melasma. It is plausible that populations experiencing both conditions may exhibit worsened psychological outcomes because of stigmas and perceived social beauty standards. Standard treatments for vitiligo aim to increase pigmentation, while AHD treatments target decreasing pigmentation, causing potential worsening of contrast between multiple skin tones for patients experiencing both disorders. Tretinoin may prevent narrowband ultraviolet B (NBUVB)-induced hyperpigmentation in patients with vitiligo without altering treatment response and is also beneficial for managing AHD. In addition, the use of oral tranexamic acid to treat melasma does not diminish the response to NBUVB phototherapy. Platelet-rich plasma (PRP) injections and oral Polypodium leucotomos extract may also be beneficial for comanaging vitiligo and AHD. However, practice guidelines are needed to optimize care for this patient population.

Dermatology

Mokhtari M, **Masood M**, **Bardhi R**, **Lim HW**, **Kohli I**, and **Hamzavi I**. Could OTC Devices Reduce Disparity of Care? A Comparison of the Spectral Output of Home-Based Narrow-Band UVB Phototherapy Devices to a Prescription Device. *Photodermatol Photoimmunol Photomed* 2025; 41(1):e13013. PMID: 39660738. Full Text

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Dermatology

Rosales Santillan M, **Kohli I**, and **Ozog D**. Optical Coherence Tomography for Mohs Margin Assessment of Basal Cell Carcinoma. *Dermatol Surg* 2024; Epub ahead of print. PMID: 39787457. Full Text

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Dermatology
Stein Gold L, Bissonnette R, Forman S, Zaenglein A, Kuo Y, Angel B, Chen X, Kallender H, and Paller AS. A Maximum-Use Trial of Ruxolitinib Cream in Children Aged 2-11 Years with Moderate to Severe Atopic Dermatitis. *Am J Clin Dermatol* 2025; Epub ahead of print. PMID: 39760983. Full Text

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BACKGROUND: Ruxolitinib cream has demonstrated anti-inflammatory and antipruritic activity and was well tolerated in a phase 3 study in patients aged 2-11 years with mild to moderate atopic dermatitis (AD). OBJECTIVE: This study examined the safety, tolerability, pharmacokinetics, efficacy, and quality of life (QoL) with ruxolitinib cream under maximum-use conditions and with longer-term use. METHODS: Eligible patients were aged 2-11 years with moderate to severe AD [Investigator's Global Assessment (IGA) score 3-4], and ≥ 35% affected body surface area (BSA). Patients applied 1.5% ruxolitinib cream twice daily to all baseline-identified lesions during the 4-week maximum-use period, then to active lesions only up to week 52 (patients with ≤ 20% affected BSA from week 8). Safety was assessed by frequency and severity of adverse events. Pharmacokinetic parameters were assessed as secondary endpoints, and efficacy and QoL were exploratory endpoints. RESULTS: Overall, 29 patients (median age 5 years) were enrolled. Treatment-emergent adverse events were reported in 9/29 patients (31.0%); there were no adverse events of special interest (i.e., no serious infections, malignancies, major adverse cardiovascular events, or thromboses) during the study period. Mean steady-state plasma concentration during the maximum-use period was below the known half-maximal inhibitory concentration of Janus kinase-mediated myelosuppression in adults. Reductions in affected BSA and IGA observed at week 4 were sustained with as-needed use through 52 weeks. Improvements in patient-reported outcomes and QoL measures were consistent with efficacy results. CONCLUSION: These results support the safety of ruxolitinib cream in children (2-11 years) with AD, including those with extensive disease, and are consistent with previous efficacy findings. GOV IDENTIFIER: NCT05034822, first registered 30 August 2021. Ruxolitinib cream 1.5% is approved in the USA for patients aged ≥ 12 years for the treatment of mild to moderate atopic dermatitis (AD) involving ≤ 20% of the body, with recent studies supporting the safety and efficacy of ruxolitinib cream in younger children with mild to moderate AD. Maximum-use trials look at the safety of treatments applied to more extensive areas of skin, assessing potential for side effects. This maximum-use trial assessed safety, absorption, and effectiveness of 1.5% ruxolitinib cream when applied twice daily for 4 weeks in children aged 2–11 years with AD involving ≥ 35% of the body. Patients then applied ruxolitinib cream as needed for ≤ 52 weeks, and safety and disease control were assessed. During the first 4 weeks, 31% of patients reported side effects. Only one patient experienced treatment-related side effects at the application site. As-needed ruxolitinib cream did not cause any other side effects of concern. The average ruxolitinib blood level during the first 4 weeks was low. As expected with low ruxolitinib blood levels, no side effects associated with oral drugs of the same class (e.g., low levels of white blood cells, serious infections, cancers, major cardiovascular events, or blood clots) were seen. AD lesions decreased in size and there was relief of itching during the first 4 weeks of treatment, and the amount of ruxolitinib cream applied decreased thereafter. Disease control was maintained for ≤ 52 weeks with as-needed ruxolitinib cream. These findings help to confirm the safety and effectiveness of ruxolitinib cream in children.

Dermatology
Trupiano N, Young K, Echuri H, **Maghfour J**, Orenstein LAV, and **Hamzavi I**. Exploring itch in hidradenitis suppurativa with lessons from atopic dermatitis and psoriasis. *J Dermatol* 2025; Epub ahead of print. PMID: 39812242. Full Text

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Itch is a prominent symptom in many cutaneous disorders, including atopic dermatitis (AD), prurigo nodularis, and psoriasis. Itch is also a common but overlooked concern in patients with hidradenitis suppurativa (HS). Currently, the mechanisms underlying itch in HS remain unclear. To gain a better understanding, we reviewed the literature on pruritus in HS and other itch-predominant disorders, AD, and psoriasis. In HS, psoriasis, and AD, we found that itch often co-localized with pain and occurred more frequently at night. Furthermore, itch was found to negatively affect sleep and increase the risk for comorbid psychiatric disorders in HS, psoriasis, and AD. However, HS-, psoriasis-, and AD-related itch differ in temporality. Itch in AD is often described as chronic, while itch in HS and psoriasis is often described as episodic. HS-associated itch is likely multifactorial, and several mechanisms have been proposed including peripheral sensitization, central sensitization, and neuroinflammation. Prior studies in HS highlight enhanced IgE production and a dense infiltration of mast cells, along with a variety of cytokines and chemokines. Furthermore, alterations in the skin microbiome may contribute to itch in HS. To date, few therapies have been studied to treat itch in HS. Given the efficacy of several biologics and small molecules in treating itch in AD and psoriasis, similar agents may be explored in future HS studies. Alternative therapies to target neurological and psychiatric contributions to itch may include anticonvulsants, cannabinoids, and nonpharmacological treatments. In conclusion, pathomechanisms of itch in HS remain to be fully elucidated. However, we can draw on lessons from other pruritic disorders to begin addressing the symptom of it and identify important questions for future study.

Dermatology
Woods AD, **Kim K**, and **Axelson A**. Hidradenitis suppurativa induced by ipilimumab and nivolumab: A rare association. *JAAD Case Reports* 2025; 57:18-21. PMID: Not assigned. Full Text

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Dermatology
Yamaguchi Y, Peeva E, Adiri R, Ghosh P, Napatalung L, **Hamzavi I**, Pandya AG, Shore RN, Ezzedine K, and Guttman-Yassky E. Response to ritlecitinib with or without narrow-band ultraviolet B add-on therapy in patients with active nonsegmental vitiligo: Results from a phase 2b extension study. *J Am Acad Dermatol* 2024; Epub ahead of print. PMID: 39709084. Full Text

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BACKGROUND: Ritlecitinib demonstrated efficacy in a phase 2b trial of nonsegmental vitiligo. OBJECTIVE: To evaluate the efficacy and tolerability of ritlecitinib with add-on narrow-band ultraviolet B (nbUVB) phototherapy in patients with nonsegmental vitiligo. METHODS: Following a 24-week, placebo-controlled, dose-ranging period, patients received ritlecitinib 200 mg for 4 weeks then 50 mg for 20 weeks, with or without nbUVB phototherapy 2x/week. Missing data were handled using last

observation carried forward and observed case (OC). RESULTS: Forty-three patients received ritlecitinib + nbUVB and 187 received ritlecitinib-monotherapy. Nine patients receiving ritlecitinib + nbUVB discontinued due to nbUVB group-specific efficacy criteria requiring >10% improvement in % change from baseline (% change from baseline) in Total-Vitiligo Area Scoring Index at week 12. At week 24, mean % change from baseline in Facial-VASI score was -57.0 vs -51.5 (last observation carried forward; P = .158) and -69.6 vs -55.1 (OC; P = .009), for ritlecitinib + nbUVB vs ritlecitinib-monotherapy, respectively. Mean % change from baseline in Total-Vitiligo Area Scoring Index at week 24 was -29.4 vs -21.2 (last observation carried forward; P = .043) and -46.8 vs -24.5 (OC; P < .001), respectively. nbUVB addition to ritlecitinib was well tolerated with no new safety signals. LIMITATIONS: Exploratory analysis; discontinuation criterion applied only to the ritlecitinib + nbUVB group; small sample size. CONCLUSION: Ritlecitinib alone and with nbUVB therapy improved facial and total body repigmentation and was well tolerated. Adding nbUVB may improve ritlecitinib efficacy.

Diagnostic Radiology

Sriwastwa A, Oswald MK, Vagal AS, Demel SL, Zhang B, Voleti S, **Ali A**, Morgan D, Thompson T, Vidovich J, Aziz YN, and Wang LL. Circle of Willis Variants and Their Association with Outcome after Successful Revascularization of Anterior Large Vessel Occlusion. *AJNR Am J Neuroradiol* 2025; Epub ahead of print. PMID: 39788631. Full Text

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BACKGROUND AND PURPOSE: Leptomeningeal collaterals have been associated with better outcomes in large-vessel stroke, but little is known about how the Circle of Willis (CoW) collaterals affect stroke outcomes. We aimed to determine the relationship between three anatomically distinct CoW subtypes and 90-day outcomes in acute ischemic stroke patients after successful revascularization via endovascular thrombectomy (EVT). MATERIALS AND METHODS: We performed a retrospective analysis of patients treated with successful EVT for large-vessel occlusion at a comprehensive stroke center between May 2016 and November 2023. The CoW anatomy was trichotomized using baseline computed tomography angiography as follows: (I) complete CoW (C-CoW), (II) non-isolating incomplete CoW (NI-CoW), and (III) isolating incomplete CoW (I-CoW). Chi-squared and logistic regression analyses were utilized to determine the association of the CoW subtype with two co-primary outcomes: the 90-day modified Rankin Scale and 90-day mortality. RESULTS: A total of 465 patients were included in the analysis. Multivariable logistic regression analysis demonstrated a significant association between I-CoW and 90-day mRS compared to NI-CoW [OR (95% CI), 1.83 (1.08-3.09); p=0.02]. Additionally, I-CoW anatomy was associated with a higher 90-day mortality than C-CoW [OR (95%CI), 2.58 (1.01-6.60); p=0.04] and NI-CoW [OR (95% CI), 1.89 (1.13-3.18); p=0.01]. CONCLUSIONS: CoW variants are associated with functional and mortality outcomes in patients treated with endovascular thrombectomy for anterior circulation large vessel occlusion. Further research is needed to determine how CoW vessel anatomy may impact clinical assessment, triage, and treatment in acute ischemic stroke. ABBREVIATIONS: CoW = Circle of Willis; EVT = endovascular thrombectomy; C-CoW = complete Circle of Willis; NI-CoW = non-isolating incomplete Circle of Willis; I-CoW = isolating Circle of Willis; AIS = acute ischemic stroke; LVO = large vessel occlusion; ACom = anterior communicating artery; PCom = posterior communicating artery; Tan CS = Tan collateral scores; ACA = anterior cerebral artery; PCA = posterior cerebral artery.

Diagnostic Radiology

Yadav RN, **Oravec DJ**, **Drost J**, **Flynn MJ**, **Divine GW**, **Rao SD**, and **Yeni YN**. Textural and geometric measures derived from digital tomosynthesis discriminate women with and without vertebral fracture. *Eur J Radiol* 2025; 183:111925. PMID: 39832416. Full Text

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Vertebral fractures are a common and debilitating consequence of osteoporosis. Bone mineral density (BMD), measured by dual energy x-ray absorptiometry (DXA), is the clinical standard for assessing overall bone quantity but falls short in accurately predicting vertebral fracture. Fracture risk prediction may be improved by incorporating metrics of microstructural organization from an appropriate imaging modality. Digital tomosynthesis (DTS)-derived textural and microstructural parameters have been previously correlated to vertebral bone strength in vitro, but the in vivo utility has not been explored. Therefore, the current study sought to establish the extent to which DTS-derived measurements of vertebral microstructure and size discriminate patients with and without vertebral fracture. In a cohort of 93 postmenopausal women with or without history of vertebral fracture, DTS-derived microstructural parameters and vertebral width were calculated for T12 and L1 vertebrae, as well as lumbar spine BMD and trabecular bone score (TBS) from DXA images. Fracture patients had lower BMD and TBS, while DTS-derived degree of anisotropy and vertebral width were higher, compared to nonfracture ($p < 0.02$ to $p < 0.003$) patients. The addition of DTS-derived parameters (fractal dimension, lacunarity, degree of anisotropy and vertebral width) improved discriminative capability for models of fracture status (AUC = 0.79) compared to BMD alone (AUC = 0.67). For twelve additional participants who were imaged twice, in vivo repeatability errors for DTS parameters were low (0.2 % - 7.3 %). The current results support the complementary use of DTS imaging for assessing bone quality and improving the accuracy of fracture risk assessment beyond that achievable by DXA alone.

Emergency Medicine

Bano S, Husain Tarar S, Atung PD, Shehryar A, Rehman A, Irshad A, Ogungbemi OT, Ijaz N, **Nour M**, and Maalim HA. Exploring Pharmacological and Non-Pharmacological Approaches to Managing Hypertension During Pregnancy: A Systematic Review. *Cureus* 2024; 16(12):e75534. PMID: 39803125. Full Text

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This systematic review aimed to explore the efficacy of both pharmacological and non-pharmacological interventions in managing hypertension during pregnancy. It analyzed high-quality randomized controlled trials (RCTs), focusing on outcomes related to maternal and fetal health. The findings demonstrated that antihypertensive medications, particularly labetalol and nifedipine, effectively reduced the risks of severe preeclampsia (PE), preterm birth, and other complications. Remote monitoring of blood pressure (BP) showed promise in improving postpartum care and addressing health disparities. While dietary interventions such as the Dietary Approaches to Stop Hypertension (DASH) diet offered metabolic

benefits, their impact on preventing PE was inconclusive. The review highlights the need for a comprehensive approach to hypertension management, integrating medication, lifestyle interventions, and innovative monitoring strategies. It also emphasizes the importance of further research to refine non-pharmacological interventions and assess their long-term effectiveness. We believe these insights will help guide clinical practice, enhance maternal and fetal outcomes, and inform future research directions.

Emergency Medicine

Boopathy D, Grahf D, **Ross J**, **Hawatian K**, **Rammal JA**, Alaimo K, and **Miller JB**. Thiamine Deficiency Is Common and Underrecognized in Emergency Department Oncology Patients. *J Clin Med* 2025; 14(1). PMID: 39797340. Full Text

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Background: Wernicke's encephalopathy can occur in oncology patients independent of alcohol use, likely resulting from poor dietary thiamine intake. High metabolic demands, such as those in acute illnesses seen in the emergency department (ED), can exacerbate thiamine deficiency. In this study, our objective was to assess the incidence of thiamine deficiency in ED oncology patients, which could lead to Wernicke's encephalopathy or other thiamine deficiency disorders if left untreated. Methods: This was a single-center prospective cohort study. We included patients with acute illness and a history of active cancer management in the ED of a large, urban hospital. We also included age and sex-matched control patients with no history of cancer who sought ED care. We excluded patients with a history of alcohol use or parenteral thiamine administration before enrollment. We recorded whole blood thiamine levels to measure total body thiamine stores and collected data on clinical variables, thiamine treatment, and adverse events. Results: In total, 87 oncology and 71 control patients were included in the study. The mean age was 62.1 ± 13.7 and 58.9 ± 12.6 years, respectively, and 48% of oncology vs. 55% of control participants were female. The most common cancers represented were colon (23%), lung (25%), prostate (10%), and breast (9%). Thiamine deficiency was significantly higher in ED oncology patients (25, 28.7%) compared to controls (6, 8.5%), odds ratio 4.4 (95% CI 1.7-11.4). None of the oncology patients with deficiency received thiamine treatment in the ED. Conclusions: Our findings suggest that thiamine deficiency is prevalent in acutely ill oncology patients, yet rarely treated in the ED.

Emergency Medicine

Desarden R, and **Caloia R**. Polyarticular Septic Arthritis Caused by Haemophilus Influenzae in an Asplenic Patient: A Case Report. *Clin Pract Cases Emerg Med* 2025; 9(1):78-81. PMID: 39903627. Full Text

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INTRODUCTION: Prevalence of serious infections from Haemophilus influenzae has diminished over the last few decades because of immunizations against the most virulent serotype. However, over the last few years a handful of septic arthritis cases secondary to H influenzae have been documented. Most of the cases documented are in the pediatric and unimmunized population. This is a case of polyarticular septic arthritis in a 69-year-old male who presented with syncope and ankle pain. CASE REPORT: A 69-year-old male presented to the emergency department after a syncopal event at home and complaining of right ankle pain. He was tachycardic and tachypneic on presentation and had an erythematous painful right ankle and right elbow. Aspiration of both joints produced purulent aspirate that grew H influenzae. Antibiotics were started, and the patient was taken to the operating room for emergent joint lavage. The patient made a full recovery and was discharged home with a peripherally inserted central catheter line for continued intravenous (IV) antibiotics. CONCLUSION: Our case highlights an atypical presentation for a case of polyarticular septic arthritis caused by H influenzae. We were unable to rule out endocarditis as

a source of the bacterial seeding, and the patient improved with IV antibiotics and surgical lavage of the affected joints.

Emergency Medicine

Dong K, Krishnamoorthy V, Vavilala MS, **Miller J**, Minic Z, Ohnuma T, Laskowitz D, Goldstein BA, Ulloa L, Sheng H, Korley FK, Meurer W, and Hu X. Data analysis protocol for early autonomic dysfunction characterization after severe traumatic brain injury. *Front Neurol* 2024; 15:1484986. PMID: 39777307. Full Text

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BACKGROUND: Traumatic brain injury (TBI) disrupts normal brain tissue and functions, leading to high mortality and disability. Severe TBI (sTBI) causes prolonged cognitive, functional, and multi-organ dysfunction. Dysfunction of the autonomic nervous system (ANS) after sTBI can induce abnormalities in multiple organ systems, contributing to cardiovascular dysregulation and increased mortality. Currently, detailed characterization of early autonomic dysfunction in the acute phase after sTBI is lacking. This study aims to use physiological waveform data collected from patients with sTBI to characterize early autonomic dysfunction and its association with clinical outcomes to prevent multi-organ dysfunction and improving patient outcomes. OBJECTIVE: This data analysis protocol describes our pre-planned protocol using cardiac waveforms to evaluate early autonomic dysfunction and to inform multi-dimensional characterization of the autonomic nervous system (ANS) after sTBI. METHODS: We will collect continuous cardiac waveform data from patients managed in an intensive care unit within a clinical trial. We will first assess the signal quality of the electrocardiogram (ECG) using a combination of the structural image similarity metric and signal quality index. Then, we will detect premature ventricular contractions (PVC) on good-quality ECG beats using a deep-learning model. For arterial blood pressure (ABP) data, we will employ a singular value decomposition (SVD)-based approach to assess the signal quality. Finally, we will compute multiple indices of ANS functions through heart rate turbulence (HRT) analysis, time/frequency-domain analysis of heart rate variability (HRV) and pulse rate variability, and quantification of baroreflex sensitivity (BRS) from high-quality continuous ECG and ABP signals. The early autonomic dysfunction will be characterized by comparing the values of calculated indices with their normal ranges. CONCLUSION: This study will provide a detailed characterization of acute changes in ANS function after sTBI through quantified indices from cardiac waveform data, thereby enhancing our understanding of the development and course of eAD post-sTBI.

Emergency Medicine

Grudzen CR, Siman N, Cuthel AM, Adeyemi O, Yamarik RL, Goldfeld KS, Abella BS, Bellolio F, Bourenane S, Brody AA, Cameron-Comasco L, Chodosh J, Cooper JJ, Deutsch AL, Elie MC, Elsayem A, Fernandez R, Fleischer-Black J, Gang M, Genes N, Goett R, Heaton H, Hill J, Horwitz L, Isaacs E, Jubanyik K, Lamba S, Lawrence K, Lin M, Loprinzi-Brauer C, Madsen T, **Miller J**, Modrek A, Otero R, Ouchi K, Richardson C, Richardson LD, Ryan M, Schoenfeld E, Shaw M, Shreves A, Southerland LT, Tan A, Uspal J, Venkat A, Walker L, Wittman I, and Zimny E. Palliative Care Initiated in the Emergency Department: A Cluster Randomized Clinical Trial. *JAMA* 2025; Epub ahead of print. PMID: 39813042. Full Text

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IMPORTANCE: The emergency department (ED) offers an opportunity to initiate palliative care for older adults with serious, life-limiting illness. OBJECTIVE: To assess the effect of a multicomponent intervention to initiate palliative care in the ED on hospital admission, subsequent health care use, and survival in older adults with serious, life-limiting illness. DESIGN, SETTING, AND PARTICIPANTS: Cluster randomized, stepped-wedge, clinical trial including patients aged 66 years or older who visited 1 of 29 EDs across the US between May 1, 2018, and December 31, 2022, had 12 months of prior Medicare enrollment, and a Gagne comorbidity score greater than 6, representing a risk of short-term

mortality greater than 30%. Nursing home patients were excluded. INTERVENTION: A multicomponent intervention (the Primary Palliative Care for Emergency Medicine intervention) included (1) evidence-based multidisciplinary education; (2) simulation-based workshops on serious illness communication; (3) clinical decision support; and (4) audit and feedback for ED clinical staff. MAIN OUTCOME AND MEASURES: The primary outcome was hospital admission. The secondary outcomes included subsequent health care use and survival at 6 months. RESULTS: There were 98 922 initial ED visits during the study period (median age, 77 years [IQR, 71-84 years]; 50% were female; 13% were Black and 78% were White; and the median Gagne comorbidity score was 8 [IQR, 7-10]). The rate of hospital admission was 64.4% during the preintervention period vs 61.3% during the postintervention period (absolute difference, -3.1% [95% CI, -3.7% to -2.5%]; adjusted odds ratio [OR], 1.03 [95% CI, 0.93 to 1.14]). There was no difference in the secondary outcomes before vs after the intervention. The rate of admission to an intensive care unit was 7.8% during the preintervention period vs 6.7% during the postintervention period (adjusted OR, 0.98 [95% CI, 0.83 to 1.15]). The rate of at least 1 revisit to the ED was 34.2% during the preintervention period vs 32.2% during the postintervention period (adjusted OR, 1.00 [95% CI, 0.91 to 1.09]). The rate of hospice use was 17.7% during the preintervention period vs 17.2% during the postintervention period (adjusted OR, 1.04 [95% CI, 0.93 to 1.16]). The rate of home health use was 42.0% during the preintervention period vs 38.1% during the postintervention period (adjusted OR, 1.01 [95% CI, 0.92 to 1.10]). The rate of at least 1 hospital readmission was 41.0% during the preintervention period vs 36.6% during the postintervention period (adjusted OR, 1.01 [95% CI, 0.92 to 1.10]). The rate of death was 28.1% during the preintervention period vs 28.7% during the postintervention period (adjusted OR, 1.07 [95% CI, 0.98 to 1.18]). CONCLUSIONS AND RELEVANCE: This multicomponent intervention to initiate palliative care in the ED did not have an effect on hospital admission, subsequent health care use, or short-term mortality in older adults with serious, life-limiting illness. TRIAL REGISTRATION: ClinicalTrials.gov Identifier: NCT03424109.

Emergency Medicine

Karadimas TL, Nuss KL, Bridgeport RD, James M, Hapipis P, Buchanan A, and **Champane J**. Continuous Catheter Versus Single-Shot Interscalene Block in Shoulder Surgery: A Review and Recommendations for Postoperative Pain Management. *Cureus* 2024; 16(12):e75332. PMID: 39776714. Full Text

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Shoulder arthroscopic and arthroplastic surgeries are associated with significant postoperative pain, which can delay recovery and increase opioid consumption. Interscalene blocks (ISBs) are a commonly used method to manage this pain, either as single-shot injections or continuous catheter infusions (CISBs). This review synthesizes findings from studies conducted in the past five years, comparing the efficacy, complications, and outcomes of single-shot ISBs versus CISBs for postoperative pain management in shoulder surgeries. Current literature highlights key differences: single-shot ISBs provide significant immediate postoperative pain relief, whereas CISBs offer prolonged analgesia beyond 48 hours, reduced opioid consumption, and enhanced recovery outcomes. However, CISBs carry a higher risk of complications and procedural complexity compared to single-shot ISBs. Both single-shot ISBs and CISBs present effective options for postoperative pain control in shoulder surgery patients. Single-shot ISBs may be preferable for patients seeking immediate pain relief with fewer complications, while CISBs are beneficial for those requiring prolonged analgesia. The choice of technique should be individualized based on the patient's needs, expected recovery, and potential risk factors.

Emergency Medicine

Lazzara AA, Jr., **Sinkoff JS**, **Thompson R**, **Zahdan K**, and **Baptiste J**. Fishhook Injuries and Antibiotic Prescribing Patterns: A Retrospective Analysis. *Wilderness Environ Med* 2025; 10806032241308834. Epub ahead of print. PMID: 39819244. Full Text

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INTRODUCTION: Fishhook injuries are a common occurrence among anglers. There are no guidelines for prophylactic antibiotic use after fishhook removal. This study analyzed the management of embedded fishhooks, prophylactic antibiotic use, and complication rate at a Michigan county emergency department to observe whether antibiotic use changes patient outcome. Commentary on a freshwater pathogen (Aeromonas hydrophila) is also included. METHODS: Cases were obtained through a retrospective chart review of patients seen for fishhook injury between 2016 and 2022. We analyzed age, sex, relevant medical history, type of fishhook, site preparation, removal technique, antibiotic use, return visit within 30 days, and complications. RESULTS: Fifty-one patients with fishhooks injuries were identified. Mean age was 48±17 y. Forty-three patients were male (84%), and 8 were female (16%). Hook site varied, with most occurring in the finger/thumb (78.4%) and scalp (5.9%). One case involved the ear cartilage. The most common removal technique was the advance and cut method (52.9%). Four patients had an immunocompromising condition (eg, diabetes). Oral antibiotics were prescribed to 26 patients (51%) on discharge. Prophylactic antibiotic choice varied-cephalexin predominated (61.5%). There were no wound infections or complications in cases where the fishhook was removed during the emergency department encounter (50 of 51). One case involved a delayed presentation, abscess formation, and outpatient hand surgery referral. CONCLUSIONS: In this small observational study, antibiotic prophylaxis for freshwater-associated fishhook injury did not change outcome regardless of fishhook location or presence of an immunocompromising condition. Further controlled studies are needed to determine the validity of these findings.

Emergency Medicine

Stolldorf DP, Storrow AB, Liu D, Jenkins CA, Hilton RA, Miller KF, Kim J, **Boopathy D**, **Gunaga S**, Kea B, **Miller J**, and Collins SP. A mixed-methods observational study of strategies for success in implementation science: overcoming emergency departments hurdles. *BMC Health Serv Res* 2025; 25(1):147. PMID: 39865238. Full Text

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BACKGROUND: Heart failure is a major public health concern, affecting 6.7 million Americans. An estimated 16% of emergency department (ED) patients with acute heart failure (AHF) are discharged home. Our Get with the Guidelines in Emergency Department Patients with Heart Failure (GUIDED-HF) toolkit aims to improve AHF self-care and facilitate safer transitions in care for these patients. We describe implementation barriers and facilitators, and the selection and refinement of implementation strategies, to facilitate future GUIDED-HF implementation. METHODS: A mixed-methods cross-sectional observational study was conducted in four United States EDs in two diverse healthcare systems in the Pacific West and Midwest. Data were collected using a survey and interviews with ED providers, nurses, and leaders. The survey assessed the ED context using the context scale of the Organizational Readiness to Change Assessment (ORCA). The Consolidated Framework for Implementation Research informed interviews. Quantitative data were summarized using medians (interquartile ranges) or percentages (frequencies). Wilcoxon rank-sum tests and Kruskal-Wallis tests were used to assess differences in the healthcare system and profession. Qualitative data were analyzed and summarized using rapid qualitative analysis. Convergence of quantitative and qualitative data was used to inform specific refining of implementation strategies to the local context (e.g., who should serve as champions, how best practice alerts should be implemented). RESULTS: Participants were predominately white (76%) with median (IQR) age 37.0 (32.0, 41.0). ED leaders/administrators, providers, and nurses

comprised 15%, 55%, and 29% of participants, respectively. Sites reported an ORCA context scale score of 3.7 [3.4, 4.0] (scale of 1 = strongly disagree to 5 = strongly agree). Comparison of scores by profession showed a significant difference in the context score among providers (3.9 [3.5, 4.0]), leaders (3.7 [3.5, 4.0]), and nurses (3.6 [3.0, 3.9]) (p = 0.048). Qualitative data indicated implementation barriers (e.g., resource limitations, patient health literacy), facilitators (e.g., GUIDED-HF is patient-centric; site and intervention congruent values, norms, and goals), and site-specific needs due to contextual factors (e.g., education needs, feedback mechanisms, champions). CONCLUSIONS: Specific determinants of implementation exist in ED settings and require the refining of implementation strategies to overcome site-specific barriers and enhance facilitators. TRIAL REGISTRATION: n/a.

Emergency Medicine

Wongsripuemtet P, Ohnuma T, Minic Z, Vavilala MS, **Miller JB**, Laskowitz DT, Meurer WJ, Hu X, Korley FK, Sheng H, and Krishnamoorthy V. Early Autonomic Dysfunction in Traumatic Brain Injury: An Article Review on the Impact on Multiple Organ Dysfunction. *J Clin Med* 2025; 14(2). PMID: 39860563. Full Text

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Background/Objectives: Traumatic brain injury (TBI) is a complex condition and a leading cause of injury-related disability and death, with significant impacts on patient outcomes. Extracranial organ involvement plays a critical role in the outcome of patients following TBI. Method: This review aims to provide a comprehensive overview of the pathophysiology, clinical presentation, and challenges in diagnosing patients with autonomic dysfunction after TBI. The databases used in this review include PubMed/MEDLINE, Cochrane Central Register, and Scopus. Results: Of 172 articles identified for screening, 98 were ultimately included in the review. Conclusion: This review summarized the current evidence on the pathophysiology, clinical presentation, and diagnosis of early autonomic dysfunction. It also emphasizes the effects of autonomic dysfunction on end-organ damage. These insights aim to guide clinicians and researchers toward improving the care for and understanding of autonomic dysfunction in TBI patients, while underscoring the need for further research in this area.

Endocrinology and Metabolism

Martens TW, Willis HJ, Bergenstal RM, **Kruger DF**, Karslioglu-French E, and Steenkamp DW. A Randomized Controlled Trial Using Continuous Glucose Monitoring to Guide Food Choices and Diabetes Self-Care in People with Type 2 Diabetes not Taking Insulin. *Diabetes Technol Ther* 2025; Epub ahead of print. PMID: 39757879. Full Text

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Objective: Continuous glucose monitoring (CGM) is an effective tool for individuals with type 2 diabetes (T2D) on insulin. This study evaluated the effect of using CGM to reduce hyperglycemia, by focusing on food and lifestyle choices, in people with T2D not taking insulin. Methods: A 6-month randomized, prospective four-center study was conducted. The primary end point was a within-group reduction in time above range >180 mg/dL (TAR180) at 3 months. Participants were asked not to make diabetes medication changes in the first 3 months. Seventy-two adults not on insulin or sulfonylurea therapy, with glycated hemoglobin (HbA1c) 7.5%-12%, were randomized to use CGM alone (n = 31) or CGM plus a food logging app (n = 41) to aid diabetes management. Participants attended guided education visits. Differences in CGM metrics, HbA1c, and body weight were compared. Results: The CGM alone group decreased TAR180 from 55% at baseline to 27% at 3 months (P < 0.001) and 21% at 6 months (P < 0.001); the CGM plus food logging app group decreased TAR180 from 53% at baseline to 30% at both 3 and 6 months (P < 0.001 for both). For all participants, time in range (70-180 mg/dL) increased from 46% at baseline to 71% at 3 months (P < 0.001) and to 72% at 6 months (P < 0.001). HbA1c and weight were reduced by 1.3% (P < 0.001) and 7 pounds (lbs.) (P < 0.001) for all participants at 6 months. Conclusion: People with T2D not taking insulin showed large, clinically significant improvements in CGM metrics and HbA1c when using either CGM alone or with a food logging app. This occurred with a near absence of medication changes in the first 3 months and were therefore likely due to changes in food and/or lifestyle choices.

Endocrinology and Metabolism

Saeed ZI, Akturk HK, Aleppo G, **Kruger D**, Levy CJ, Mader JK, Sherr JL, and Shah VN. Insulin Titration Recommendations When Using Glucagon-Like Peptide 1 Receptor Agonist Therapy in Adults With Type 1 Diabetes. *Clin Diabetes* 2025; 43(1):131-138. PMID: 39829697. Full Text

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Endocrinology and Metabolism

Yadav RN, **Oravec DJ**, **Drost J**, **Flynn MJ**, **Divine GW**, **Rao SD**, and **Yeni YN**. Textural and geometric measures derived from digital tomosynthesis discriminate women with and without vertebral fracture. *Eur J Radiol* 2025; 183:111925. PMID: 39832416. Full Text

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Vertebral fractures are a common and debilitating consequence of osteoporosis. Bone mineral density (BMD), measured by dual energy x-ray absorptiometry (DXA), is the clinical standard for assessing

overall bone quantity but falls short in accurately predicting vertebral fracture. Fracture risk prediction may be improved by incorporating metrics of microstructural organization from an appropriate imaging modality. Digital tomosynthesis (DTS)-derived textural and microstructural parameters have been previously correlated to vertebral bone strength in vitro, but the in vivo utility has not been explored. Therefore, the current study sought to establish the extent to which DTS-derived measurements of vertebral microstructure and size discriminate patients with and without vertebral fracture. In a cohort of 93 postmenopausal women with or without history of vertebral fracture, DTS-derived microstructural parameters and vertebral width were calculated for T12 and L1 vertebrae, as well as lumbar spine BMD and trabecular bone score (TBS) from DXA images. Fracture patients had lower BMD and TBS, while DTS-derived degree of anisotropy and vertebral width were higher, compared to nonfracture ($p < 0.02$ to $p < 0.003$) patients. The addition of DTS-derived parameters (fractal dimension, lacunarity, degree of anisotropy and vertebral width) improved discriminative capability for models of fracture status (AUC = 0.79) compared to BMD alone (AUC = 0.67). For twelve additional participants who were imaged twice, in vivo repeatability errors for DTS parameters were low (0.2 % - 7.3 %). The current results support the complementary use of DTS imaging for assessing bone quality and improving the accuracy of fracture risk assessment beyond that achievable by DXA alone.

Family Medicine

Arena CJ, **Veve MP**, **Fried ST**, **Ware F**, **Lee P**, and **Shallal AB**. Navigating performance measures for ambulatory antimicrobial stewardship: a review of HEDIS® and other metrics the steward should know. *Antimicrob Steward Healthc Epidemiol* 2024; 4(1):e217. PMID: 39758875. Full Text

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Ambulatory antimicrobial stewardship can be challenging due to disparities in resource allocation across the care continuum, competing priorities for ambulatory prescribers, ineffective communication strategies, and lack of incentive to prioritize antimicrobial stewardship program (ASP) initiatives. Efforts to monitor and compare outpatient antibiotic usage metrics have been implemented through quality measures (QM). Healthcare Effectiveness Data and Information Set (HEDIS®) represent standardized measures that examine the quality of antibiotic prescribing by region and across insurance health plans. Health systems with affiliated emergency departments and ambulatory clinics contribute patient data for HEDIS measure assessment and are directly related to value-based reimbursement, pay-for-performance, patient satisfaction measures, and payor incentives and rewards. There are four HEDIS® measures related to optimal antibiotic prescribing in upper respiratory tract diseases that ambulatory ASPs can leverage to develop and measure effective interventions while maintaining buy-in from providers: avoidance of antibiotic treatment for acute bronchitis/bronchiolitis, appropriate treatment for upper respiratory infection, appropriate testing for pharyngitis, and antibiotic utilization for respiratory conditions. Additionally, there are other QM assessed by the Centers for Medicare and Medicaid Services (CMS), including overuse of antibiotics for adult sinusitis. Ambulatory ASPs with limited resources should leverage HEDIS® to implement and measure successful interventions due to their pay-for-performance nature. The purpose of this review is to outline the HEDIS® measures related to infectious diseases in ambulatory care settings. This review also examines the barriers and enablers in ambulatory ASPs which play a crucial role in promoting responsible antibiotic use and the efforts to optimize patient outcomes.

Family Medicine

Kaljee L, **Antwi S**, **Dankerlui D**, Harris D, Israel B, **White-Perkins D**, **Ofori Aboah V**, Aduse-Poku L, **Larrious-Lartey H**, Brush B, Coombe C, Patman L, Cawthorne N, Chue S, Rowe Z, **Mills C**, **Fernando K**, Daniels G, **Walker EM**, and **Jiagge E**. Cancer clinical trial participation: a qualitative study of Black/African American communities' and patient/survivors' recommendations. *JNCI Cancer Spectr* 2025; 9(1). PMID: 39585656. Full Text

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BACKGROUND: Black/African Americans experience disproportionate cancer burden and mortality rates. Racial and ethnic variation in cancer burden reflects systemic and health-care inequities, cancer risk factors, and heredity and genomic diversity. Multiple systemic, sociocultural, economic, and individual factors also contribute to disproportionately low Black/African American participation in cancer clinical trials. METHODS: The Participatory Action for Access to Clinical Trials project used a community-based participatory research approach inclusive of Black/African American community-based organizations, Henry Ford Health, and the University of Michigan Urban Research Center. The project aims were to understand Black/African Americans' behavioral intentions to participate in cancer clinical trials and to obtain recommendations for improving participation. Audio-recorded focus group data were transcribed and coded, and searches were conducted to identify themes and subthemes. Representative text was extracted from the transcripts. RESULTS: Six community focus group discussions (70 participants) and 6 Henry Ford Health patient/survivor focus group discussions (29 participants) were completed. General themes related to trial participation were identified, including (1) systemic issues related to racism, health disparities, and trust in government, health systems, and clinical research; (2) firsthand experiences with health care and health systems; (3) perceived and experienced advantages and disadvantages of clinical trial participation; and (4) recruitment procedures and personal decision-making processes. Specific recommendations on how to address barriers were obtained. CONCLUSIONS: Community-based participatory research is effective in bringing communities equitably to the table. To build trust, health systems must provide opportunities for patients and communities to jointly identify factors affecting cancer clinical trial participation, implement recommendations, and address health disparities.

Gastroenterology

Abusuliman M, **Jafri SM**, Summers BB, Beduschi T, Boike J, Farmer DG, Horslen S, Lyer K, Langnas AN, Mangus RS, Matsumoto CS, Mavis AM, Mazariegos GV, **Nagai S**, O'Leary J, Schiano TD, Sudan DL, Abusuliman A, Sulejmani N, and Segovia MC. Trends in the Perioperative Practices for Immunological Assessment and Immunosuppression Strategies for Patients Undergoing Intestinal Transplantation at American Transplant Centers. *Transplant Proc* 2025; Epub ahead of print. PMID: 39890513. Full Text

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BACKGROUND: Intestinal transplantation (IT) is a complex procedure that requires nuanced immunosuppressive strategies to optimize patient outcomes. Despite advancements, significant variability remains in immunosuppressive protocols across transplant centers due to a lack of consensus on the optimal approaches for induction, maintenance, and clinical testing. This variability complicates standardization and identification of best practices for IT recipients. METHODS: A descriptive survey study was conducted to characterize immunosuppressive and testing strategies in IT at major transplant centers in the United States. Ten centers known to have performed over 10 ITs since 2015 were selected from the Scientific Registry of Transplant Recipients database. A 22-question survey was distributed to surgical directors, collecting data on pre-, peri-, and post-transplant immunological testing, desensitization strategies, immunosuppressive regimens, and management of antibody-mediated rejection (AMR) and acute cellular rejection (ACR). RESULTS: Nine centers (90%) responded. All centers conducted pretransplant human leukocyte antigen (HLA) and donor-specific antibody (DSA) testing, with varying frequencies and methodologies. Desensitization was reported by 44% of centers for isolated IT and by 22% for multivisceral transplants. Induction therapy predominantly involved antithymocyte globulin (89%) and rituximab (44%). Tacrolimus was universally used for maintenance, with varying trough level targets across centers. Post-transplant DSA testing was performed by all centers, and protocol-driven endoscopic bowel biopsies were routine at 67% of centers. AMR was diagnosed at 89% of centers, with plasmapheresis and IVIG being the most common treatments. Variability was noted in desensitization practices and AMR management. CONCLUSION: This survey highlights considerable consistency in pre- and post-transplant testing and immunosuppressive regimens for IT recipients, while significant variability exists in desensitization strategies and AMR management. Further research is needed to standardize these practices to improve patient outcomes across transplant centers.

Gastroenterology
Chaudhary AJ, **Saleem A**, Shahzil M, Hafeez N, **Jamali T**, and **Ginnebaugh B**. A Rare Case of Colorectal Cancer With Delayed Metastasis to the Duodenum. *Case Rep Gastrointest Med* 2025; 2025:6679555. PMID: 39840121. Full Text

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Colorectal cancer (CRC) continues to be a significant global health issue contributing to a high mortality rate. Despite advancements in treatment, the risk of recurrence remains due to inherent mutations and the rapid turnover of intestinal mucosa. We present an exceptionally rare case of CRC metastasis to the duodenum in a 42-year-old female who has been compliant with postsurgical surveillance. Despite previous negative surveillance results, elevated CEA levels and a 3-cm mesenteric mass were detected, raising concerns for carcinoma, which was later confirmed by biopsy. The tumor board deemed her ineligible for surgery due to vascular involvement, leading to palliative care and an attempt at neoadjuvant therapy. Vigilant monitoring is crucial for early detection and intervention.

Gastroenterology
Claytor JD, Lin DL, Magnaye KM, Guerrero YS, Langelier CR, Lynch SV, and **El-Nachef N**. Effect of Fecal Microbiota Transplant on Antibiotic Resistance Genes Among Patients with Chronic Pouchitis. *Dig Dis Sci* 2025; Epub ahead of print. PMID: 39804518. Full Text

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BACKGROUND: Pouchitis is common among patients with ulcerative colitis (UC) who have had colectomy with ileal pouch-anal anastomosis. Antibiotics are first-line therapy for pouch inflammation, increasing the potential for gut colonization with multi-drug resistant organisms (MDRO). Fecal microbial transplant (FMT) is being studied in the treatment of pouchitis and in the eradication of MDRO. Prior work using aerobic antibiotic culture disks suggests that some patients with chronic pouchitis may regain fluoroquinolone sensitivity after FMT. However, gut MDRO include anaerobic, fastidious organisms that are difficult to culture using traditional methods. AIM: We aimed to assess whether FMT reduced the abundance of antibiotic resistance genes (ARG) or affected resistome diversity, evenness, or richness in patients with chronic pouchitis. METHODS: We collected clinical characteristics regarding infections and antibiotic exposures for 18 patients who had previously been enrolled in an observational study investigating FMT as a treatment for pouchitis. Twenty-six pre- and post-FMT stool samples were analyzed using FLASH (Finding Low Abundance Sequences by Hybridization), a CRISPR/Cas9-based shotgun metagenomic sequence enrichment technique that detects acquired and chromosomal bacterial ARGs. Wilcoxon rank sum tests were used to assess differences in clinical characteristics, ARG counts, resistome diversity and ARG richness, pre- and post-FMT. RESULTS: All 13 of the patients with sufficient stool samples for analysis had recently received antibiotics for pouchitis prior to a single endoscopic FMT. Fecal microbiomes of all patients had evidence of multi-drug resistance genes and ESBL resistance genes at baseline; 62% encoded fluoroquinolone resistance genes. A numerical decrease in overall ARG counts was noted post-FMT, but no statistically significant differences were noted (P = 0.19). Richness and diversity were not significantly altered. Three patients developed infections during the 5-year follow-up period, none of which were associated with MDRO. CONCLUSION: Antibiotic resistance genes are prevalent among antibiotic-exposed patients with chronic pouchitis. FMT led to a numerical decrease, but no statistically significant change in ARG, nor were there significant changes in the diversity, richness, or evenness of ARGs. Further investigations to improve FMT engraftment and to optimize FMT delivery in patients with inflammatory pouch disorders are warranted.

Gastroenterology
Ichkhanian Y, **Chaudhary AJ**, **Veracruz N**, **Faisal MS**, Peller M, Kushnir V, Daugherty TT, Genere JR, Pawa R, Pawa S, Ahmed W, Huggett MT, Paranandi B, Aparicio JR, Martínez-Moreno B, **Nimri F**, **Ashraf T**, **Alluri S**, **Obri M**, Dang D, **Singla S**, **Piraka C**, and **Zuchelli T**. Endoscopic Ultrasound-Guided Drainage of Intra-Abdominal Abscess Using 15-mm vs. 10-mm Lumen-Apposing Metal Stents: An International Case-Matched Study. *Gastrointest Endosc* 2025; Epub ahead of print. PMID: 39788214. Full Text

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BACKGROUND AND AIMS: Efficacy and safety of EUS-guided placement of lumen-apposing metal stents (LAMS) has been reported yet advantage of using 15-mm LAMS over 10-mm LAMS yet to be explored. METHODS: International, retrospective, case-matched study of patients with intra-abdominal abscess who underwent EUS-guided drainage with 15-mm (case) and 10-mm (control) LAMS between 03/2019 and 09/2022. RESULTS: 51 patients underwent EUS-guided drainage using LAMS [15-mm 29 (57%), 10-mm 22 (43%)]. The most common location of the abscess was peri-pancreatic 43%. Technical success rate was achieved in 97% of cases and 100 % of controls (p=0.412), while clinical success was achieved in 98% and 96%, respectively, (OR 1.3; p=0.089). AE occurred in 7.8% of the cases. Patients with 15-mm LAMS underwent fewer total endoscopic procedures (mean 2.5 vs.3.6; P < 0.023). CONCLUSION: Both sizes showed comparable clinical success and safety profiles, with a significant trend of the need for fewer endoscopic procedures with the 15-mm LAMS.

Gastroenterology

Shahzil M, **Chaudhary AJ**, Javaid S, Moond V, Tepe G, **Faisal MS**, Khaqan MA, and **Kutait A**. Patient outcomes and health care resource utilization in acute pancreatitis-related central nervous system complications: insights from a national cohort study. *J Int Med Res* 2025; 53(1):3000605241311405. PMID: 39883809. Full Text

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OBJECTIVES: Central nervous system complications of acute pancreatitis (AP) can result in cerebral edema (CE). We assessed the risk of serious outcomes and health care features associated with CE in patients hospitalized with AP. METHODS: We conducted a retrospective cohort study using the National Inpatient Sample database. Patients were divided into the AP-CE group that developed CE and the AP-only group that did not. Outcome data were analyzed using Stata software. RESULTS: Among 543,464 patients hospitalized with AP, 220 (0.04%) developed CE. In multivariate analysis, primary outcomes included increased length of hospital stay (adjusted odds ratio [aOR] 10.1; 95% confidence interval [CI] 0.50-19.70), hospital charges (aOR USD 208,713; 95% CI 27,095-390,330), and risk of death (aOR 17.17; 95% CI 5.88-50.07) in the AP-CE group. Secondary outcomes showed patients with AP-CE had a significantly increased risk of serious complications, particularly cardiac arrest (aOR 64.24; 95% CI 24.27-170.02), and higher hospital resource utilization. CONCLUSION: Patients with AP who develop CE face worse outcomes, including increased mortality risk, prolonged hospital stay, and greater resource utilization. Timely identification and effective management of CE in AP may reduce mortality and ease the health care burden associated with this neurological complication.

Global Health Initiative

Kaljee L, **Antwi S**, **Dankerlui D**, Harris D, Israel B, **White-Perkins D**, **Ofori Aboah V**, Aduse-Poku L, **Larrious-Lartey H**, Brush B, Coombe C, Patman L, Cawthorne N, Chue S, Rowe Z, **Mills C**, **Fernando K**, Daniels G, **Walker EM**, and **Jiagge E**. Cancer clinical trial participation: a qualitative study of Black/African American communities' and patient/survivors' recommendations. *JNCI Cancer Spectr* 2025; 9(1). PMID: 39585656. Full Text

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BACKGROUND: Black/African Americans experience disproportionate cancer burden and mortality rates. Racial and ethnic variation in cancer burden reflects systemic and health-care inequities, cancer risk factors, and heredity and genomic diversity. Multiple systemic, sociocultural, economic, and individual factors also contribute to disproportionately low Black/African American participation in cancer clinical trials. METHODS: The Participatory Action for Access to Clinical Trials project used a community-based participatory research approach inclusive of Black/African American community-based organizations, Henry Ford Health, and the University of Michigan Urban Research Center. The project aims were to understand Black/African Americans' behavioral intentions to participate in cancer clinical trials and to obtain recommendations for improving participation. Audio-recorded focus group data were transcribed and coded, and searches were conducted to identify themes and subthemes. Representative text was extracted from the transcripts. RESULTS: Six community focus group discussions (70 participants) and 6 Henry Ford Health patient/survivor focus group discussions (29 participants) were completed. General themes related to trial participation were identified, including (1) systemic issues related to racism, health disparities, and trust in government, health systems, and clinical research; (2) firsthand experiences with health care and health systems; (3) perceived and experienced advantages and disadvantages of clinical trial participation; and (4) recruitment procedures and personal decision-making processes. Specific recommendations on how to address barriers were obtained. CONCLUSIONS: Community-based participatory research is effective in bringing communities equitably to the table. To build trust, health systems must provide opportunities for patients and communities to jointly identify factors affecting cancer clinical trial participation, implement recommendations, and address health disparities.

Graduate Medical Education

Tatem G, Snowden E, **Williams A**, **Hoffert MM**, and **Passalacqua KD**. Assessing Program Culture in Virtual Fellowship Interviews: Insights From Pulmonary and Critical Care Fellows. *Cureus* 2025; 17(1):e77466. PMID: 39822253. Full Text

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BACKGROUND: Virtual interviewing for fellowship training programs has been widely adopted since the COVID-19 pandemic. However, whether fellowship candidates can adequately evaluate training program culture through virtual interviews is unclear. OBJECTIVE: Our aim was to explore how pulmonary and critical care fellows ascertained program culture during virtual and in-person fellowship program recruitment interviews, with the overall goal of improving our virtual recruiting interview processes. METHODS: Exploratory semi-structured one-on-one interviews (study-interviews) following a constructivist approach were done during the fall of 2022 with a convenience sample of current fellows within the pulmonary critical care medicine fellowship program in an urban tertiary care hospital. Questions probed fellows' perspectives on program culture, what features of program culture they valued, and how they evaluated program culture during their initial fellowship interviews (recruitment-interviews). Study-interviews were framed to explore four deductive themes, and transcripts were analyzed with inductive thematic analysis. RESULTS: Of the 11 fellows interviewed, two had completed in-person and nine had completed virtual recruitment-interviews. There was an overall favorable perception of program culture during all recruitment-interviews, regardless of format. Elements of program culture that fellows valued included training program quality, an academic focus, complexity in cases, workplace diversity, a positive socioemotional environment, and a collaborative/supportive working/learning environment. CONCLUSIONS: This study suggests that important elements of program culture can be evaluated by

fellowship candidates through virtual interviews when applicants are allowed ample opportunity for high-quality interactions with faculty and current trainees.

Hematology-Oncology
Gadgeel SM, Jensen E, Shamoun M, and Rajagopalan K. Response to: Enhancing Clinical Practice: Critical Insights for Medical Workers in Applying Pembrolizumab for Metastatic NSCLC and Pembrolizumab, Chemotherapy and Metastatic Non-Small Cell Lung Cancer. *J Thorac Oncol* 2025; 20(1):e11-e12. PMID: 39794106. Full Text

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Hematology-Oncology
Kaljee L, **Antwi S**, **Dankerlui D**, Harris D, Israel B, **White-Perkins D**, **Ofori Aboah V**, Aduse-Poku L, **Larrious-Lartey H**, Brush B, Coombe C, Patman L, Cawthorne N, Chue S, Rowe Z, **Mills C**, **Fernando K**, Daniels G, **Walker EM**, and **Jiagge E**. Cancer clinical trial participation: a qualitative study of Black/African American communities' and patient/survivors' recommendations. *JNCI Cancer Spectr* 2025; 9(1). PMID: 39585656. Full Text

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Hematology-Oncology

Maison POM, Arkoh P, Sani A, Mensah-Baidoo EE, Owusu G, Danso EY, Koufie NB, Andzie S, Gyamfi P, Omane E, **Antwi S**, **Palanisamy N**, **Hwang C**, **Walker E**, Ofori Aboah V, and **Jiagge EM**. Barriers to orthodox medical care of prostate cancer in Ghana. *Sci Rep* 2025; 15(1):1051. PMID: 39775019. Full Text

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Traditional medicine is widely used in sub-Saharan Africa, particularly in Ghana, where it is commonly integrated with modern orthodox medicine. This study examines the barriers that delay the pursuit of orthodox medical care for prostate cancer (PCa) in Ghana's Central region, where a blend of traditional and modern orthodox medicine exists. The preference for indigenous traditional medicine often results in late-stage presentations of PCa, adversely affecting patient outcomes. This prospective cross-sectional study was conducted from July to December 2022 at the Cape Coast Teaching Hospital (CCTH) and in four local communities. We investigated why men prefer traditional over orthodox medicine and identified cultural beliefs, attitudes, and gaps in health awareness that contribute to delays in diagnosing and treating PCa. The study involved administering questionnaires, providing education on PCa, and conducting free prostate-specific antigen (PSA) screening. Ethical approval was obtained from the Ethics Research Committee of the Ghana Health Service. A total of 282 patients participated, including 268 men from the communities and 14 diagnosed with PCa at CCTH after initially consulting traditional healers. Of the community-recruited patients who underwent PSA testing, 26% had elevated PSA levels and underwent further diagnostic procedures. Ultimately, nine of 268 community patients were confirmed to have PCa. Most patients (57.4%) had limited education, which correlated with late presentations and various misconceptions about PCa. The study highlights significant cultural and economic barriers that lead to the late-stage presentation of PCa among men in Ghana's Central region. There is a critical need for a culturally sensitive, multi-pronged strategy that enhances public education about the benefits of early diagnosis and fosters collaboration between traditional healers and orthodox healthcare providers to improve prostate cancer outcomes in Ghana.

Hematology-Oncology

Nachar V, Adams Curry M, **Kostoff D**, Wood A, Farris KB, Muluneh B, Morris A, Keng M, Guerrier V, and Mackler ER. Development and Implementation of Oral Anticancer Agent Tools for a Thematic Quality Improvement Program: A Collaboration Between Hematology Oncology Pharmacist Association and ASCO Quality Training Program. *JCO Oncol Pract* 2025; 2400475. Epub ahead of print. PMID: 39847731. Full Text

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PURPOSE: The Hematology Oncology Pharmacist Association Oral Chemotherapy Collaborative (HOPA OCC) developed practice-based tools to use in program development and improvement for the management of patients receiving oral anticancer agents (OAAs). METHODS: These tools include a baseline OAA program assessment, clinical OAA adherence tool, and OAA dashboard. HOPA OCC distributed these tools to teams participating in the 6-month HOPA ASCO Quality Training Programs (QTPs). Barriers in the delivery of OAA services across practice sites were determined through the use of baseline assessments, and the following domains were evaluated: (1) side-effect monitoring, (2) adherence monitoring, (3) use of patient-reported outcomes, (4) social determinants of health, and (5) collaborative practice agreements for oncology pharmacists. The OAA adherence tool offers clinical patient adherence questions and guidance for supporting adherence in practice. Finally, the dashboard includes multiple metrics that may be helpful for practices to measure their program outcomes. HOPA OCC used the Consolidated Framework for Implementation Research to assess tool usefulness by the QTP participants. RESULTS: Barriers to implementation include deficits in information technology, resources, and competing priorities. CONCLUSION: Standardized OAA tools can inform and support quality improvement initiatives and improve the care of patients receiving OAAs.

Hematology-Oncology

Nwosu ZC, Giza H, Nassif M, Charlestin V, Menjivar RE, Kim D, Kemp SB, Sajjakulnukit P, Andren A, Zhang L, Lai WK, **Loveless I**, **Steele NG**, Hu J, Hu B, Wang S, Pasca di Magliano M, and Lyssiotis CA. Multi-dimensional analyses identify genes of high priority for pancreatic cancer research. *JCI Insight* 2025; Epub ahead of print. PMID: 39774001. Full Text

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Pancreatic ductal adenocarcinoma (PDAC) is a drug resistant and lethal cancer. Identification of the genes that consistently show altered expression across patients' cohorts can expose effective therapeutic targets and strategies. To identify such genes, we separately analyzed five human PDAC microarray datasets. We defined genes as 'consistent' if upregulated or downregulated in ≥ 4 datasets (adjusted $P<0.05$). The genes were subsequently queried in additional datasets, including single-cell RNA-sequencing data, and we analyzed their pathway enrichment, tissue-specificity, essentiality for cell viability, association with cancer features e.g., tumor subtype, proliferation, metastasis and poor survival outcome. We identified 2,010 consistently upregulated and 1,928 downregulated genes of which >50%, to our knowledge, were uncharacterized in PDAC. These genes spanned multiple processes, including cell cycle, immunity, transport, metabolism, signaling and transcriptional/epigenetic regulation - cell cycle and glycolysis being the most altered. Several upregulated genes correlated with cancer features, and their suppression impaired PDAC cell viability in prior CRISPR/Cas9 and RNA interference screens. Further, the upregulated genes predicted sensitivity to bromodomain and extraterminal (epigenetic) protein inhibition, which, in combination with gemcitabine, disrupted amino acid metabolism and in vivo tumor growth. Our results highlight genes for further studies in the quest for PDAC mechanisms, therapeutic targets and biomarkers.

Hematology-Oncology

Raghav KPS, Guthrie KA, Tan B, Jr., Denlinger CS, Fakih M, Overman MJ, Dasari NA, Corum LR, Hicks LG, Patel MS, Esparaz BT, Kazmi SM, Alluri N, Colby S, Gholami S, Gold PJ, Chiorean EG, Kopetz S, Hochster HS, and **Philip PA**. Trastuzumab Plus Pertuzumab Versus Cetuximab Plus Irinotecan in Patients With RAS/BRAF Wild-Type, HER2-Positive, Metastatic Colorectal Cancer (S1613): A Randomized Phase II Trial. *J Clin Oncol* 2025; 2401710. Epub ahead of print. PMID: 39761503. Full Text

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Fox Chase Cancer Center, Philadelphia, PA.
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University of Kansas Cancer Center-MCA Rural MU NCORP/Olathe Health Cancer Center, Olathe, KS.
Baptist Health Cancer Research Network/Baptist Health Lexington, Lexington, KY.
CORA NCORP, CommonSpirit Health Research Institute/Cancer Center at Saint Joseph's, Phoenix, AZ.
Heartland Cancer Research NCORP/Cancer Care Specialists of Illinois, Decatur, IL.
University of Texas Southwestern Medical Center/Parkland Memorial Hospital, Dallas, TX.
Pacific Cancer Research Consortium NCORP/St Luke's Cancer Institute, Boise, ID.
UC Davis Comprehensive Cancer Center, Sacramento, CA.
Swedish Cancer Institute, Seattle, WA.
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PURPOSE: ERBB2 overexpression/amplification in RAS/BRAF wild-type (WT) metastatic colorectal cancer (mCRC; human epidermal growth factor receptor 2 [HER2]-positive mCRC) appears to be associated with limited benefit from anti-EGFR antibodies and promising responses to dual-HER2 inhibition; however, comparative efficacy has not been investigated. We conducted a randomized phase II trial to evaluate efficacy and safety of dual-HER2 inhibition against standard-of-care anti-EGFR antibody-based therapy as second/third-line treatment in HER2-positive mCRC. METHODS: Patients with RAS/BRAF-WT mCRC after central confirmation of HER2 positivity (immunohistochemistry 3+ or 2+ and in situ hybridization amplified [HER2/CEP17 ratio >2.0]) were assigned (1:1) to either trastuzumab plus pertuzumab (TP; trastuzumab 6 mg/kg and pertuzumab 420 mg once every 3 weeks) or cetuximab plus irinotecan (CETIRI; cetuximab 500 mg/m(2) and irinotecan 180 mg/m(2) once every 2 weeks) until progression or unacceptable toxicity. Crossover to TP was allowed after progression on CETIRI. The primary end point was progression-free survival (PFS). Secondary end points included objective response rate (ORR), overall survival, safety, and HER2 gene copy number (GCN ≥20/<20) as a predictive factor. RESULTS: Between October 2017 and March 2022, 54 participants were assigned to TP (n = 26) and CETIRI (n = 28). Median PFS did not vary significantly by treatment: 4.7 (95% CI, 1.9 to 7.6) and 3.7 (95% CI, 1.6 to 6.7) months in the TP and CETIRI groups, respectively. Efficacy of TP versus CETIRI differed significantly by HER2 GCN (median PFS, GCN ≥20 [9.9 v 2.9 months] and GCN <20 [3.0 v 4.2 months], respectively; P interaction = .003). On TP, ORR was 34.6% (57.1% with GCN ≥20 v 9.1% with GCN <20) with median GCN of 29.7 versus 13.2 for responders and nonresponders, respectively (P = .004). Grade ≥3 adverse events occurred in 23.1% and 46.1% of participants with TP and CETIRI, respectively. CONCLUSION: TP appears to be a safe and effective cytotoxic chemotherapy-free option for patients with RAS/BRAF-WT, HER2-positive mCRC. Higher levels of HER2 amplification were associated with greater degree of clinical benefit from TP vis-à-vis CETIRI.

Hematology-Oncology

Sands JM, Champiat S, Hummel HD, Paulson KG, Borghaei H, Alvarez JB, Carbone DP, Carlisle JW, Choudhury NJ, Clarke JM, **Gadgeel SM**, Izumi H, Navarro A, Lau SCM, Lammers PE, Huang S, Hamidi A, Mukherjee S, and Owonikoko TK. Practical management of adverse events in patients receiving tarlatamab, a delta-like ligand 3-targeted bispecific T-cell engager immunotherapy, for previously treated small cell lung cancer. *Cancer* 2025; 131(3):e35738. PMID: 39876075. Full Text

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Henry Ford Cancer Institute, Detroit, Michigan, USA.
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Department of Medicine, University of Barcelona, Hospital Clinic and IDIBAPS, Barcelona, Spain.
Department of Medical Oncology, New York University Langone Health Perlmutter Cancer Center and Grossman School of Medicine, New York, New York, USA.
Baptist Cancer Center, Memphis, Tennessee, USA.
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Tarlatamab is a bispecific T-cell engager immunotherapy targeting delta-like ligand 3 (DLL3) and the cluster of differentiation 3 (CD3) molecule. In the phase 2 DeLLphi-301 trial of tarlatamab for patients with previously treated small cell lung cancer, tarlatamab 10 mg every 2 weeks achieved durable responses and encouraging survival outcomes. Analyses of updated safety data from the DeLLphi-301 trial demonstrated that the most common treatment-emergent adverse events were cytokine release syndrome (53%), pyrexia (38%), decreased appetite (36%), dysgeusia (32%), and an emia (30%). Cytokine release syndrome was mostly grade 1 or 2 in severity, occurred primarily after the first or second tarlatamab dose, and was managed with supportive care, which included the administration of antipyretics (e.g., acetaminophen), intravenous hydration, and/or glucocorticoids. Other treatment-emergent adverse effects of interest included neutropenia (16%) and immune effector cell-associated neurotoxicity syndrome and associated neurologic events (10%). Given that tarlatamab is the first T-cell engager approved for the treatment of small cell lung cancer, raising awareness with regard to the monitoring and management of tarlatamab-associated adverse events is essential. Here, the authors describe the timing, occurrence, and duration of these adverse events and review the management and risk-mitigation strategies used by clinical investigators during the DeLLphi-301 trial.

Hematology-Oncology

Shaala LA, Youssef DTA, Ramadan MA, Khalifa AA, Ibrahim RS, **Valeriote F**, Celik I, and Dawood HM. Molecular mechanisms of phytoconstituents from selected Egyptian plants against non-small cell lung cancer using integrated in vitro network pharmacology and molecular docking approach. *Naunyn Schmiedebergs Arch Pharmacol* 2025; Epub ahead of print. PMID: 39888361. Full Text

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Non-small cell lung cancer (NSCLC) is a widespread highly malignant type of lung cancer. Conventional chemotherapeutic drugs may be accompanied by both drug resistance and serious side effects in patients. Therefore, safer and more effective medications are urgently needed for the treatment of NSCLC. This study investigates the mode of action of 21 phytoconstituents previously isolated from the Amaryllidaceous plants Crinum bulbispermum (Burm.f.), Pancratium maritimum L., and Hippeastrum vittatum Herbert alongside the Asteraceous plant Centaurea scoparia Sieb. for therapy of NSCLC via in vitro cytotoxic, network pharmacology, and molecular docking analyses. Despite the in vitro and in vivo cytotoxic studies carried out on phytoconstituents from these plants in treating numerous cancer types, scarce information documenting their cytotoxic activity towards NSCLC cells is available. First, the compounds were tested for their in vitro cytotoxic activities and selectivity on human non-small cell lung cancer cells using disk diffusion assay. Compounds having significant potencies were promoted for network pharmacology analysis. Pharm mapper, Genecards, STRING, and KEGG databases were utilized for surfing target genes and pathways for these compounds, while for construction of compound-target-pathway (C-T-P) network, Cytoscape 3.7.1. freeware was used. Molecular docking and dynamics simulation were run for the top hit constituents against the most enriched molecular targets followed by in silico ADMET studies using Schrodinger(®) suite and Gromacs. In vitro cytotoxicity testing demonstrated that crinamine was the most potent compound followed by lycorine, hemanthidine, and haemanthamine. The network pharmacology approach revealed the enrichment of acetyllycoramine, pluviine, 5-hydroxy-7-methoxy-2-methylchromone, and ismine. Whereas, androgen receptor (AR), epidermal growth factor receptor (EGFR), and estrogen-sensitive receptor alpha (ESR1) were the most enriched target genes. Pathway analysis revealed that central carbon metabolism, EGFR tyrosine kinase inhibitor endocrine resistance, and non-small cell lung cancer were the most enriched cancer-related pathways. Ismine possessed the most stable ligand-protein interactions when docked to the three proteins, with MD simulations further confirming its strong and consistent binding to AR, moderate stability with ESR-1, and lower stability with EGFR over the 100 ns trajectory. ADMET study conducted on the above compounds confirmed their excellent drug-likeness properties, oral bioavailability, and safety profiles highlighting the need for some structural modifications to pluviine to enhance its oral bioavailability. These integrated approaches showed that some constituents from the investigated plants interact synergistically against non-small cell lung cancer-related genes and pathways.

Hospital Medicine

Alrayes H, **Alsaadi A**, Alkhatib A, Patel DA, **Alqarqaz M**, **Frisoli T**, **Fuller B**, Khandelwal A, **Koenig G**, **O'Neill BP**, **Villablanca P**, Zaidan M, **O'Neill W**, **Alaswad K**, and **Basir M**. Safety and complications associated with the use of protamine in percutaneous coronary intervention. *J Invasive Cardiol* 2025; Epub ahead of print. PMID: 39899698. Full Text

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OBJECTIVES: There is a paucity of data on the use of protamine after PCI. The purpose of this study was to assess the incidence of thrombotic complications of protamine after high-risk PCI. METHODS: The authors conducted a retrospective analysis of 168 patients. All patients received protamine intra- or immediately post-index PCI. Baseline characteristics and procedural characteristics including heparin dosing, protamine dosing, and bleeding and thrombotic complications were evaluated. The primary outcome was the incidence of acute stent thrombosis (ST), subacute ST, and 'other' thrombotic complications. Secondary outcomes included mortality within 24 hours and within 30 days of the index

procedure. RESULTS: A total of 168 patients were included. The majority of patients received dual anti-platelet therapy prior to the index procedure (85%). The average procedure time was 202 ± 103 minutes, and an average of 2.59 (± 1.38) stents were deployed. An average protamine dose of 32mg was administered, and the median dose was 20mg (IQR 20). Seventy-three (43%) had a coronary perforation and five (3%) had access site related bleeding requiring transfusion. Four (2%) patients had acute ST, no patients experienced subacute ST, and 2 (1%) patients developed non-coronary arterial thrombosis. Eight (5%) died within 24 hours of their PCI and 14 (8%) patients died within 30 days after PCI. CONCLUSIONS: In our cohort, administration of protamine was well tolerated in the majority of patients, however, 3.6% of patients did experience coronary or peripheral arterial thrombosis warranting caution when using protamine in these challenging scenarios.

Hypertension and Vascular Research

Teskey G, **Tiwari N**, **Butcko AJ**, Kumar A, Yadav A, Huang YM, Kelly CV, Granneman JG, Perfield JW, and **Mottillo EP**. Lipid droplet targeting of the lipase co-activator ABHD5 and the fatty liver disease-causing variant PNPLA3 I148M is required to promote liver steatosis. *J Biol Chem* 2025; 108186. Epub ahead of print. PMID: 39814233. Full Text

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The storage and release of triacylglycerol (TAG) in lipid droplets (LDs) is regulated by dynamic protein interactions. α/β hydrolase domain-containing protein 5 (ABHD5; also known as CGI-58) is a membrane/LD bound protein that functions as a co-activator of Patatin Like Phospholipase Domain Containing 2 (PNPLA2; also known as Adipose triglyceride lipase, ATGL) the rate-limiting enzyme for TAG hydrolysis. The dysregulation of TAG hydrolysis is involved in various metabolic diseases such as metabolic dysfunction-associated steatotic liver disease (MASLD). We previously demonstrated that ABHD5 interacted with PNPLA3, a closely related family member to PNPLA2. Importantly, a common missense variant in PNPLA3 (I148M) is the greatest genetic risk factor for MASLD. PNPLA3 148M functions to sequester ABHD5 and prevent co-activation of PNPLA2, which has implications for initiating MASLD; however, the exact mechanisms involved are not understood. Here we demonstrate that LD targeting of both ABHD5 and PNPLA3 I148M is required for the interaction. Molecular modeling demonstrates important resides in the C-terminus of PNPLA3 for LD binding and fluorescence cross-correlation spectroscopy demonstrates that PNPLA3 I148M greater associates with ABHD5 than WT PNPLA3. Moreover, the C-terminus of PNPLA3 is sufficient for functional targeting of PNPLAs to LD and the interaction with ABHD5. In addition, ABHD5 is a general binding partner of LD-bound PNPLAs. Finally, PNPLA3 I148M targeting to LD is required to promote steatosis in vitro and in the liver. Overall results suggest that the interaction of PNPLA3 I148M with ABHD5 on LD is required to promote liver steatosis.

Hypertension and Vascular Research

Wang H, **Ortiz PA**, and Romero CA. Luminal flow in the connecting tubule induces afferent arteriole vasodilation. *Clin Exp Nephrol* 2025; Epub ahead of print. PMID: 39800794. Full Text

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BACKGROUND: Renal autoregulatory mechanisms modulate renal blood flow. Connecting tubule glomerular feedback (CNTGF) is a vasodilator mechanism in the connecting tubule (CNT), triggered paracrinally when high sodium levels are detected via the epithelial sodium channel (ENaC). The primary activation factor of CNTGF-whether NaCl concentration, independent luminal flow, or the combined total sodium delivery-is still unclear. We hypothesized that increasing luminal flow in the CNT induces CNTGF via O2(-) generation and ENaC activation. METHODS: Rabbit afferent arterioles (Af-Arts) with adjacent CNTs were microperfused ex-vivo with variable flow rates and sodium concentrations ranging from < 1 to 80 mM and from 5 to 40 nL/min flow rates. RESULTS: Perfusion of the CNT with 5 mM NaCl and increasing flow rates from 5 to 10, 20, and 40 nL/min caused a flow-rate-dependent dilation of the Af-Art ($P < 0.001$). Adding the ENaC blocker benzamil inhibited flow-induced Af-Art dilation, indicating a CNTGF response. In contrast, perfusion of the CNT with < 1 mM NaCl did not result in flow-induced CNTGF vasodilation ($P > 0.05$). Multiple linear regression modeling ($R(2) = 0.51$; $P < 0.001$) demonstrated that tubular flow ($\beta = 0.163 \pm 0.04$; $P < 0.001$) and sodium concentration ($\beta = 0.14 \pm 0.03$; $P < 0.001$) are independent variables that induce afferent arteriole vasodilation. Tempol reduced flow-induced CNTGF, and L-NAME did not influence this effect. CONCLUSION: Increased luminal flow in the CNT induces CNTGF activation via ENaC, partially due to flow-stimulated O2- production and independent of nitric oxide synthase (NOS) activity.

Hypertension and Vascular Research
Zahoor I, **Nematullah M**, **Ahmed ME**, **Fatma M**, **Sajad M**, **Ayasolla K**, **Cerghet M**, **Palaniyandi S**, Ceci V, Carrera G, Buttari F, Centonze D, Mao-Draayer Y, **Rattan R**, Chiurchiù V, and **Giri S**. Maresin-1 promotes neuroprotection and modulates metabolic and inflammatory responses in disease-associated cell types in preclinical models of Multiple Sclerosis. *J Biol Chem* 2025; 108226. Epub ahead of print. PMID: 39864620. Full Text

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Multiple sclerosis (MS) is a prevalent inflammatory neurodegenerative disease in young people, causing neurological abnormalities and impairment. To investigate a novel therapeutic agent for MS, we observed the impact of maresin 1 (MaR1) on disease progression in a well-known, relapsing-remitting experimental autoimmune encephalomyelitis (RR-EAE) mouse model. Treatment with MaR1 accelerated inflammation resolution, reduced neurological impairment, and delayed disease development by reducing immune cell infiltration (CD4+IL-17+ and CD4+IFNγ+) into the central nervous system (CNS). Furthermore, MaR1 administration enhanced IL-10 production, primarily in macrophages and CD4+ cells. However, neutralizing IL-10 with an anti-IL-10 antibody eliminated the protective impact by MaR1 in RR-EAE model, implying the significance of IL-10 in MaR1 treatment. Metabolism has been recognized as a critical mediator of effector activity in many types of immune cells. In our investigation, MaR1 administration significantly repaired metabolic dysregulation in CD4+ cells, macrophages, and microglia in EAE mice. Furthermore, MaR1 treatment restored defective efferocytosis in treated macrophages and microglia. MaR1 also preserved myelin in EAE mice and regulated O4+ oligodendrocyte metabolism by reversing metabolic dysregulation via increased mitochondrial activity and decreased glycolysis. Overall, in a

preclinical MS animal model, MaR1 therapy has anti-inflammatory and neuroprotective properties. It also induced metabolic reprogramming in disease-associated cell types, increased efferocytosis, and maintained myelination. Moreover, our data on patient-derived PBMCs substantiated the protective role of MaR1, expanding the therapeutic spectrum of SPMs. Altogether, these findings suggest the potential of MaR1 as a novel therapeutic agent for MS and other autoimmune diseases.

Infectious Diseases

Arena CJ, **Veve MP**, **Fried ST**, **Ware F**, **Lee P**, and **Shallal AB**. Navigating performance measures for ambulatory antimicrobial stewardship: a review of HEDIS® and other metrics the steward should know. *Antimicrob Steward Healthc Epidemiol* 2024; 4(1):e217. PMID: 39758875. Full Text

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Ambulatory antimicrobial stewardship can be challenging due to disparities in resource allocation across the care continuum, competing priorities for ambulatory prescribers, ineffective communication strategies, and lack of incentive to prioritize antimicrobial stewardship program (ASP) initiatives. Efforts to monitor and compare outpatient antibiotic usage metrics have been implemented through quality measures (QM). Healthcare Effectiveness Data and Information Set (HEDIS®) represent standardized measures that examine the quality of antibiotic prescribing by region and across insurance health plans. Health systems with affiliated emergency departments and ambulatory clinics contribute patient data for HEDIS measure assessment and are directly related to value-based reimbursement, pay-for-performance, patient satisfaction measures, and payor incentives and rewards. There are four HEDIS® measures related to optimal antibiotic prescribing in upper respiratory tract diseases that ambulatory ASPs can leverage to develop and measure effective interventions while maintaining buy-in from providers: avoidance of antibiotic treatment for acute bronchitis/bronchiolitis, appropriate treatment for upper respiratory infection, appropriate testing for pharyngitis, and antibiotic utilization for respiratory conditions. Additionally, there are other QM assessed by the Centers for Medicare and Medicaid Services (CMS), including overuse of antibiotics for adult sinusitis. Ambulatory ASPs with limited resources should leverage HEDIS® to implement and measure successful interventions due to their pay-for-performance nature. The purpose of this review is to outline the HEDIS® measures related to infectious diseases in ambulatory care settings. This review also examines the barriers and enablers in ambulatory ASPs which play a crucial role in promoting responsible antibiotic use and the efforts to optimize patient outcomes.

Internal Medicine

Abusuliman M, **Jafri SM**, Summers BB, Beduschi T, Boike J, Farmer DG, Horslen S, Lyer K, Langnas AN, Mangus RS, Matsumoto CS, Mavis AM, Mazariegos GV, **Nagai S**, O'Leary J, Schiano TD, Sudan DL, Abusuliman A, Sulejmani N, and Segovia MC. Trends in the Perioperative Practices for Immunological Assessment and Immunosuppression Strategies for Patients Undergoing Intestinal Transplantation at American Transplant Centers. *Transplant Proc* 2025; Epub ahead of print. PMID: 39890513. Full Text

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BACKGROUND: Intestinal transplantation (IT) is a complex procedure that requires nuanced immunosuppressive strategies to optimize patient outcomes. Despite advancements, significant variability remains in immunosuppressive protocols across transplant centers due to a lack of consensus on the optimal approaches for induction, maintenance, and clinical testing. This variability complicates standardization and identification of best practices for IT recipients. METHODS: A descriptive survey study was conducted to characterize immunosuppressive and testing strategies in IT at major transplant centers in the United States. Ten centers known to have performed over 10 ITs since 2015 were selected from the Scientific Registry of Transplant Recipients database. A 22-question survey was distributed to surgical directors, collecting data on pre-, peri-, and post-transplant immunological testing, desensitization strategies, immunosuppressive regimens, and management of antibody-mediated rejection (AMR) and acute cellular rejection (ACR). RESULTS: Nine centers (90%) responded. All centers conducted pretransplant human leukocyte antigen (HLA) and donor-specific antibody (DSA) testing, with varying frequencies and methodologies. Desensitization was reported by 44% of centers for isolated IT and by 22% for multivisceral transplants. Induction therapy predominantly involved antithymocyte globulin (89%) and rituximab (44%). Tacrolimus was universally used for maintenance, with varying trough level targets across centers. Post-transplant DSA testing was performed by all centers, and protocol-driven endoscopic bowel biopsies were routine at 67% of centers. AMR was diagnosed at 89% of centers, with plasmapheresis and IVIG being the most common treatments. Variability was noted in desensitization practices and AMR management. CONCLUSION: This survey highlights considerable consistency in pre- and post-transplant testing and immunosuppressive regimens for IT recipients, while significant variability exists in desensitization strategies and AMR management. Further research is needed to standardize these practices to improve patient outcomes across transplant centers.

Internal Medicine

Althunibat I, **Alomari A**, Habbas A, Atiyat R, Bains Y, Shah M, Aquino T, and Zhiwei Y. Hepatic Perivascular Epithelioid Cell Tumor (PEComa): A Case Report. *Cureus* 2024; 16(12):e75343. PMID: 39781125. Full Text

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Perivascular epithelioid cell tumors (PEComas) are a rare group of mesenchymal neoplasms composed of perivascular epithelioid cells. While commonly found in the kidney, uterus, and soft tissues, PEComas of the liver are exceedingly rare. We present a case of a PEComa incidentally discovered in a 73-year-old female patient undergoing evaluation for abdominal pain. Imaging revealed an indeterminant mass in the left hepatic lobe without internal color uptake on Doppler flow. Histopathological evaluation was consistent with PEComa. The tumor was mainly composed of well-circumscribed epithelioid and spindle cell lesions with smooth muscle differentiation. Immunohistochemical staining was positive for smooth muscle actin (SMA), human melanoma black 45 (HMB 45), and Melan A. PEComas are usually detected incidentally during workup for other reasons. Diagnosis is based on histopathological evaluation, and

although most of the cases reported in the literature were evaluated after surgical resection, some of them were diagnosed after the image-guided biopsies, as we did in our case. This entity of tumors needs further studies on their natural behavior, as some malignant cases were reported. In addition, a clearer approach to diagnosis and treatment needs to be established, and more prognostication tools and radiographic characterization are needed.

Internal Medicine
Arabi TZ, **Shaik A**, El-Shaer A, Al Tamimi O, Ahmed EN, Alabdaljabar MS, Safdar A, and Mushtaq A. Advancements in Cardiac Amyloidosis Treatment. *Biomedicines* 2024; 13(1). PMID: 39857663. Full Text

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Cardiac amyloidosis (CA) is a progressive condition resulting from the deposition of amyloid fibrils in the heart, which leads to severe diastolic dysfunction and restrictive cardiomyopathy. The disease has two main subtypes: light-chain and transthyretin (TTR) CA, with the latter subdivided into wild-type and hereditary forms. Despite advances in diagnostic imaging, early detection remains a challenge due to non-specific symptoms that mimic other cardiac conditions. Treatment has evolved significantly with targeted therapies like TTR stabilizers, gene silencers, and RNA interference, showing promise in altering disease progression. However, barriers such as high costs, limited availability of genetic testing, and inadequate multidisciplinary care continue to impede comprehensive management. Future strategies should focus on integrating novel gene-editing therapies, expanding access to diagnostics, and enhancing multidisciplinary care models to improve outcomes. Overall, early diagnosis, equitable access to therapies, and personalized management plans are crucial to advancing care for CA patients.

Internal Medicine
Banthiya S, **Chowdhury M**, **Govil D**, **Thacker H**, and **Saba S**. Exploring the causes of stiff left atrial syndrome: a case series. *Eur Heart J Case Rep* 2025; 9(2):702. PMID: 39902176. Full Text

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BACKGROUND: Stiff left atrial syndrome (SLAS) is a complication that occurs due to left atrial scarring following procedures such as radiofrequency catheter ablation for atrial fibrillation. CASE SUMMARY: We present a series of four patients with pre-existing conditions that ultimately were diagnosed as SLAS. In each case, clinical manifestations of SLAS may overlapped with other conditions and required a high index of clinical suspicion and diligent hemodynamic assessment to differentiate it from other concomitant cardiac conditions. DISCUSSION: We aim to highlight key differentiating diagnostic features from overlapping cardiac conditions and to summarize current treatment options for patients with SLAS.

Internal Medicine
Boopathy D, Grahf D, **Ross J**, **Hawatian K**, **Rammal JA**, Alaimo K, and **Miller JB**. Thiamine Deficiency Is Common and Underrecognized in Emergency Department Oncology Patients. *J Clin Med* 2025; 14(1). PMID: 39797340. Full Text

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Background: Wernicke's encephalopathy can occur in oncology patients independent of alcohol use, likely resulting from poor dietary thiamine intake. High metabolic demands, such as those in acute illnesses seen in the emergency department (ED), can exacerbate thiamine deficiency. In this study, our objective was to assess the incidence of thiamine deficiency in ED oncology patients, which could lead to Wernicke's encephalopathy or other thiamine deficiency disorders if left untreated. Methods: This was a single-center prospective cohort study. We included patients with acute illness and a history of active cancer management in the ED of a large, urban hospital. We also included age and sex-matched control patients with no history of cancer who sought ED care. We excluded patients with a history of alcohol use or parenteral thiamine administration before enrollment. We recorded whole blood thiamine levels to measure total body thiamine stores and collected data on clinical variables, thiamine treatment, and adverse events. Results: In total, 87 oncology and 71 control patients were included in the study. The mean age was 62.1 ± 13.7 and 58.9 ± 12.6 years, respectively, and 48% of oncology vs. 55% of control participants were female. The most common cancers represented were colon (23%), lung (25%), prostate (10%), and breast (9%). Thiamine deficiency was significantly higher in ED oncology patients (25, 28.7%) compared to controls (6, 8.5%), odds ratio 4.4 (95% CI 1.7-11.4). None of the oncology patients with deficiency received thiamine treatment in the ED. Conclusions: Our findings suggest that thiamine deficiency is prevalent in acutely ill oncology patients, yet rarely treated in the ED.

Internal Medicine

Chaudhary AJ, **Saleem A**, Shahzil M, Hafeez N, **Jamali T**, and **Ginnebaugh B**. A Rare Case of Colorectal Cancer With Delayed Metastasis to the Duodenum. *Case Rep Gastrointest Med* 2025; 2025:6679555. PMID: 39840121. Full Text

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Colorectal cancer (CRC) continues to be a significant global health issue contributing to a high mortality rate. Despite advancements in treatment, the risk of recurrence remains due to inherent mutations and the rapid turnover of intestinal mucosa. We present an exceptionally rare case of CRC metastasis to the duodenum in a 42-year-old female who has been compliant with postsurgical surveillance. Despite previous negative surveillance results, elevated CEA levels and a 3-cm mesenteric mass were detected, raising concerns for carcinoma, which was later confirmed by biopsy. The tumor board deemed her ineligible for surgery due to vascular involvement, leading to palliative care and an attempt at neoadjuvant therapy. Vigilant monitoring is crucial for early detection and intervention.

Internal Medicine

Ichkhanian Y, **Chaudhary AJ**, **Veracruz N**, **Faisal MS**, Peller M, Kushnir V, Daugherty TT, Genere JR, Pawa R, Pawa S, Ahmed W, Huggett MT, Paranandi B, Aparicio JR, Martínez-Moreno B, **Nimri F**, **Ashraf T**, **Alluri S**, **Obri M**, Dang D, **Singla S**, **Piraka C**, and **Zuchelli T**. Endoscopic Ultrasound-Guided Drainage of Intra-Abdominal Abscess Using 15-mm vs. 10-mm Lumen-Apposing Metal Stents: An International Case-Matched Study. *Gastrointest Endosc* 2025; Epub ahead of print. PMID: 39788214. Full Text

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BACKGROUND AND AIMS: Efficacy and safety of EUS-guided placement of lumen-apposing metal stents (LAMS) has been reported yet advantage of using 15-mm LAMS over 10-mm LAMS yet to be explored. METHODS: International, retrospective, case-matched study of patients with intra-abdominal abscess who underwent EUS-guided drainage with 15-mm (case) and 10-mm (control) LAMS between 03/2019 and 09/2022. RESULTS: 51 patients underwent EUS-guided drainage using LAMS [15-mm 29 (57%), 10-mm 22 (43%)]. The most common location of the abscess was peri-pancreatic 43%. Technical success rate was achieved in 97% of cases and 100 % of controls (p=0.412), while clinical success was achieved in 98% and 96%, respectively, (OR 1.3; p=0.089). AE occurred in 7.8% of the cases. Patients with 15-mm LAMS underwent fewer total endoscopic procedures (mean 2.5 vs.3.6; P < 0.023). CONCLUSION: Both sizes showed comparable clinical success and safety profiles, with a significant trend of the need for fewer endoscopic procedures with the 15-mm LAMS.

Internal Medicine
Jaiswal V, Latif F, Wajid Z, **Shama N**, Halder A, Bandyopadhyay D, Mattumpuram J, and Biswas M. Association between inclisiran and the risk of arrhythmias. *Int J Cardiol Heart Vasc* 2025; 56:101591. PMID: 39867852. Full Text

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Internal Medicine
Maliha M, Satish V, Kumar SS, Chi KY, **Shama N**, Kharawala A, Duarte G, Li W, Purkayastha S, Mangeshkar S, Borkowski P, Gashi E, and Behuria S. The Safety Profile of Inclisiran in Patients with Dyslipidemia: A Systematic Review and Meta-Analysis. *Healthcare (Basel)* 2025; 13(2). PMID: 39857168. Full Text

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INTRODUCTION: Inclisiran is a novel drug that employs ribonucleic acid (RNA) interference to lower the levels of the proprotein convertase subtilisin/kexin type 9 (PCSK9) protein. It has demonstrated a significant reduction in LDL cholesterol levels compared to a placebo. We aim to comprehensively evaluate the safety of using Inclisiran in patients with dyslipidemia and ASCVD or an ASCVD risk equivalent. METHODS: Four electronic databases, namely, Pubmed/MEDLINE, Web of Science, Embase, and ClinicalTrials.gov, were searched from inception to June 2024 to identify relevant randomized controlled trials (RCTs) comparing safety profiles of Inclisiran and the control group. The outcomes investigated were all-cause mortality, major adverse cardiovascular events (MACEs), injection-site adverse events, new-onset or worsening type 2 diabetes mellitus (T2DM), and nasopharyngitis. The

effect estimates of outcomes were assessed using the risk ratio (RR) with a 95% confidence interval (CI). Random-effects meta-analysis was conducted using the restricted maximum likelihood method. Subgroup analysis was performed based on different dosing regimens. RESULTS: The study included 7 RCTs, enrolling 4790 patients (age 63.8 ± 9.7 years, 33.2% females) who received Inclisiran. Compared to the control group, Inclisiran use did not yield a significant effect on all-cause mortality (RR, 0.92; 95% CI, 0.54 to 1.54; I(2) = 0%), MACEs (RR, 0.98; 95% CI, 0.82 to 1.17; I(2) = 0%), nasopharyngitis (RR, 1.10; 95% CI, 0.83 to 1.45; I(2) = 0%), and T2DM (RR, 1.02; 95% CI, 0.85 to 1.21; I(2) = 0%). However, Inclisiran use demonstrated a significant increase in injection-site adverse events (RR, 6.50; 95% CI, 3.20 to 13.20; I(2) = 29%). CONCLUSIONS: Inclisiran use significantly increased injection-site reactions, with no increase in mortality, T2DM, or nasopharyngitis. It demonstrates a generally favorable safety profile, making it a promising option for lipid management in individuals at high cardiovascular risk, such as those with ASCVD or equivalent conditions. While it effectively improves dyslipidemia, decision-makers should be aware of an increased incidence of injection-site reactions, which, though typically mild, warrant consideration in clinical practice. Further trials are required to assess the safety of Inclisiran, particularly the association of the severity of injection-site adverse events over longer treatment durations.

Internal Medicine

Najdi J, Armache A, Chawareb EA, Heidar NA, Zein M, Fadel A, **Nehme J**, and Bachir B. Physicians' knowledge, attitudes, and beliefs regarding practices of male and female surgical sterilization procedures in Lebanon. *Contracept Reprod Med* 2025; 10(1):6. PMID: 39856792. Full Text

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OBJECTIVE: Surgical sterilization, including vasectomy in males and tubal ligation in females, is a highly effective but underutilized contraception method. Adoption rates vary globally mostly due to misconceptions by both the general public and practicing physicians. Our survey aims to explore physicians' knowledge, attitudes and beliefs about surgical sterilization techniques in Lebanon. STUDY DESIGN: A web-based survey was sent to residents and attending physicians of different specialties in Lebanon between April 2022 and April 2023. The survey included 21 multiple-choice questions divided in four parts (demographics, knowledge, attitudes and beliefs) and required around 8 min to complete. Data was analyzed using IBM SPSS Statistics. A descriptive analysis was performed using the chi-square test for categorical variables and ANOVA for continuous variables. RESULTS: One hundred eighty-three physicians specialized in Urology, OB/GYN, Family medicine and Internal medicine filled the survey. The majority were resident physicians (79%), male (57%), single (72%) and did not receive training in family planning (73%). Knowledge assessment showed an average score of 5/7. After setting this as a passing score, 60.7% of participants passed the assessment with higher likelihood of passing among attending physicians (84.6%), OB/GYN physicians (94.4%), married participants (80.8%), and physicians who received training in family planning (91.8%). Lower likelihood of passing was among Family Medicine (60%), and Internal Medicine (72.5%) physicians. Recommendations varied among specialties. Most physicians perceived the general public preferring tubal ligation as a sterilization method (98%). CONCLUSION: Lebanese primary care physicians have a lower level of knowledge of surgical sterilization procedures compared to specialists. This, coupled with low levels of family planning training and negative perception of patient beliefs may impact attitudes and recommendations. Ongoing education and family planning training is needed to increase awareness among physicians, especially primary care physicians, to allow them to provide more adequate counseling to patients.

Internal Medicine

Parsons AJ, **Franco-Palacios D**, **Kelly B**, **Grafton G**, **McIntosh J**, **Coleman D**, **Abdul Hameed AM**, and **Sayf AA**. Common Variable Immunodeficiency Associated With Noninfectious Pulmonary Complications and Its Treatment: Beyond Immunoglobulin Therapy. *Pulm Circ* 2025; 15(1):e70034. PMID: 39744645. Full Text

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Common variable immunodeficiency (CVID) is a type of primary immunodeficiency that presents as a heterogenous disorder characterized by hypogammaglobinemia, poor response to vaccines, recurrent sinopulmonary infections, and can have noninfectious systemic manifestations. We performed a single-center, retrospective, observational study of five patients with noninfectious complications of CVID. All patients had CVID as defined by the European Society of Immunodeficiencies criteria and had received intravenous immunoglobulin therapy. There were multiple pulmonary manifestations of CVID including frequent pneumonias, bronchiectasis, granulomatous lung disease, and pulmonary hypertension. All our patients were treated with pulmonary vasodilators for severe precapillary pulmonary hypertension along with individualized immunosuppression regimen for interstitial lung disease. Despite treatment for interstitial lung disease and PH, their conditions worsened over 2-3 years with all patients progressing toward organ transplant evaluation. Idiopathic thrombocytopenia and non-cirrhotic portal hypertension were common, with three patients probably suffering from nodular regenerative hyperplasia. Noninfectious complications of CVID can affect different organs and progress despite advanced therapies. Single or multiorgan transplantation is a treatment option for patients with end-stage organ involvement refractory to medical therapy.

Internal Medicine

Shahzil M, **Chaudhary AJ**, Javaid S, Moond V, Tepe G, **Faisal MS**, Khaqan MA, and **Kutait A**. Patient outcomes and health care resource utilization in acute pancreatitis-related central nervous system complications: insights from a national cohort study. *J Int Med Res* 2025; 53(1):3000605241311405. PMID: 39883809. Full Text

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OBJECTIVES: Central nervous system complications of acute pancreatitis (AP) can result in cerebral edema (CE). We assessed the risk of serious outcomes and health care features associated with CE in patients hospitalized with AP. METHODS: We conducted a retrospective cohort study using the National Inpatient Sample database. Patients were divided into the AP-CE group that developed CE and the AP-only group that did not. Outcome data were analyzed using Stata software. RESULTS: Among 543,464 patients hospitalized with AP, 220 (0.04%) developed CE. In multivariate analysis, primary outcomes included increased length of hospital stay (adjusted odds ratio [aOR] 10.1; 95% confidence interval [CI] 0.50-19.70), hospital charges (aOR USD 208,713; 95% CI 27,095-390,330), and risk of death (aOR 17.17; 95% CI 5.88-50.07) in the AP-CE group. Secondary outcomes showed patients with AP-CE had a

significantly increased risk of serious complications, particularly cardiac arrest (aOR 64.24; 95% CI 24.27-170.02), and higher hospital resource utilization. CONCLUSION: Patients with AP who develop CE face worse outcomes, including increased mortality risk, prolonged hospital stay, and greater resource utilization. Timely identification and effective management of CE in AP may reduce mortality and ease the health care burden associated with this neurological complication.

Neurology

Aboukasm A, **Reffi AN**, and **Drake CL**. Z hypnotics in the management of narcolepsy: a case series. *J Clin Sleep Med* 2024; Epub ahead of print. PMID: 39745471. Full Text

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STUDY OBJECTIVES: Here we report our experience treating patients with narcolepsy using benzodiazepine receptor agonists (BzRA), zolpidem (Zol) or eszopiclone (Esz) taken at bedtime for both excessive daytime sleepiness (EDS) and cataplexy. METHODS: We reviewed the medical records of 53 patients diagnosed with narcolepsy, between 2002 and 2023. Twenty-three patients, 8 with type1 (NT1), 13 with type 2 (NT2) and 2 with secondary narcolepsy, were treated with BzRA's (20 Zol and 3 Esz). RESULTS: Seven out of 8 (88%) with NT1, 9 out of 13 (69%) with NT2 and 2 out of 2 (100%) with secondary narcolepsy, treated with BzRA, had good to excellent subjective response in their symptoms of EDS and/or cataplexy; 5 patients, 1 of whom with NT1, had marginal or no response. Three of the responding patients remained on zolpidem in monotherapy (ie. no stimulants). CONCLUSIONS: The BzRa drugs may be effective to manage several of the cardinal symptoms of narcolepsy, regardless of the narcolepsy type. Placebo controlled trials are needed to confirm our observations.

Neurology

Akhter N, Contreras J, Ansari MA, Ducruet AF, **Hoda MN**, **Ahmad AS**, Gangwani LD, Bhatia K, and Ahmad S. Remote Ischemic Post-Conditioning (RIC) Mediates Anti-Inflammatory Signaling via Myeloid AMPKα1 in Murine Traumatic Optic Neuropathy (TON). *Int J Mol Sci* 2024; 25(24). PMID: 39769388. Full Text

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Traumatic optic neuropathy (TON) has been regarded a vision-threatening condition caused by either ocular or blunt/penetrating head trauma, which is characterized by direct or indirect TON. Injury happens during sports, vehicle accidents and mainly in military war and combat exposure. Earlier, we have demonstrated that remote ischemic post-conditioning (RIC) therapy is protective in TON, and here we report that AMPKα1 activation is crucial. AMPKα1 is the catalytic subunit of the heterotrimeric enzyme AMPK, the master regulator of cellular energetics and metabolism. The α1 isoform predominates in immune cells including macrophages (Mφs). Myeloid-specific AMPKα1 KO mice were generated by crossing AMPKα1(Flox/Flox) and LysM(cre) to carry out the study. We induced TON in mice by using a controlled impact system. Mice (mixed sex) were randomized in six experimental groups for Sham (mock); Sham (RIC); AMPKα1(F/F) (TON); AMPKα1(F/F) (TON+RIC); AMPKα1(F/F) LysM(Cre) (TON); AMPKα1(F/F) LysM(Cre) (TON+RIC). RIC therapy was given every day (5-7 days following TON). Data were generated by using Western blotting (pAMPKα1, ICAM1, Brn3 and GAP43), immunofluorescence (pAMPKα1, cd11b, TMEM119 and ICAM1), flow cytometry (CD11b, F4/80, CD68, CD206, IL-10 and

LY6G), ELISA (TNF-α and IL-10) and transmission electron microscopy (TEM, for demyelination and axonal degeneration), and retinal oxygenation was measured by a Unisense sensor system. First, we observed retinal morphology with funduscopic images and found TON has vascular inflammation. H&E staining data suggested that TON increased retinal inflammation and RIC attenuates retinal ganglion cell death. Immunofluorescence and Western blot data showed increased microglial activation and decreased retinal ganglion cell (RGCs) marker Brn3 and axonal regeneration marker GAP43 expression in the TON [AMPKα1(F/F)] vs. Sham group, but TON+RIC [AMPKα1(F/F)] attenuated the expression level of these markers. Interestingly, higher microglia activation was observed in the myeloid AMPKα1(F/F) KO group following TON, and RIC therapy did not attenuate microglial expression. Flow cytometry, ELISA and retinal tissue oxygen data revealed that RIC therapy significantly reduced the pro-inflammatory signaling markers, increased anti-inflammatory macrophage polarization and improved oxygen level in the TON+RIC [AMPKα1(F/F)] group; however, RIC therapy did not reduce inflammatory signaling activation in the myeloid AMPKα1 KO mice. The transmission electron microscopy (TEM) data of the optic nerve showed increased demyelination and axonal degeneration in the TON [AMPKα1(F/F)] group, and RIC improved the myelination process in TON [AMPKα1(F/F)], but RIC had no significant effect in the AMPKα1 KO mice. The myeloid AMPKα1c deletion attenuated RIC induced anti-inflammatory macrophage polarization, and that suggests a molecular link between RIC and immune activation. Overall, these data suggest that RIC therapy provided protection against inflammation and neurodegeneration via myeloid AMPKα1 activation, but the deletion of myeloid AMPKα1 is not protective in TON. Further investigation of RIC and AMPKα1 signaling is warranted in TON.

Neurology

Bagher-Ebadian H, **Brown SL**, Ghassemi MM, Acharya PC, Chetty IJ, **Movsas B**, **Ewing JR**, and **Thind K**. Probabilistic nested model selection in pharmacokinetic analysis of DCE-MRI data in animal model of cerebral tumor. *Sci Rep* 2025; 15(1):1786. PMID: 39805838. Full Text

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Best current practice in the analysis of dynamic contrast enhanced (DCE)-MRI is to employ a voxel-by-voxel model selection from a hierarchy of nested models. This nested model selection (NMS) assumes that the observed time-trace of contrast-agent (CA) concentration within a voxel, corresponds to a singular physiologically nested model. However, admixtures of different models may exist within a voxel's CA time-trace. This study introduces an unsupervised feature engineering technique (Kohonen-Self-Organizing-Map (K-SOM)) to estimate the voxel-wise probability of each nested model. Sixty-six immune-compromised-RNU rats were implanted with human U-251 N cancer cells, and DCE-MRI data were acquired from all the rat brains. The time-trace of change in the longitudinal-relaxivity (ΔR(1)) for all animals' brain voxels was calculated. DCE-MRI pharmacokinetic (PK) analysis was performed using NMS to estimate three model regions: Model-1: normal vasculature without leakage, Model-2: tumor tissues with leakage without back-flux to the vasculature, Model-3: tumor vessels with leakage and back-flux. Approximately two hundred thirty thousand (229,314) normalized ΔR(1) profiles of animals' brain voxels along with their NMS results were used to build a K-SOM (topology-size: 8 × 8, with competitive-learning algorithm) and probability map of each model. K-fold nested-cross-validation (NCV, k = 10) was used to evaluate the performance of the K-SOM probabilistic-NMS (PNMS) technique against the NMS technique. The K-SOM PNMS's estimation for the leaky tumor regions were strongly similar (Dice-Similarity-Coefficient, DSC = 0.774 [CI: 0.731-0.823], and 0.866 [CI: 0.828-0.912] for Models 2 and 3, respectively) to their respective NMS regions. The mean-percent-differences (MPDs, NCV, k = 10) for the estimated

permeability parameters by the two techniques were: -28%, + 18%, and + 24%, for v(p), K(trans), and v(e), respectively. The KSOM-PNMS technique produced microvasculature parameters and NMS regions less impacted by the arterial-input-function dispersion effect. This study introduces an unsupervised model-averaging technique (K-SOM) to estimate the contribution of different nested-models in PK analysis and provides a faster estimate of permeability parameters.

Neurology

Khalili BF, **Walbert T**, Horbinski C, Dixit K, Gururangan K, Thio H, Tate MC, Stupp R, Lukas RV, and Templer JW. Levetiracetam and valproic acid in glioma: antiseizure and potential antineoplastic effects. *Future Oncol* 2025; 1-9. Epub ahead of print. PMID: 39786974. Full Text

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Seizures are a frequent complication in glioma. Incidence of brain tumor-related epilepsy (BTRE) in high-grade glioma (HGG) is an estimated >25% and in low-grade glioma (LGG) is approximately 72%. Two first-line antiseizure medications (ASMs) for BTRE include levetiracetam (LEV) and valproic acid (VPA). Use of VPA has decreased because of a broader side effect profile, potential interaction with chemotherapeutic drugs, and availability of newer generation agents. In refractory BTRE, LEV and VPA may be prescribed together to enhance seizure control. VPA and LEV have gained attention for their purported antineoplastic effects and synergistic role with temozolomide. VPA is suggested to modulate anticancer activity in vitro through multiple mechanisms. In addition, retrospective studies indicate increased overall survival in patients with epileptogenic HGGs who are managed with LEV or VPA rather than other ASMs. However, these studies have numerous limitations. It is also reported that patients with glioma and a seizure history have a longer survival. This extended survival, if one exists, may be only observed in certain gliomas with corresponding patient characteristics. We provide a brief overview of the management of BTRE, VPA and LEV as anticonvulsants and antineoplastics, and the factors that may be associated with survival in epileptogenic glioma.

Neurology

Zahoor I, **Nematullah M**, **Ahmed ME**, **Fatma M**, **Sajad M**, **Ayasolla K**, **Cerghet M**, **Palaniyandi S**, Ceci V, Carrera G, Buttari F, Centonze D, Mao-Draayer Y, **Rattan R**, Chiurchiù V, and **Giri S**. Maresin-1 promotes neuroprotection and modulates metabolic and inflammatory responses in disease-associated cell types in preclinical models of Multiple Sclerosis. *J Biol Chem* 2025; 108226. Epub ahead of print. PMID: 39864620. Full Text

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Multiple sclerosis (MS) is a prevalent inflammatory neurodegenerative disease in young people, causing neurological abnormalities and impairment. To investigate a novel therapeutic agent for MS, we observed the impact of maresin 1 (MaR1) on disease progression in a well-known, relapsing-remitting experimental autoimmune encephalomyelitis (RR-EAE) mouse model. Treatment with MaR1 accelerated inflammation resolution, reduced neurological impairment, and delayed disease development by reducing immune cell infiltration (CD4+IL-17+ and CD4+IFNγ+) into the central nervous system (CNS). Furthermore, MaR1 administration enhanced IL-10 production, primarily in macrophages and CD4+ cells. However, neutralizing IL-10 with an anti-IL-10 antibody eliminated the protective impact by MaR1 in RR-EAE model, implying the significance of IL-10 in MaR1 treatment. Metabolism has been recognized as a critical mediator of effector activity in many types of immune cells. In our investigation, MaR1 administration significantly repaired metabolic dysregulation in CD4+ cells, macrophages, and microglia in EAE mice. Furthermore, MaR1 treatment restored defective efferocytosis in treated macrophages and microglia. MaR1 also preserved myelin in EAE mice and regulated O4+ oligodendrocyte metabolism by reversing metabolic dysregulation via increased mitochondrial activity and decreased glycolysis. Overall, in a preclinical MS animal model, MaR1 therapy has anti-inflammatory and neuroprotective properties. It also induced metabolic reprogramming in disease-associated cell types, increased efferocytosis, and maintained myelination. Moreover, our data on patient-derived PBMCs substantiated the protective role of MaR1, expanding the therapeutic spectrum of SPMs. Altogether, these findings suggest the potential of MaR1 as a novel therapeutic agent for MS and other autoimmune diseases.

Neurosurgery

Chang MT, Grimm D, **Asmaro K**, Yong M, Low C, Lee CK, Nayak JV, Hwang PH, Fernandez-Miranda JC, and Patel ZM. Ipsilateral Nasoseptal Flaps in a Transpterygoid Approach: Technical Pearls and Reconstruction Outcomes. *J Neurol Surg B Skull Base* 2025; 86(1):76-81. PMID: 39881739. Full Text

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Background Transpterygoid approaches to the skull base require dissection of the sphenopalatine artery, potentially compromising the option to harvest an ipsilateral nasoseptal flap (NSF) for reconstruction. In cases where other reconstructive options are limited, it may be necessary to utilize a NSF ipsilateral to the transpterygoid approach. Here, we describe the technique of NSF pedicle preservation with reconstruction outcomes. Methods This was a retrospective single-institution review of all expanded endonasal skull base cases utilizing a NSF ipsilateral to a transpterygoid approach. Reconstruction outcomes collected include intraoperative fluorescence with indocyanine green (ICG), postoperative magnetic resonance imaging (MRI) gadolinium enhancement, endoscopic assessment, and reconstruction-related complications. Results Twenty-one cases were included in this study (mean age 51.0 ± 20.6 years, 61.9% female). Indications for NSF ipsilateral to the transpterygoid approach included: bilateral transpterygoid approach (52.4%), revision reconstruction (23.8%), or significant septal deviation (19.0%). Twelve of 14 (85.7%) flaps demonstrated intraoperative perfusion with ICG, 15 of 15 (100%) enhanced on postoperative MRI, and 21 of 21 (100%) flaps had a healthy, viable appearance on postoperative endoscopy. There were no instances of flap necrosis or postoperative cerebrospinal fluid leaks. Technical keys to optimize mobilization of the pedicle include wide decompression of the sphenopalatine foramen and release of neurovascular tethering points of the pterygopalatine fossa. These steps allow for wide skull base exposure with preservation of the sphenopalatine artery. Conclusion With this technique, the transpterygoid approach can be performed in a manner that preserves the pedicle for an ipsilateral NSF and achieve an excellent reconstructive outcome.

Neurosurgery

Reese JC, **Zervos TM**, **Rock J**, **Tabbarah A**, **Noushmehr H**, **Herrgott G**, and **Castro AV**. A rare case of double pituitary prolactinomas: the diagnostic application of intraoperative ultrasonography and DNA methylation markers. *Arch Endocrinol Metab* 2024; 68(Spec Issue):e230506. PMID: 39876960. Full Text

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The aim of this study is to describe the management and evolution of a patient with the rare condition of double lactotroph tumors and assess the role of intraoperative ultrasonography (IOUS) for their detection and methylation-based liquid biopsy for their diagnosis and monitoring. A 29-year-old woman diagnosed with double lactotroph tumors through hormonal and MRI workup underwent surgical resection due to cabergoline intolerance. To detect a tumor missing through visual inspection, IOUS was performed. Pituitary tumor (PT) and nontumor (NT) tissues and blood were collected for pathological and molecular assessments (genome-wide methylation level profiled using the EPIC array, at surgery and follow-up). Reference methylome data were obtained from publicly available repositories. Both tumors (T1 and T2) were detected via IOUS and confirmed as lactotroph tumors through immunohistochemistry. In tissue specimens, PT-specific markers distinguished T1 from NT tissue, while T2, primarily nontumor cells, clustered with NT specimens. In liquid biopsies, these markers differentiated between T and NT cohorts. During the 12-month follow-up, methylation profiling and prolactin blood assessments showed that methylation markers clustered with NT specimens, which coincided with prolactinemia normalization, indicating successful tumor control after surgery. This case illustrates the translational use of methylation-based liquid biopsy methodologies in detecting and monitoring PTs through the detection of tumor-specific markers in blood specimens. This approach can be useful to distinguish sellar masses mimicking PTs based on nonspecific imaging features and to monitor for early recurrence of PTs, particularly nonfunctioning PTs lacking specific biochemical markers. This case also illustrated the role of IOUS in identifying multiple PTs missed by visual inspection alone, leading to improved patient outcomes through complete tumor resection.

Neurosurgery

Scarpace L, Archer N, Belusic M, Buonanno I, Eng N, Estevez A, Garcia J, and Schaber A. Enhancing the Use of 5-Aminolevulinic Acid in Fluorescence-guided Surgery for High-grade Glioma: An Expert Nurse Practitioner Opinion-based Approach. *J Perianesth Nurs* 2025; Epub ahead of print. PMID: 39808090. Full Text

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PURPOSE: This report details the recommendations of a Nursing Best Practice Working Group, which aims to advance best practice in the use of 5-aminolevulinic acid (5-ALA) fluorescence-guided surgery (FGS) in patients with high-grade glioma (HGG). DESIGN: Quality Improvement Project. METHODS: These recommendations were gathered during a meeting of a Nursing Best Practice Working Group comprising expert nurses and practice administrators from five US centers of excellence in the management of HGG. Ahead of the meeting, a survey was taken to evaluate the views of each expert and surgical teams, patients and institutions on current benefits, challenges and practices associated with the use of 5-ALA FGS in HGG. The Nursing Best Practice Working Group then met to share their

experiences, explore where consensus exists, and identify opportunities for enhanced patient management. FINDINGS: The advisors made recommendations to support improvements across a range of areas associated with multidisciplinary team delivery of 5-ALA FGS. These included specific issues surrounding the administration of 5-ALA, photosensitivity and low-light precautions, and key aspects relating to protocol development, content features, format and accessibility, and updates and education of both the multidisciplinary team and patients. Guidance was also gathered on a flowchart to support the practical delivery of patient care and detail roles, responsibilities, and timings. CONCLUSIONS: This guidance provides direction for the development of practical, evidence-based protocols and educational approaches for multidisciplinary teams and patients. Such approaches can improve best practice in 5-ALA FGS in all institutes, irrespective of size, and when developed collaboratively provide the means to share best practice across institutes and reach consensus on patient care.

Neurosurgery

Walbert T, Avila EK, Boele FW, Hertler C, Lu-Emerson C, van der Meer PB, Peters KB, Rooney AG, Templer JW, and Koekkoek JAF. Symptom management in isocitrate dehydrogenase mutant glioma. *Neurooncol Pract* 2025; 12(Suppl 1):i38-i48. PMID: 39776527. Full Text

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According to the 2021 World Health Organization classification of CNS tumors, gliomas harboring a mutation in isocitrate dehydrogenase (mIDH) are considered a distinct disease entity, typically presenting in adult patients before the age of 50 years. Given their multiyear survival, patients with mIDH glioma are affected by tumor and treatment-related symptoms that can have a large impact on the daily life of both patients and their caregivers for an extended period of time. Selective oral inhibitors of mIDH enzymes have recently joined existing anticancer treatments, including resection, radiotherapy, and chemotherapy, as an additional targeted treatment modality. With new treatments that improve progression-free and possibly overall survival, preventing and addressing daily symptoms becomes even more clinically relevant. In this review we discuss the management of the most prevalent symptoms, including tumor-related epilepsy, cognitive dysfunction, mood disorders, and fatigue, in patients with mIDH glioma, and issues regarding patient's health-related quality of life and caregiver needs in the era of mIDH inhibitors. We provide recommendations for practicing healthcare professionals caring for patients who are eligible for treatment with mIDH inhibitors.

Nursing

Santarossa S, **Blake RA**, **Buchanan H**, **Price M**, **Guzzardo R**, **Guzzardo C**, **Johnson LM**, **Morshall JM**, **Bate A**, **Bate W**, **Bakari R**, **Copeland L**, **Murphy D**, **Redding A**, and **Loree A**. Beyond the Status of Health: A Collection of Stories Representing Diverse Maternal Mental Health Perspectives. *J Patient Cent Res Rev* 2025; 12(1):35-49. PMID: 39906610. Full Text

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Obstetrics, Gynecology and Women's Health Services
Ponton-Almodovar A, Sanderson S, **Rattan R**, Bernard JJ, and Horibata S. Ovarian tumor microenvironment contributes to tumor progression and chemoresistance. *Cancer Drug Resist* 2024; 7:53. PMID: 39802952. Full Text

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Ovarian cancer is one of the deadliest gynecologic cancers affecting the female reproductive tract. This is largely attributed to frequent recurrence and development of resistance to the platinum-based drugs cisplatin and carboplatin. One of the major contributing factors to increased cancer progression and resistance to chemotherapy is the tumor microenvironment (TME). Extracellular signaling from cells within the microenvironment heavily influences progression and drug resistance in ovarian cancer. This is frequently done through metabolic reprogramming, the process where cancer cells switch between biochemical pathways to increase their chances of survival and proliferation. Here, we focus on how crosstalk between components of the TME and the tumor promotes resistance to platinum-based chemotherapy. We highlight the role of cancer-associated fibroblasts, immune cells, adipocytes, and endothelial cells in ovarian tumor progression, invasion, metastasis, and chemoresistance. We also highlight recent advancements in targeting components of the TME as a novel therapeutic avenue to combat chemoresistance in ovarian cancer.

Obstetrics, Gynecology and Women's Health Services
Zahoor I, **Nematullah M**, **Ahmed ME**, **Fatma M**, **Sajad M**, **Ayasolla K**, **Cerghet M**, **Palaniyandi S**, Ceci V, Carrera G, Buttari F, Centonze D, Mao-Draayer Y, **Rattan R**, Chiurchiù V, and **Giri S**. Maresin-1 promotes neuroprotection and modulates metabolic and inflammatory responses in disease-associated cell types in preclinical models of Multiple Sclerosis. *J Biol Chem* 2025; 108226. Epub ahead of print. PMID: 39864620. Full Text

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Multiple sclerosis (MS) is a prevalent inflammatory neurodegenerative disease in young people, causing neurological abnormalities and impairment. To investigate a novel therapeutic agent for MS, we observed

the impact of maresin 1 (MaR1) on disease progression in a well-known, relapsing-remitting experimental autoimmune encephalomyelitis (RR-EAE) mouse model. Treatment with MaR1 accelerated inflammation resolution, reduced neurological impairment, and delayed disease development by reducing immune cell infiltration (CD4+IL-17+ and CD4+IFNγ+) into the central nervous system (CNS). Furthermore, MaR1 administration enhanced IL-10 production, primarily in macrophages and CD4+ cells. However, neutralizing IL-10 with an anti-IL-10 antibody eliminated the protective impact by MaR1 in RR-EAE model, implying the significance of IL-10 in MaR1 treatment. Metabolism has been recognized as a critical mediator of effector activity in many types of immune cells. In our investigation, MaR1 administration significantly repaired metabolic dysregulation in CD4+ cells, macrophages, and microglia in EAE mice. Furthermore, MaR1 treatment restored defective efferocytosis in treated macrophages and microglia. MaR1 also preserved myelin in EAE mice and regulated O4+ oligodendrocyte metabolism by reversing metabolic dysregulation via increased mitochondrial activity and decreased glycolysis. Overall, in a preclinical MS animal model, MaR1 therapy has anti-inflammatory and neuroprotective properties. It also induced metabolic reprogramming in disease-associated cell types, increased efferocytosis, and maintained myelination. Moreover, our data on patient-derived PBMCs substantiated the protective role of MaR1, expanding the therapeutic spectrum of SPMs. Altogether, these findings suggest the potential of MaR1 as a novel therapeutic agent for MS and other autoimmune diseases.

Ophthalmology and Eye Care Services

AlShawabkeh M, Al Sakka Amini R, **Alni'mat A**, and Al Bdour MD. Unilateral Corneal Ectasia After Bilateral Transepithelial Photorefractive Keratectomy. *Cureus* 2024; 16(12):e76189. PMID: 39840211. Full Text

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We present the case of a 23-year-old male who experienced vision loss in his left eye 15 months after undergoing bilateral transepithelial photorefractive keratectomy (T-PRK). Despite the absence of any significant preoperative topographical risk factors in either eye, corneal ectasia was later confirmed in the left eye, while the right eye remained normal. Subtle asymmetry in topometric indices and a borderline high Index of vertical asymmetry (IVA) reading suggested the possibility of early subclinical keratoconus, potentially increasing the risk of post-refractive ectasia. The patient received corneal cross-linking (CXL) treatment in the affected eye to halt further progression, while the right eye remained under observation. This report reviews the rare instances of post-refractive ectasia. It highlights the potential role of subtle corneal irregularities in predisposing to ectasia, even without traditional risk factors.

Orthopedics/Bone and Joint Center

George G, **Abbas MJ**, **Castle JP**, **Gaudiani MA**, **Gasparro M**, **Akioyamen NO**, **Corsi M**, **Pratt B**, **Muh SJ**, and **Lynch TS**. Patients With Shoulder Labral Tears Search the Internet to Understand Their Diagnoses and Treatment Options. *Arthrosc Sports Med Rehabil* 2024; 6(6):100983. PMID: 39776505. Full Text

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PURPOSE: To analyze the most frequently searched questions associated with shoulder labral pathology and to evaluate the source-type availability and quality. METHODS: Common shoulder labral pathology-related search terms were entered into Google, and the suggested frequently asked questions were compiled and categorized. In addition, suggested sources were recorded, categorized, and scored for quality of information using JAMA (The Journal of the American Medical Association) benchmark criteria. Statistical analysis was performed to compare the types of questions and their associated sources, as well as the quality of sources. RESULTS: In this study, 513 questions and 170 sources were identified and categorized. The most popular topics were diagnosis/evaluation (21.5%) and indications/management (21.1%.). The most common website types were academic (27.9%), commercial (25.2%), and medical practice (22.5%). Multiple statistically significant associations were found between

specific question categories and their associated source types. The average JAMA quality score for all sources was 1.56, and medical websites had significantly lower quality scores than nonmedical sites (1.05 vs 2.12, P < .001). CONCLUSIONS: Patients searching the internet for information regarding shoulder labral pathology often look for facts regarding the diagnosis and management of their conditions. They use various source types to better understand their conditions, with government sources being of the highest quality, whereas medical sites showed statistically lower quality. Across the spectrum of questions, the quality of readily available resources varies substantially. CLINICAL RELEVANCE: The use of online resources in health care is expanding. It is important to understand the most commonly asked questions and the quality of information available to patients.

Orthopedics/Bone and Joint Center
Lizzio VA. Editorial Commentary: Evaluation and Treatment of Mental Health Status Can Improve Surgical Patient Outcomes. *Arthroscopy* 2025; Epub ahead of print. PMID: 39894378. Full Text

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There has been a growing concern over the impact of mental health on patient outcomes in the field of orthopedic surgery. However, it is uniquely difficult to investigate the impact of depression on surgical outcomes for several reasons: 1) Patients who do not formally seek help for mental health issues often go undiagnosed. 2) Prospectively administered depression screening forms provide limited data. 3) Pain and limitation of function may be the cause - not effect - of mental health pathology. Recent literature for patients undergoing arthroscopic rotator cuff repair suggests an association between depression and increased utilization of healthcare resources. There is also evidence that patients with a recent acute depressive episode shortly before surgery are more likely to require more opioids, sedatives, and anti-depressants after surgery. Consideration of surgical patients' mental health status can result in timely intervention to improve outcomes.

Orthopedics/Bone and Joint Center
McConnell J, DeYoung JK, Pum JM, Wu M, Aggarwal N, and **Day CS**. The impact of virtual reality on patient experience during wide-awake surgery: a randomized controlled trial. *J Hand Surg Eur Vol* 2025; 17531934241313207. Epub ahead of print. PMID: 39852239. Full Text

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This study aimed to establish whether virtual reality can reduce patient anxiety and improve surgical satisfaction during wide-awake local anaesthetic no tourniquet hand procedures. Previously validated questionnaires were used to assess subjective anxiety and patient satisfaction. Objective anxiety was determined using patient blood pressure and heart rate measured four times during the procedure. The median difference in intra-operative minus pre-operative diastolic blood pressure was significantly lower in the virtual reality group compared with the control group ($p = 0.003$). There was a significant decrease in heart rate from pre-operative to post-operative within the virtual reality group ($p < 0.001$). No differences were observed in subjective anxiety or surgical satisfaction between the groups. Virtual reality can benefit wide-awake patients during hand procedures, particularly where patient preference exists.Level of evidence: Level I, Randomized Controlled Trial.

Orthopedics/Bone and Joint Center
Moffat A, Kim W, **Rahman T**, Podlewski K, **Silverton C**, and Argento A. Relaxation Behavior of Cerclage Cables and Its Effect on Bone Clamping Force. *Bioengineering (Basel)* 2024; 11(12). PMID: 39768107. Full Text

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Cerclage is an orthopedic surgical fixation technique using a cable wrapped, tensioned, and secured around a bone's circumference. It is important to minimize the loss in cable tension that often occurs due to stress relaxation. The purpose of this work was to study the effect of tensioning protocols on the long-term loss of tension due to stress relaxation. The native mechanical properties and relaxation behavior of the cables were determined using traditional mechanical testing machines and methods. Four step-wise cable tensioning protocols were then trialed to compare the cable tension losses. A testing apparatus was developed to simultaneously measure cable tension and the resulting clamping force on a real bone. A five-parameter linear viscoelastic model was used to fit relaxation data to estimate the long-term relaxation of the cables beyond the time of the experiment. The four cables were found to have similar mechanical and viscoelastic behaviors. A two-step cable-tightening protocol was found to significantly reduce cable tension loss when compared to a one-step protocol for all cables. The benefit of the two-step protocol was reinforced by the relaxation results of the cable wrapped and tightened around a pig femoral bone. These results indicate that one retightening step should be conducted during the surgical placement of a cerclage cable to reduce the loss of cable tension resulting from relaxation.

Orthopedics/Bone and Joint Center

Yadav RN, **Oravec DJ**, **Drost J**, **Flynn MJ**, **Divine GW**, **Rao SD**, and **Yeni YN**. Textural and geometric measures derived from digital tomosynthesis discriminate women with and without vertebral fracture. *Eur J Radiol* 2025; 183:111925. PMID: 39832416. Full Text

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Vertebral fractures are a common and debilitating consequence of osteoporosis. Bone mineral density (BMD), measured by dual energy x-ray absorptiometry (DXA), is the clinical standard for assessing overall bone quantity but falls short in accurately predicting vertebral fracture. Fracture risk prediction may be improved by incorporating metrics of microstructural organization from an appropriate imaging modality. Digital tomosynthesis (DTS)-derived textural and microstructural parameters have been previously correlated to vertebral bone strength in vitro, but the in vivo utility has not been explored. Therefore, the current study sought to establish the extent to which DTS-derived measurements of vertebral microstructure and size discriminate patients with and without vertebral fracture. In a cohort of 93 postmenopausal women with or without history of vertebral fracture, DTS-derived microstructural parameters and vertebral width were calculated for T12 and L1 vertebrae, as well as lumbar spine BMD and trabecular bone score (TBS) from DXA images. Fracture patients had lower BMD and TBS, while DTS-derived degree of anisotropy and vertebral width were higher, compared to nonfracture ($p < 0.02$ to $p < 0.003$) patients. The addition of DTS-derived parameters (fractal dimension, lacunarity, degree of anisotropy and vertebral width) improved discriminative capability for models of fracture status (AUC = 0.79) compared to BMD alone (AUC = 0.67). For twelve additional participants who were imaged twice, in vivo repeatability errors for DTS parameters were low (0.2 % - 7.3 %). The current results support the complementary use of DTS imaging for assessing bone quality and improving the accuracy of fracture risk assessment beyond that achievable by DXA alone.

Orthopedics/Bone and Joint Center

Zhong JC, Crutchfield CR, Lee NJ, Mueller J, Ahmad C, Trofa D, and **Lynch TS**. Bleeding disorders, longer operative time, and nongeneral anesthesia increase are associated with overnight admission after hip arthroscopy. *J Hip Preserv Surg* 2024:11. PMID: Not assigned. Full Text

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Overnight admission is a rare but major complication after hip arthroscopy (HA), and the paucity of data surrounding its causes limits patient education and quality of care. The purpose of this study was to identify risk factors for an unanticipated overnight admission after HA and assess for associated complications. This analysis queried the American College of Surgeons National Surgical Quality Improvement Program database using Current Procedural Terminology codes to identify hip arthroscopies from 2005 to 2017. Patient demographics, perioperative variables, and comorbidities were compared between ambulatory and nonambulatory patients [length of stay (LOS) >= 1] using bivariate analysis. Multivariate stepwise logistic regression then identified independent risk factors of adverse outcomes. Linear regression analyzed correlation of LOS with age, operative time, modified fragility index (mFI-5), and year of operation. A total of 2420 cases were included in this study with 400 (16.5%) overnight admissions. The mean subject age was 40 +/- 13.9 years old (58.1% female). Admitted patients generally had higher American Society of Anesthesiologists (ASA) scores and a higher mFI-5 index. Multivariate logistic regression showed that mFI-5 > 0, bleeding disorders, operative time >1.5 h, and nongeneral anesthesia were independent risk factors for prolonged hospital stay. Patients aged 31-40 years had decreased risk of LOS >= 1. Nonambulatory surgery was associated with significantly increased risk for any complication, readmission, wound complication, and venous thromboembolism. This analysis demonstrates that operations >1.5 h and increased medical comorbidities predispose patients to greater risk of being admitted to the hospital after HA. Surgeons should consider these data to optimize controllable factors and patient selection to reduce the risk of postoperative admission.

Otolaryngology – Head and Neck Surgery

Bennett E, Marino J, **Stach BA**, Ramachandran V, and Faulkner K. Clinical Feasibility of the Audible Contrast Threshold (ACT) Test. *Hearing Review* 2025; 32(1):22-25. PMID: Not assigned. Full Text

Otolaryngology – Head and Neck Surgery

Craig JR, **Mack C**, **Vidovich A**, **Wilson C**, Nguyen TV, and Kuan EC. Rhinorrhea Recurrence After Posterior Nasal Nerve Cryoablation: A Multicenter Cohort Study. *Laryngoscope* 2025; Epub ahead of print. PMID: 39764581. Full Text

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BACKGROUND: Posterior nasal nerve (PNN) cryoablation improves chronic rhinitis (CR) symptoms in 70-80% of cases, including clear thin rhinorrhea (CTR). This study's purpose was to determine time to and degree of CTR recurrence following cryoablation. METHODS: A multicenter retrospective cohort study was conducted on patients who underwent PNN cryoablation to treat CR-related CTR refractory to ipratropium bromide nasal spray (IBNS). Cryoablation was applied along middle meatal posterolateral walls. Demographic and clinical data were collected at clinic visits or by phone surveys. Patients were followed for either 12 months minimum, or until CTR recurrence. Primary outcome measures were time to and degree of CTR improvement and recurrence based on patient-reported runny nose scores (Likert scale, 0-5). Additionally, patients were asked whether their recurrent CTR was bothersome enough to require treatment, and their preference for subsequent treatments. RESULTS: Of 74 CR patients, mean age was 58 years, and 53% were female. Regarding CR subtypes, 74% were nonallergic, 22% mixed, and 4% allergic. Additionally, 78% were IBNS responders. Overall, 62 of 74 (84%) initially improved. Of 60 patients with adequate follow-up for recurrence (mean 31.6 months), 57 (95%) recurred to some degree at a mean 5 months post-treatment. Of those who recurred, 37 (65%) recurred completely to preoperative RNSs, and 11 (19%) achieved 20-25% RNS reduction. Almost 90% of those with recurrent CTR were bothered enough to desire further treatment. CONCLUSION: PNN cryoablation led to CTR improvement in 84% of CR patients, with nearly 90% of patients developing bothersome recurrent CTR by about 5 months post-treatment. LEVEL OF EVIDENCE: Level 4 Laryngoscope, 2025.

Otolaryngology – Head and Neck Surgery

Dagli CS, Tobo BB, Nair M, **Al-Antary N**, **Tam SH**, Osazuwa-Peters N, and **Adjei Boakye E**. Human Papillomavirus Vaccination in Adult Survivors of Childhood, Adolescent, and Young Adult Cancers: A Missed Opportunity. *Cureus* 2024; 16(12):e76177. PMID: 39840201. Full Text

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Introduction Studies assessing human papillomavirus (HPV) vaccination uptake in survivors of childhood, adolescent, and young adult (CAYA) cancers are sparse. We examined HPV vaccine uptake between survivors of CAYA cancer aged 18-35 and 18-35-year-old respondents without a cancer diagnosis in the United States. Methods We used the 2017-2018 National Health Interview Survey, a national, annual cross-sectional national dataset that monitors health-related information on the non-institutionalized civilian population in the United States. Outcome variables included: 1) self-reported initiation of the HPV vaccine, defined as having received ≥1 dose, and 2) self-reported completion of the HPV vaccine, defined as having received ≥3 doses. The exposure variable was cancer survivorship, dichotomized as CAYA cancer survivors (those diagnosed with cancer during childhood, adolescence, or young adulthood) versus non-cancer survivors (no cancer diagnosis). -Weighted multivariable logistic regression models estimated the association between cancer survivorship and HPV vaccine initiation and completion, adjusting for socioeconomic covariates and factors related to healthcare access. Results A total of 2677 respondents were included in the study, of which 177 (5.3%) were CAYA cancer survivors. Overall, 28.0% of the study cohort initiated and 17.1% completed the HPV vaccine series. When stratified by cancer survivorship, initiation of the HPV vaccine (27.1%) and completion of the vaccine series (20.3%) among CAYA cancer survivors were comparable to respondents without cancer diagnosis (initiation: 28.1%, completion: 16.9%). After we controlled for covariates, cancer survivorship had neither a significant association with initiation of HPV vaccine (aOR=1.12; 95% CI, 0.71-1.79; P=0.6242) nor completion of HPV vaccine (aOR=1.37; 95% CI, 0.84-2.22; P=0.2055). Conclusions There was low HPV vaccination initiation and completion among both cohorts. CAYA may benefit the most from HPV vaccination, given that they are at a higher risk of developing secondary HPV-related cancer.

Otolaryngology – Head and Neck Surgery

Diffley M, **Tang A**, **Sawar K**, **Al-Saghir T**, **Gonte M**, **Hall J**, **Tepper D**, **Darian V**, **Evangelista M**, and **Atisha D**. Comparative Postoperative Complications of Acellular Dermal Matrix and Mesh Use in Prepectoral and Subpectoral One-Stage Direct to Implant Reconstruction: A Retrospective Cohort Study. *Ann Plast Surg* 2025; Epub ahead of print. PMID: 39874556. Full Text

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BACKGROUND: One-stage direct-to-implant (DTI) breast reconstruction is increasingly popular with the use of prepectoral reconstruction leading to increased demand for structural scaffolds. It is vital to determine if differences in safety profiles exist among scaffolds. METHODS: We performed a retrospective cohort study of consecutive patients in our breast cancer center undergoing DTI reconstruction. Outcomes relating to postoperative infections, wound complications, and implant related complications were extracted. Outcomes were grouped into major, minor, and long-term complications. Univariate and multivariate analysis determined outcome differences and accounted for confounding variables. RESULTS: Two hundred forty-two patients (404 breasts) underwent DTI reconstruction. One hundred ninety-two breasts were reconstructed with FlexHD Pliable Preformed (PP; MTF Biologics, Edison, NJ), 122 with AlloDerm Ready To Use (RTU; Allergan Aesthetics, Irvine, CA), 22 with DermACELL (LifeNet Health, Virginia Beach, VA), 21 with Galaflex (Galatea Surgical, Lexington, MA), 22

with Meso BioMatrix (MTF Biologics), and 25 with autologous dermal flaps alone. Univariate analysis demonstrated statistically significant differences among scaffolds in the incidence of cellulitis treated with oral antibiotics, capsular contracture, explantation for capsular contracture, seroma requiring operative drainage, minor complications, and long-term complications. On multivariate regression, FlexHD PP had reduced rates of capsular contracture, explantation for capsular contracture, minor complications, and long-term complications compared to AlloDerm RTU. Reconstruction with Galaflex had increased rates of capsular contracture when compared to FlexHD PP. CONCLUSIONS: Certain structural scaffolds have differing safety profiles that should be considered when selecting, which product to use in DTI reconstruction.

Otolaryngology – Head and Neck Surgery

Donaldson LB, **Mason W**, and **Jones LR**. Evaluation and Management of the External Nasal Valve. *Otolaryngol Clin North Am* 2025; Epub ahead of print. PMID: 39755472. Full Text

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The external nasal valve is the anatomic structure formed by the caudal septum, alar rim, medial crura of the lower lateral cartilage, and nasal sill at the level of the nasal vestibule. Evaluation of external nasal valve dysfunction is dependent upon a thorough history and physical examination. Symptoms and quality of life impact are the main drivers for patients to seek out clinical evaluation. It is paramount that surgeons are familiar with available nonsurgical and surgical options for the management of external nasal valve dysfunction.

Otolaryngology – Head and Neck Surgery

Eide JG, **Pellizzari R**, Saibene AM, De Donato L, Bitner B, Wei K, Panara K, Kshirsagar R, Lee D, Douglas JE, Whitehead R, Filip P, Papagiannopoulos P, Tajudeen B, Kuan EC, Adappa ND, Palmer JN, and **Craig JR**. Craniofacial Pain Locations and Outcomes After Endoscopic Sinus Surgery for Unilateral Sphenoid Sinusitis: A Multi-Institutional Study. *Laryngoscope* 2025; Epub ahead of print. PMID: 39749758. Full Text

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INTRODUCTION: Unilateral sphenoid sinus opacification on computed tomography is caused by a variety of pathologies including inflammatory and infectious sinusitis, benign and malignant tumors, and encephaloceles. The purpose of this study was to report craniofacial pain locations and outcomes in inflammatory unilateral sphenoid sinusitis (USS) patients who underwent endoscopic sinus surgery (ESS). METHODS: A multi-institutional retrospective cohort study was conducted on all adult patients who had ESS for USS from 2015 to 2022. Patient demographics, presenting symptoms and nasal endoscopy findings, extent of surgical dissection, and craniofacial pain locations and outcomes were

recorded. Exclusion criteria included age <18 years, non-inflammatory etiology, immunodeficiency, invasive fungal sinusitis, lack of follow-up, lack of preoperative pain location, and neoplasia. Descriptive statistics were calculated. RESULTS: Of 57 patients with USS, 44 (77.2%) reported craniofacial pain at one or more locations. Retrobulbar (n = 19, 43.2%) was the most common pain location followed by frontal (n = 17, 38.6%) and occipital (n = 10, 22.7%). Surgical intervention resulted in pain resolution in 33/44 patients (75%), with a mean follow-up of 83.7 (±97.8) days. There were no significant associations between presenting symptoms, imaging findings, endoscopy, surgical extent, or final pathology and the presence or resolution of facial pain ($p > 0.05$). CONCLUSION: In USS patients, the most common craniofacial pain locations were retrobulbar, occipital, and frontal, with a minority being vertex. Based on short-term follow-up, ESS resolved the craniofacial pain in 75% of cases. There were no clinical variables that predicted the presence or resolution of craniofacial pain. LEVEL OF EVIDENCE: IV Laryngoscope, 2025.

Otolaryngology – Head and Neck Surgery

Henner DE, Drambarean B, Gerbeling TM, Kendrick JB, Kendrick WT, Koester-Wiedemann L, Nickolas TL, Rastogi A, Rauf AA, Dyson B, **Singer MC**, Desai P, Fox KM, Cheng S, and Goodman W. Practice patterns on the management of secondary hyperparathyroidism in the United States: Results from a modified Delphi panel. *PLoS One* 2025; 20(1):e0266281. PMID: 39888902. Full Text

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BACKGROUND: Secondary hyperparathyroidism (SHPT) is common in patients with chronic kidney disease (CKD). Many recommendations in the Kidney Disease Improving Global Outcomes (KDIGO) CKD-mineral and bone disorder guidelines are supported by modest evidence and predate the approval of newer agents. Therefore, an expert panel defined consensus SHPT practice patterns in the United States with real-world context from the nephrology community. METHODS: Ten US healthcare providers and one patient participated in a modified Delphi method comprising three phases. Consensus was determined via iterative responses to a questionnaire based on the 2009 and 2017 KDIGO guidelines and published literature on the identification, evaluation, monitoring, and interventional strategies for patients with SHPT. The threshold for consensus was 66% agreement. RESULTS: Panelists generally agreed with KDIGO recommendations, with some differences. Consensus was reached on 42/105 (40%), 95/105 (90.5%), and 105/105 (100%) questions after phases 1, 2, and 3, respectively. Panelists unanimously agreed that SHPT treatment is often started late. There was a preference for serum phosphate level <4.6 mg/dL, and consensus to maintain serum calcium levels <9.5 mg/dL. There was unanimous agreement for vitamin D analogues as first-line options in patients not on dialysis with severe, progressive SHPT and unanimous preference for intravenous calcimimetic, etelcalcetide, in appropriate in-center dialysis patients. Factors such as formularies, dialysis center protocols, and insurance were recognized to influence therapeutic strategies. CONCLUSIONS: Expert consensus was reached on SHPT management, further defining therapeutic strategies and medication use and emphasizing need for treatment early. Despite evidence-based treatment preferences supported by clinical experience, factors other than scientific evidence influence decision making, particularly with medications.

Otolaryngology – Head and Neck Surgery

Kshirsagar RS, **Eide JG**, Harris J, Abiri A, Beswick DM, Chang EH, Fung N, Hong M, Johnson BJ, Kohanski MA, Le CH, Lee JT, Nabavizadeh SA, Obermeyer IP, Pandrangi VC, Pinheiro-Neto CD, Smith TL, Snyderman CH, Suh JD, Wang EW, Wang MB, Choby G, Geltzeiler M, Lazor J, Mitchell TC, Kuan EC, Palmer JN, and Adappa ND. Outcomes of Immunotherapy Treatment in Sinonasal Mucosal Melanoma. *Am J Rhinol Allergy* 2025; 39(2):102-108. PMID: 39782303. Full Text

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BACKGROUND: Sinonasal mucosal melanoma has poor survival despite multimodality treatment. While the impact of immunotherapy (IT) on metastatic cutaneous melanoma is well-defined, there are relatively little data on sinonasal mucosal melanoma. OBJECTIVE: We sought to define immunotherapy outcomes in patients with sinonasal mucosal melanoma. METHODS: A retrospective cohort study evaluated patients treated with IT during their overall treatment strategy for SNMM. Patient demographics, treatment, and survival outcomes were recorded. RESULTS: 52 patients had IT treatment for SNMM from 2000 to 2022, with an average age of 69.1 ± 11.9 years. The most common treatment was surgery with radiation and IT (n = 26, 50%). Most regimens consisted of a combination of Nivolumab and Ipilimumab (n = 17, 32.7%) or pembrolizumab (n = 14, 26.9%). 44.2% of patients experienced reported complications. Overall survival at 1-, 2-, and 5 years was 86.9%, 74.1%, and 39.1%, respectively. CONCLUSION: Approximately half of patients will have a local response following immunotherapy, but it is rare to have improvement at metastatic locations. Further research within our group will assess optimal timing and markers that are predictive of response.

Otolaryngology – Head and Neck Surgery

Mwobobia J, White MC, Osazuwa-Peters OL, **Adjei Boakye E**, Abouelella DK, Barnes JM, Viet CT, Ramos K, Corbett C, and Osazuwa-Peters N. Depression, non-medical pain prescriptions, and suicidal behavior in cancer survivors. *J Cancer Surviv* 2025; Epub ahead of print. PMID: 39821751. Full Text

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PURPOSE: A cancer diagnosis results in significant distress and adverse psychosocial sequelae, including suicide, the 10th leading cause of death in the USA. Primary risks for death by suicide include depression and opioid abuse, which are prevalent among cancer survivors. Yet, it remains unclear whether they are also associated with other suicidal outcomes, such as ideation, planning, and suicidal attempt. METHODS: We used cross-sectional data from the National Survey on Drug Use and Health (2015-2019, N = 214,271), a nationwide study in the USA that provides data on mental health and other health concerns. Outcome of interest was suicidality (suicidal ideation, planning, and attempt). Main exposures were history of depression and non-medical use of pain prescriptions. Using weighted logistic regression analyses adjusted for sociodemographic factors and substance use, we estimated odds of suicidal ideation, planning, and attempt. RESULTS: There were 7635 cancer survivors in our study, which was our analytic sample. We found an associations between a history of cancer and suicidal ideation (aOR = 1.32, 95% CI 1.10, 1.58). Among cancer survivors, depression and non-medical use of pain prescriptions were consistently associated with suicidal ideation (aOR(depression) = 7.37, 95% CI 4.52, 12.03; aOR(pain prescriptions) = 3.36, 95% CI 1.27, 8.91, planning (aOR(depression) = 10.31, 95% CI 5.79, 18.34; and aOR(pain prescriptions) = 3.77, 95% CI 1.20, 11.85), and attempt (aOR(depression) = 4.29, 95% CI 1.41, 13.06). CONCLUSION: Both depression and non-medical pain prescriptions are independently associated with increased odds of suicidal behavior among cancer survivors. Routinely assessing for depression and history of non-medical use of pain prescriptions could be an important suicide prevention strategy in oncology. IMPLICATIONS FOR CANCER SURVIVORS: Given the increased risk of suicide mortality among cancer survivors, it is critical that risk factors for suicidal behavior, such as depression and use of non-medical pain prescriptions, are routinely screened for as part of cancer care.

Pathology and Laboratory Medicine

Reese JC, **Zervos TM**, **Rock J**, **Tabbarah A**, **Noushmehr H**, **Herrgott G**, and **Castro AV**. A rare case of double pituitary prolactinomas: the diagnostic application of intraoperative ultrasonography and DNA methylation markers. *Arch Endocrinol Metab* 2024; 68(Spec Issue):e230506. PMID: 39876960. Full Text

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The aim of this study is to describe the management and evolution of a patient with the rare condition of double lactotroph tumors and assess the role of intraoperative ultrasonography (IOUS) for their detection and methylation-based liquid biopsy for their diagnosis and monitoring. A 29-year-old woman diagnosed with double lactotroph tumors through hormonal and MRI workup underwent surgical resection due to cabergoline intolerance. To detect a tumor missing through visual inspection, IOUS was performed. Pituitary tumor (PT) and nontumor (NT) tissues and blood were collected for pathological and molecular

assessments (genome-wide methylation level profiled using the EPIC array, at surgery and follow-up). Reference methylome data were obtained from publicly available repositories. Both tumors (T1 and T2) were detected via IOUS and confirmed as lactotroph tumors through immunohistochemistry. In tissue specimens, PT-specific markers distinguished T1 from NT tissue, while T2, primarily nontumor cells, clustered with NT specimens. In liquid biopsies, these markers differentiated between T and NT cohorts. During the 12-month follow-up, methylation profiling and prolactin blood assessments showed that methylation markers clustered with NT specimens, which coincided with prolactinemia normalization, indicating successful tumor control after surgery. This case illustrates the translational use of methylation-based liquid biopsy methodologies in detecting and monitoring PTs through the detection of tumor-specific markers in blood specimens. This approach can be useful to distinguish sellar masses mimicking PTs based on nonspecific imaging features and to monitor for early recurrence of PTs, particularly nonfunctioning PTs lacking specific biochemical markers. This case also illustrated the role of IOUS in identifying multiple PTs missed by visual inspection alone, leading to improved patient outcomes through complete tumor resection.

Pathology and Laboratory Medicine

Rohan TE, Wang Y, Couch F, Feigelson HS, Greenlee RT, Honda S, **Stark A**, **Chitale D**, Zhang C, Xue X, Ginsberg M, and Loudig O. Clinicopathologic characteristics of ductal carcinoma in situ and risk of subsequent invasive breast cancer: a multicenter, population-based cohort study. *Breast Cancer Res Treat* 2025; Epub ahead of print. PMID: 39832051. Full Text

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PURPOSE: To study the association between clinicopathologic characteristics of ductal carcinoma in situ (DCIS) and risk of subsequent invasive breast cancer (IBC). METHODS: We conducted a case-control study nested in a multicenter, population-based cohort of 8175 women aged ≥ 18 years with DCIS diagnosed between 1987 and 2016 and followed for a median duration of 83 months. Cases (n = 497) were women with a first diagnosis of DCIS who developed a subsequent IBC ≥ 6 months later; controls (2/case; n = 959) were matched to cases on age at and calendar year of DCIS diagnosis. Univariable and multivariable conditional logistic regression models were used to examine the associations between the DCIS characteristics of interest (non-screen detection of DCIS, tumor size, positive margins, grade of DCIS, necrosis, architectural pattern, microcalcification, and estrogen receptor (ER), progesterone receptor (PR), and human epidermal growth factor receptor 2 (HER2) status) and risk of IBC. RESULTS: In the total study population, the associations were largely null. In subgroup analyses, there were strong position associations with punctate necrosis (pre/perimenopausal women), detection by physical exam (postmenopausal women), architectural patterns other than the main types (breast-conserving surgery [BCS]), and DCIS margins (ipsilateral cases), and inverse associations with HER2 positivity (BCS) and microcalcification (mastectomy); however, the associated confidence intervals were mostly very wide. CONCLUSION: The results of this study provide limited support for associations of the DCIS clinicopathologic characteristics studied here and risk of IBC.

Pathology and Laboratory Medicine

Umar A, Leland A, Faquih AE, and **Ahsan BU**. Blastomycosis Awareness: A Crucial Reminder Amidst the Fifth Pneumonia Episode. *Cureus* 2024; 16(12):e75814. PMID: 39822404. Full Text

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Blastomycosis is a rare fungal infection endemic to North America and parts of Africa. It can be challenging to diagnose until it reaches a critical stage. We present a blastomycosis case in Alabama, emphasizing the importance of early recognition and management. A 67-year-old man had a month of worsening respiratory symptoms, which included malaise, cough, shortness of breath, and fever. Despite multiple urgent care visits and treatments with antibiotics and steroids, his condition continued to deteriorate. He was hospitalized with persistent fever and hypoxia. The imaging revealed patchy lung disease and multifocal consolidations, but initial cultures revealed no growth. He ultimately underwent bronchoscopy for budding yeast consistent with blastomycosis, along with influenza A. Treatment with amphotericin B was started, and there was a significant improvement. This case illustrates the need to consider the diagnosis of blastomycosis in a patient presenting with persistent respiratory symptoms unresponsive to conventional treatments.

Patient Engagement

Santarossa S, **Blake RA**, **Buchanan H**, **Price M**, **Guzzardo R**, **Guzzardo C**, **Johnson LM**, **Morshall JM**, **Bate A**, **Bate W**, **Bakari R**, **Copeland L**, **Murphy D**, **Redding A**, and **Loree A**. Beyond the Status of Health: A Collection of Stories Representing Diverse Maternal Mental Health Perspectives. *J Patient Cent Res Rev* 2025; 12(1):35-49. PMID: 39906610. Full Text

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Pharmacy

Arena CJ, **Veve MP**, **Fried ST**, **Ware F**, **Lee P**, and **Shallal AB**. Navigating performance measures for ambulatory antimicrobial stewardship: a review of HEDIS® and other metrics the steward should know. *Antimicrob Steward Healthc Epidemiol* 2024; 4(1):e217. PMID: 39758875. Full Text

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Ambulatory antimicrobial stewardship can be challenging due to disparities in resource allocation across the care continuum, competing priorities for ambulatory prescribers, ineffective communication strategies, and lack of incentive to prioritize antimicrobial stewardship program (ASP) initiatives. Efforts to monitor and compare outpatient antibiotic usage metrics have been implemented through quality measures (QM). Healthcare Effectiveness Data and Information Set (HEDIS®) represent standardized measures that examine the quality of antibiotic prescribing by region and across insurance health plans. Health systems with affiliated emergency departments and ambulatory clinics contribute patient data for HEDIS measure assessment and are directly related to value-based reimbursement, pay-for-performance, patient satisfaction measures, and payor incentives and rewards. There are four HEDIS® measures related to optimal antibiotic prescribing in upper respiratory tract diseases that ambulatory ASPs can leverage to

develop and measure effective interventions while maintaining buy-in from providers: avoidance of antibiotic treatment for acute bronchitis/bronchiolitis, appropriate treatment for upper respiratory infection, appropriate testing for pharyngitis, and antibiotic utilization for respiratory conditions. Additionally, there are other QM assessed by the Centers for Medicare and Medicaid Services (CMS), including overuse of antibiotics for adult sinusitis. Ambulatory ASPs with limited resources should leverage HEDIS® to implement and measure successful interventions due to their pay-for-performance nature. The purpose of this review is to outline the HEDIS® measures related to infectious diseases in ambulatory care settings. This review also examines the barriers and enablers in ambulatory ASPs which play a crucial role in promoting responsible antibiotic use and the efforts to optimize patient outcomes.

Pharmacy

Collins CD, Hartsfield E, Cleary RK, **Kenney RM**, **Veve MP**, and Brockhaus KK. Incidence of surgical infection in cefazolin 3 g versus 2 g for colorectal surgery in obese patients. *Infect Control Hosp Epidemiol* 2025; 1-5. Epub ahead of print. PMID: 39783140. Full Text

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OBJECTIVE: To compare the incidence of surgical site infection (SSI) between cefazolin 3 g and 2 g surgical prophylaxis in patients weighing ≥120 kg that undergo elective colorectal surgery. METHODS: A multicenter, retrospective cohort study was performed utilizing a validated database of elective colorectal surgeries in Michigan acute care hospitals. Adults weighing ≥120 kg who received cefazolin and metronidazole for surgical prophylaxis between 7/2012 and 6/2021 were included. The primary outcome was SSI, which was defined as an infection diagnosed within 30 days following the principal operative procedure. Multivariable logistic regression was used to identify variables associated with SSI; the exposure of interest was cefazolin 3 g surgical prophylaxis. RESULTS: A total of 581 patients were included; of these, 367 (63.1%) received cefazolin 3 g, while 214 (36.8%) received 2 g. Patients who received cefazolin 3 g had less optimal antibiotic timing (324 [88.3%] vs 200 [93.5%]; P = .043) and a higher receipt of at least 1 of the prophylaxis antibiotics after incision (22 [6%] vs 5 [2.3%]; P = .043). There was no SSI difference between cefazolin 3 g and 2 g cohorts (23 [6.3%] vs 16 [7.5%], P = .574). When accounting for age, smoking status, and surgical duration, cefazolin 3 g was not associated with a reduction in SSI (adjOR, .64; 95%CI, .32-1.29). CONCLUSIONS: Surgical prophylaxis with cefazolin 3 g, in combination with metronidazole, was not associated with decreased SSI compared to 2 g dosing in obese patients undergoing elective colorectal surgery.

Pharmacy

McGarrity MW, MacPherson P, Li A, **Naccarato M**, Anderson P, and Tan DHS. Intracellular tenofovir-diphosphate concentrations in HIV pre-exposure prophylaxis users who underwent bariatric surgery. *HIV Med* 2025; Epub ahead of print. PMID: 39812218. Full Text

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OBJECTIVE: To measure concentrations of tenofovir diphosphate (TFV-DP) in dried blood spots (DBS) among individuals taking tenofovir disoproxil fumarate plus emtricitabine (TDF/FTC) or tenofovir alafenamide plus emtricitabine (TAF/FTC) who were scheduled to undergo or had already undergone bariatric surgery. METHODS: We enrolled pre-exposure prophylaxis (PrEP) users attending clinics in

Toronto or Ottawa who were undergoing or had undergone bariatric surgery. After participants completed a minimum of 7 days of consecutive PrEP dosing, we collected DBS samples immediately before they administered their next daily dose of PrEP. Participants who had already undergone bariatric surgery before enrolment provided a single sample at baseline only. One participant undergoing planned bariatric surgery provided samples preoperatively and on postoperative days 7, 28 and 84. TFV-DP was measured by liquid chromatography tandem mass spectrometry. We compared results against the population range TFV-DP at varying degrees of adherence and stratified by chronology of bariatric surgery, type of bariatric surgery and PrEP regimen. RESULTS: Of seven eligible participants, all were gay, cis-gender men. Median age was 48 years (Q1-Q3: 44-51). Six participants underwent bariatric surgery before enrolment: four Roux-en-Y gastric bypass (RYGB) and two sleeve gastrectomy (SG). Four were taking TDF/FTC and two were taking TAF/FTC. All had therapeutic TFV-DP concentrations, except for one TDF/FTC participant who underwent SG. One participant taking TAF/FTC enrolled before receiving RYGB and displayed a slight decrease in TFV-DP over time, although all concentrations remained in the therapeutic range. CONCLUSIONS: Tenofovir diphosphate concentrations were at or near therapeutic values in this small sample of men using oral PrEP who underwent RYGB or SG.

Pharmacy

Nachar V, Adams Curry M, **Kostoff D**, Wood A, Farris KB, Muluneh B, Morris A, Keng M, Guerrier V, and Mackler ER. Development and Implementation of Oral Anticancer Agent Tools for a Thematic Quality Improvement Program: A Collaboration Between Hematology Oncology Pharmacist Association and ASCO Quality Training Program. *JCO Oncol Pract* 2025; 2400475. Epub ahead of print. PMID: 39847731. Full Text

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PURPOSE: The Hematology Oncology Pharmacist Association Oral Chemotherapy Collaborative (HOPA OCC) developed practice-based tools to use in program development and improvement for the management of patients receiving oral anticancer agents (OAAs). METHODS: These tools include a baseline OAA program assessment, clinical OAA adherence tool, and OAA dashboard. HOPA OCC distributed these tools to teams participating in the 6-month HOPA ASCO Quality Training Programs (QTPs). Barriers in the delivery of OAA services across practice sites were determined through the use of baseline assessments, and the following domains were evaluated: (1) side-effect monitoring, (2) adherence monitoring, (3) use of patient-reported outcomes, (4) social determinants of health, and (5) collaborative practice agreements for oncology pharmacists. The OAA adherence tool offers clinical patient adherence questions and guidance for supporting adherence in practice. Finally, the dashboard includes multiple metrics that may be helpful for practices to measure their program outcomes. HOPA OCC used the Consolidated Framework for Implementation Research to assess tool usefulness by the QTP participants. RESULTS: Barriers to implementation include deficits in information technology, resources, and competing priorities. CONCLUSION: Standardized OAA tools can inform and support quality improvement initiatives and improve the care of patients receiving OAAs.

Plastic Surgery

Diffley M, **Tang A**, **Sawar K**, **Al-Saghir T**, **Gonte M**, **Hall J**, **Tepper D**, **Darian V**, **Evangelista M**, and **Atisha D**. Comparative Postoperative Complications of Acellular Dermal Matrix and Mesh Use in Prepectoral and Subpectoral One-Stage Direct to Implant Reconstruction: A Retrospective Cohort Study. *Ann Plast Surg* 2025; Epub ahead of print. PMID: 39874556. Full Text

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BACKGROUND: One-stage direct-to-implant (DTI) breast reconstruction is increasingly popular with the use of prepectoral reconstruction leading to increased demand for structural scaffolds. It is vital to determine if differences in safety profiles exist among scaffolds. METHODS: We performed a retrospective cohort study of consecutive patients in our breast cancer center undergoing DTI reconstruction. Outcomes relating to postoperative infections, wound complications, and implant related complications were extracted. Outcomes were grouped into major, minor, and long-term complications. Univariate and multivariate analysis determined outcome differences and accounted for confounding variables. RESULTS: Two hundred forty-two patients (404 breasts) underwent DTI reconstruction. One hundred ninety-two breasts were reconstructed with FlexHD Pliable Preformed (PP; MTF Biologics, Edison, NJ), 122 with AlloDerm Ready To Use (RTU; Allergan Aesthetics, Irvine, CA), 22 with DermACELL (LifeNet Health, Virginia Beach, VA), 21 with Galaflex (Galatea Surgical, Lexington, MA), 22 with Meso BioMatrix (MTF Biologics), and 25 with autologous dermal flaps alone. Univariate analysis demonstrated statistically significant differences among scaffolds in the incidence of cellulitis treated with oral antibiotics, capsular contracture, explantation for capsular contracture, seroma requiring operative drainage, minor complications, and long-term complications. On multivariate regression, FlexHD PP had reduced rates of capsular contracture, explantation for capsular contracture, minor complications, and long-term complications compared to AlloDerm RTU. Reconstruction with Galaflex had increased rates of capsular contracture when compared to FlexHD PP. CONCLUSIONS: Certain structural scaffolds have differing safety profiles that should be considered when selecting, which product to use in DTI reconstruction.

Plastic Surgery

Dimitrion PM, **Krevh R**, **Veenstra J**, **Ge J**, **Siddiqui A**, **Ferguson D**, **Hans A**, **Zuniga B**, **Sidhu K**, **Daveluy S**, **Hamzavi I**, **Zhou L**, **Adrianto I**, and **Mi QS**. High-throughput proteomics identifies inflammatory proteins associated with disease severity and genetic ancestry in patients with hidradenitis suppurativa. *Br J Dermatol* 2025; Epub ahead of print. PMID: 39778115. Full Text

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BACKGROUND: Hidradenitis Suppurativa (HS) is a chronic inflammatory skin condition with a greater prevalence and disease burden in patients who identify as African American and those with a family history of HS, suggesting a strong genetic component to its pathogenesis. OBJECTIVE: To evaluate the relationship between plasma inflammatory protein expression, HS disease severity, and genetic ancestry in a diverse cohort of patients with Hidradenitis Suppurativa. METHODS: We performed a case-control study of patients with HS compared to age-, sex-, and ethnicity-matched healthy controls. We profiled circulating inflammatory proteins using Olink High-throughput proteomics and determined genetic ancestry from whole-genome sequencing data. RESULTS: Using linear regression, we identified novel proteins associated with HS after adjusting for age, sex, and ethnicity. Our analysis also revealed differences in the inflammatory proteome linked to disease severity. Specifically, we found that plasma IL6 levels can distinguish between different Hurley stages, indicating that IL6 may serve as a marker of disease severity. Additionally, we observed variations in inflammatory protein levels based on genetic

ancestry: patients with predominantly African ancestry exhibited higher levels of inflammatory proteins associated with neutrophilic inflammation, while those with predominantly European ancestry showed increased levels of Th1-related inflammatory proteins. LIMITATIONS: Single-center study. Limited sample size. Unable to account for treatment status or comorbidities that may influence the level of inflammatory cytokines. CONCLUSION: Genetic ancestry and disease severity influence the plasma inflammatory profile in patients with HS.

Public Health Sciences

Boopathy D, Grahf D, **Ross J**, **Hawatian K**, **Rammal JA**, Alaimo K, and **Miller JB**. Thiamine Deficiency Is Common and Underrecognized in Emergency Department Oncology Patients. *J Clin Med* 2025; 14(1). PMID: 39797340. Full Text

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Background: Wernicke's encephalopathy can occur in oncology patients independent of alcohol use, likely resulting from poor dietary thiamine intake. High metabolic demands, such as those in acute illnesses seen in the emergency department (ED), can exacerbate thiamine deficiency. In this study, our objective was to assess the incidence of thiamine deficiency in ED oncology patients, which could lead to Wernicke's encephalopathy or other thiamine deficiency disorders if left untreated. Methods: This was a single-center prospective cohort study. We included patients with acute illness and a history of active cancer management in the ED of a large, urban hospital. We also included age and sex-matched control patients with no history of cancer who sought ED care. We excluded patients with a history of alcohol use or parenteral thiamine administration before enrollment. We recorded whole blood thiamine levels to measure total body thiamine stores and collected data on clinical variables, thiamine treatment, and adverse events. Results: In total, 87 oncology and 71 control patients were included in the study. The mean age was 62.1 ± 13.7 and 58.9 ± 12.6 years, respectively, and 48% of oncology vs. 55% of control participants were female. The most common cancers represented were colon (23%), lung (25%), prostate (10%), and breast (9%). Thiamine deficiency was significantly higher in ED oncology patients (25, 28.7%) compared to controls (6, 8.5%), odds ratio 4.4 (95% CI 1.7-11.4). None of the oncology patients with deficiency received thiamine treatment in the ED. Conclusions: Our findings suggest that thiamine deficiency is prevalent in acutely ill oncology patients, yet rarely treated in the ED.

Public Health Sciences

Chung JR, Price AM, Zimmerman RK, Moehling Geffel K, House SL, Curley T, Wernli KJ, Phillips CH, Martin ET, **Vaughn IA**, Murugan V, Scotch M, Saade EA, Faryar KA, Gaglani M, Ramm JD, Williams OL, Walter EB, Kirby M, Keong LM, Kondor R, Ellington SR, and Flannery B. Influenza vaccine effectiveness against medically attended outpatient illness, United States, 2023-24 season. *Clin Infect Dis* 2025; Epub ahead of print. PMID: 39761230. Full Text

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BACKGROUND: The 2023-24 U.S. influenza season was characterized by a predominance of A(H1N1)pdm09 virus circulation with co-circulation of A(H3N2) and B/Victoria viruses. We estimated vaccine effectiveness (VE) in the United States against mild-to-moderate medically attended influenza illness in the 2023-24 season. METHODS: We enrolled outpatients aged ≥8 months with acute respiratory illness in 7 states. Respiratory specimens were tested for influenza type/subtype by reverse-transcriptase polymerase chain reaction (RT-PCR). Influenza VE was estimated with a test-negative design comparing odds of testing positive for influenza among vaccinated versus unvaccinated participants. We estimated VE by virus sub-type/lineage and A(H1N1)pdm09 genetic subclades. RESULTS: Among 6,589 enrolled patients, 1,770 (27%) tested positive for influenza including 796 A(H1N1)pdm09, 563 B/Victoria, and 323 A(H3N2). Vaccine effectiveness against any influenza illness was 41% (95% Confidence Interval [CI]: 32 to 49): 28% (95% CI: 13 to 40) against influenza A(H1N1)pdm09, 68% (95% CI: 59 to 76) against B/Victoria, and 30% (95% CI: 9 to 47) against A(H3N2). Statistically significant protection against any influenza was found for all age groups except adults aged 50-64 years. Lack of protection in this age group was specific to influenza A-associated illness. We observed differences in VE by birth cohort and A(H1N1)pdm09 virus genetic subclade. CONCLUSIONS: Vaccination reduced outpatient medically attended influenza overall by 41% and provided protection overall against circulating influenza A and B viruses. Serologic studies would help inform differences observed by age groups.

Public Health Sciences

Cirulli GO, **Stephens A**, **Chiarelli G**, **Finati M**, **Bertini A**, **Chase M**, **Tinsley S**, **Arora S**, Sood A, Lughezzani G, Buffi N, Carrieri G, Salonia A, Briganti A, Montorsi F, **Rogers C**, and **Abdollah F**. Comparing PSA Screening Patterns and Their Role as Predictor of Prostate Cancer Diagnosis: Analysis of a Contemporary North American Cohort. *Prostate* 2025; e24856. Epub ahead of print. PMID: 39869547. Full Text

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INTRODUCTION: PSA screening remains a pivotal tool for early prostate cancer (PCa) detection. International guidelines rely on evidence from three major randomized clinical trials: ERSPC, PLCO, and CAP. We aim to examine the percentage of patients in real-world practice who get PSA screening as defined by each of the aforementioned trials. Moreover, we seek to evaluate if the different PSA screening patterns have a different impact on PCa incidence and its features at diagnosis. MATERIALS AND METHODS: Our institutional database was queried to identify men aged 55-69 who received at least one PSA test, did not develop PCa or die within 6 years of the initial test, had follow-up within our system at least 6 years after the initial test, and did not have a previous PCa diagnosis. A total of 28,612 patients met our selection criteria. We categorized patients into three distinct PSA screening patterns based on testing frequency (PLCO: 1 PSA test per year for 6 years; ERSPC: 2 or 3 PSA tests over 6 years; CAP: 1 PSA test over 6 years). Our primary outcomes were any PCa incidence and clinically significant PCa (csPCa, defined as ISUP ≥ 3) incidence. Secondary outcome was the rate of cM1 disease. Competing risks cumulative incidence curves were used to depict any PCa and csPCa diagnosis with death before a diagnosis considered a competing risk. Multivariable competing risks regression (CRR) was used to assess the impact of the different screening patterns on any PCa and csPCa incidence, after adjusting for confounding factors. RESULTS: The most prevalent PSA screening pattern was ERSPC, including 15,530 patients (54.3%), followed by the CAP with 9003 patients (31.5%), and the PLCO with only 4079 patients (14.2%). The median (IQR) follow-up time was 4.8 (1.7-10.8) years. At 10 years, any PCa incidence was 7.4% versus 5.6% versus 2.5% for PLCO versus ERSPC versus CAP, respectively, while

for csPCa, the rates were 2.5% versus 2.5% versus 1.2% (both p < 0.001). On multivariable analyses, PLCO and ERSPC patterns were associated with 2.92-fold and 2.31-fold higher risks from 1 year to the next of any PCa diagnosis, respectively, compared to CAP pattern (both p < 0.001). Similarly, patients with PLCO and ERSPC patterns had 2.07-fold and 2.31-fold higher risks, respectively, of csPCa diagnosis compared to CAP pattern (both p < 0.001). In men with PCa diagnosis, the rates of cM1 disease were respectively 1.7% vs 5.6% vs 10.8% for PLCO versus ERSPC versus CAP, respectively (p = 0.0009). CONCLUSION: We observed that the most common screening pattern in "real-world" clinical practice is close to what ERSPC recommend, and this pattern seems to achieve a reasonable reduction in the risk of advanced PCa, while limiting overdiagnosis.

Public Health Sciences

Craig JR, **Mack C**, **Vidovich A**, **Wilson C**, Nguyen TV, and Kuan EC. Rhinorrhea Recurrence After Posterior Nasal Nerve Cryoablation: A Multicenter Cohort Study. *Laryngoscope* 2025; Epub ahead of print. PMID: 39764581. Full Text

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BACKGROUND: Posterior nasal nerve (PNN) cryoablation improves chronic rhinitis (CR) symptoms in 70-80% of cases, including clear thin rhinorrhea (CTR). This study's purpose was to determine time to and degree of CTR recurrence following cryoablation. METHODS: A multicenter retrospective cohort study was conducted on patients who underwent PNN cryoablation to treat CR-related CTR refractory to ipratropium bromide nasal spray (IBNS). Cryoablation was applied along middle meatal posterolateral walls. Demographic and clinical data were collected at clinic visits or by phone surveys. Patients were followed for either 12 months minimum, or until CTR recurrence. Primary outcome measures were time to and degree of CTR improvement and recurrence based on patient-reported runny nose scores (Likert scale, 0-5). Additionally, patients were asked whether their recurrent CTR was bothersome enough to require treatment, and their preference for subsequent treatments. RESULTS: Of 74 CR patients, mean age was 58 years, and 53% were female. Regarding CR subtypes, 74% were nonallergic, 22% mixed, and 4% allergic. Additionally, 78% were IBNS responders. Overall, 62 of 74 (84%) initially improved. Of 60 patients with adequate follow-up for recurrence (mean 31.6 months), 57 (95%) recurred to some degree at a mean 5 months post-treatment. Of those who recurred, 37 (65%) recurred completely to preoperative RNSs, and 11 (19%) achieved 20-25% RNS reduction. Almost 90% of those with recurrent CTR were bothered enough to desire further treatment. CONCLUSION: PNN cryoablation led to CTR improvement in 84% of CR patients, with nearly 90% of patients developing bothersome recurrent CTR by about 5 months post-treatment. LEVEL OF EVIDENCE: Level 4 Laryngoscope, 2025.

Public Health Sciences

Dagli CS, Tobo BB, Nair M, **Al-Antary N**, **Tam SH**, Osazuwa-Peters N, and **Adjei Boakye E**. Human Papillomavirus Vaccination in Adult Survivors of Childhood, Adolescent, and Young Adult Cancers: A Missed Opportunity. *Cureus* 2024; 16(12):e76177. PMID: 39840201. Full Text

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Introduction Studies assessing human papillomavirus (HPV) vaccination uptake in survivors of childhood, adolescent, and young adult (CAYA) cancers are sparse. We examined HPV vaccine uptake between survivors of CAYA cancer aged 18-35 and 18-35-year-old respondents without a cancer diagnosis in the United States. Methods We used the 2017-2018 National Health Interview Survey, a national, annual cross-sectional national dataset that monitors health-related information on the non-institutionalized

civilian population in the United States. Outcome variables included: 1) self-reported initiation of the HPV vaccine, defined as having received ≥1 dose, and 2) self-reported completion of the HPV vaccine, defined as having received ≥3 doses. The exposure variable was cancer survivorship, dichotomized as CAYA cancer survivors (those diagnosed with cancer during childhood, adolescence, or young adulthood) versus non-cancer survivors (no cancer diagnosis). -Weighted multivariable logistic regression models estimated the association between cancer survivorship and HPV vaccine initiation and completion, adjusting for socioeconomic covariates and factors related to healthcare access. Results A total of 2677 respondents were included in the study, of which 177 (5.3%) were CAYA cancer survivors. Overall, 28.0% of the study cohort initiated and 17.1% completed the HPV vaccine series. When stratified by cancer survivorship, initiation of the HPV vaccine (27.1%) and completion of the vaccine series (20.3%) among CAYA cancer survivors were comparable to respondents without cancer diagnosis (initiation: 28.1%, completion: 16.9%). After we controlled for covariates, cancer survivorship had neither a significant association with initiation of HPV vaccine (aOR=1.12; 95% CI, 0.71-1.79; P=0.6242) nor completion of HPV vaccine (aOR=1.37; 95% CI, 0.84-2.22; P=0.2055). Conclusions There was low HPV vaccination initiation and completion among both cohorts. CAYA may benefit the most from HPV vaccination, given that they are at a higher risk of developing secondary HPV-related cancer.

Public Health Sciences

Diffley M, **Tang A**, **Sawar K**, **Al-Saghir T**, **Gonte M**, **Hall J**, **Tepper D**, **Darian V**, **Evangelista M**, and **Atisha D**. Comparative Postoperative Complications of Acellular Dermal Matrix and Mesh Use in Prepectoral and Subpectoral One-Stage Direct to Implant Reconstruction: A Retrospective Cohort Study. *Ann Plast Surg* 2025; Epub ahead of print. PMID: 39874556. Full Text

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BACKGROUND: One-stage direct-to-implant (DTI) breast reconstruction is increasingly popular with the use of prepectoral reconstruction leading to increased demand for structural scaffolds. It is vital to determine if differences in safety profiles exist among scaffolds. METHODS: We performed a retrospective cohort study of consecutive patients in our breast cancer center undergoing DTI reconstruction. Outcomes relating to postoperative infections, wound complications, and implant related complications were extracted. Outcomes were grouped into major, minor, and long-term complications. Univariate and multivariate analysis determined outcome differences and accounted for confounding variables. RESULTS: Two hundred forty-two patients (404 breasts) underwent DTI reconstruction. One hundred ninety-two breasts were reconstructed with FlexHD Pliable Preformed (PP; MTF Biologics, Edison, NJ), 122 with AlloDerm Ready To Use (RTU; Allergan Aesthetics, Irvine, CA), 22 with DermACELL (LifeNet Health, Virginia Beach, VA), 21 with Galaflex (Galatea Surgical, Lexington, MA), 22 with Meso BioMatrix (MTF Biologics), and 25 with autologous dermal flaps alone. Univariate analysis demonstrated statistically significant differences among scaffolds in the incidence of cellulitis treated with oral antibiotics, capsular contracture, explantation for capsular contracture, seroma requiring operative drainage, minor complications, and long-term complications. On multivariate regression, FlexHD PP had reduced rates of capsular contracture, explantation for capsular contracture, minor complications, and long-term complications compared to AlloDerm RTU. Reconstruction with Galaflex had increased rates of capsular contracture when compared to FlexHD PP. CONCLUSIONS: Certain structural scaffolds have differing safety profiles that should be considered when selecting, which product to use in DTI reconstruction.

Public Health Sciences

Dimitrion PM, **Krevh R**, **Veenstra J**, **Ge J**, **Siddiqui A**, **Ferguson D**, **Hans A**, **Zuniga B**, **Sidhu K**, **Daveluy S**, **Hamzavi I**, **Zhou L**, **Adrianto I**, and **Mi QS**. High-throughput proteomics identifies inflammatory proteins associated with disease severity and genetic ancestry in patients with hidradenitis suppurativa. *Br J Dermatol* 2025; Epub ahead of print. PMID: 39778115. Full Text

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BACKGROUND: Hidradenitis Suppurativa (HS) is a chronic inflammatory skin condition with a greater prevalence and disease burden in patients who identify as African American and those with a family history of HS, suggesting a strong genetic component to its pathogenesis. OBJECTIVE: To evaluate the relationship between plasma inflammatory protein expression, HS disease severity, and genetic ancestry in a diverse cohort of patients with Hidradenitis Suppurativa. METHODS: We performed a case-control study of patients with HS compared to age-, sex-, and ethnicity-matched healthy controls. We profiled circulating inflammatory proteins using Olink High-throughput proteomics and determined genetic ancestry from whole-genome sequencing data. RESULTS: Using linear regression, we identified novel proteins associated with HS after adjusting for age, sex, and ethnicity. Our analysis also revealed differences in the inflammatory proteome linked to disease severity. Specifically, we found that plasma IL6 levels can distinguish between different Hurley stages, indicating that IL6 may serve as a marker of disease severity. Additionally, we observed variations in inflammatory protein levels based on genetic ancestry: patients with predominantly African ancestry exhibited higher levels of inflammatory proteins associated with neutrophilic inflammation, while those with predominantly European ancestry showed increased levels of Th1-related inflammatory proteins. LIMITATIONS: Single-center study. Limited sample size. Unable to account for treatment status or comorbidities that may influence the level of inflammatory cytokines. CONCLUSION: Genetic ancestry and disease severity influence the plasma inflammatory profile in patients with HS.

Public Health Sciences

Eapen AA, **Ma T**, **Sitarik AR**, **Meng Z**, Ownby DR, **Cassidy-Bushrow AE**, **Wegeinka G**, **Zoratti EM**, **Lynch SV**, **Johnson CC**, and **Levin AM**. The relationship between the early-life gastrointestinal microbiome and childhood nocturnal cough. *J Allergy Clin Immunol* 2025; Epub ahead of print. PMID: 39814146. Full Text

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BACKGROUND: Nocturnal cough affects approximately 1 in 3 children, can negatively affect child health, and is often attributable to asthma. The association of the gut microbiome with nocturnal cough has not been investigated. OBJECTIVE: We investigated the association between early-life gut microbiome composition and nocturnal cough overall and in the context of asthma. METHODS: Gut microbiota 1-month (neonate) and 6-month (infant) specimens from 512 children in the Wayne County, Health, Environment, Allergy, and Asthma Longitudinal Study were profiled using 16S ribosomal RNA V4 sequencing. Nocturnal cough (parental report) and asthma (parent-reported doctor's diagnosis) were assessed at age 4 years. Microbiome regression-based kernel association tests (MiRKAT) were used to assess the relationship between gut microbiota composition and nocturnal cough overall and in the context of asthma. Operational taxonomic unit (OTU) associations were conducted using negative binomial regression, adjusting for multiple comparisons using the false discovery rate. RESULTS: Stool microbial composition differences during infancy were associated with nocturnal cough (weighted UniFrac $P = .045$); 78 OTUs were significantly associated with nocturnal cough overall (false discovery rate < 0.05); and 110 OTUs were significantly associated with nocturnal cough and differed by asthma status (interaction false discovery rate < 0.05), with a predominance of Lachnospiraceae genera Blautia and Dorea. Thirty-two OTU were identified as having both overall effects and differences by asthma status. Among OTUs with significant nocturnal cough-by-asthma interactions, 84 retained significance in children with asthma, with 45 exclusive to those with asthma (predominance of Bacteroidaceae genus Bacteroides and Lachnospiraceae genus Dorea). CONCLUSION: Infantile gut microbiome development is associated with nocturnal cough and differed by asthma status by age 4 years. Further studies are needed to determine if the gut microbiome may provide additional information for the early identification of children at risk for nocturnal cough, with and without asthma.

Public Health Sciences

Haley E, **Coyne P**, **Carlin A**, **Santarossa S**, **Loree A**, **Braciszewski J**, **Brescacin C**, and **Matero L**. Characteristics and Clinical Outcomes of Women with Polycystic Ovary Syndrome After Bariatric Surgery. *Obes Surg* 2025; Epub ahead of print. PMID: 39821895. Full Text

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BACKGROUND: Polycystic ovary syndrome (PCOS) commonly co-occurs with obesity, medical comorbidities, and psychiatric symptoms. Bariatric surgery is an effective treatment for co-occurring obesity and PCOS. While the incidence of PCOS declines substantially after bariatric surgery, the condition is still present for a subset of women. Examining characteristics and clinical outcomes of those with and without PCOS post-surgery may underscore potential risk factors or intervention targets. METHODS: Individuals up to four years after bariatric surgery were invited to participate in this cross-sectional survey study, which included validated measures of depression, anxiety, eating disorder pathology, and quality of life. Post-surgical weight outcomes, medical comorbidities, and mental health treatment engagement were also assessed. Regression analyses were performed to examine differences

in outcomes between those with and without a PCOS diagnosis after bariatric surgery. RESULTS: Of the 657 female (sex assigned at birth) participants who underwent bariatric surgery, 7% (n = 46) reported having a current diagnosis of PCOS. All females identified as women. Women with PCOS were significantly younger ($p < 0.001$) and were more likely to endorse migraines ($p < 0.007$) and loss of control (LOC) eating episodes (< 0.001) since undergoing surgery. Additionally, 47.8% of women with PCOS endorsed clinically significant anxiety, compared to 25.7% of women without PCOS ($p = 0.03$). There were no differences in other demographic, psychiatric, or medical characteristics. CONCLUSION: Despite the low prevalence of PCOS diagnoses in the four years after bariatric surgery, this subpopulation may be particularly susceptible to migraines, disinhibited eating behavior, and anxiety, although weight and cardiometabolic outcomes were comparable to those without a diagnosis of PCOS post-surgically.

Public Health Sciences

Hidalgo Hernandez Y, and **Tatem G**. Virtual versus In-Person: What Applicants Really Want in the Interview Process. *ATS Sch* 2024; 5(4):482-485. PMID: 39822217. Full Text

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Public Health Sciences

Kelly NR, Kosty D, Bodovski Y, Blackwell CK, Ganiban JM, Neiderhiser JM, Dabelea D, Gilbert-Diamond D, Aschner JL, Bastain TM, Breton CV, Bush NR, Calub CA, Camargo CA, Camerota M, Croen LA, Elliott AJ, Enlow MB, Ferrara A, Hartert T, Joseph RM, Karagas MR, Kelly RS, Lyall K, Magee KE, McEvoy CT, Merced-Nieves FM, O'Connor TG, **Santarossa S**, Schantz SL, Schmidt RJ, Stanford JB, **Straughen JK**, Stroustrup A, Talge NM, Wright RJ, Zhao Q, and Leve LD. Children's executive functioning and health behaviors across pediatric life stages and ecological contexts. *J Behav Med* 2025; Epub ahead of print. PMID: 39786706. Full Text

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Executive functioning (EF) has been linked to chronic disease risk in children. Health behaviors are thought to partially explain this association. The current cross-sectional study evaluated specific domains of EF and varied health behaviors in three pediatric life stages. Pediatric participants (early childhood n = 2074, M(age) = 6.4 ± 0.9 y; middle childhood n = 3230, M(age) = 9.6 ± 1.2 y; adolescence n = 1416, M(age) = 15.2 ± 1.7 y) were part of the Environmental influences on Child Health Outcomes (ECHO) Program. They completed neurocognitive tasks measuring cognitive flexibility, behavioral inhibition, and working memory. Parent- and/or child-report measures of dietary intake, physical activity, sleep duration and quality, income, and positive parenting were also collected. Neighborhood crime and greenspace were calculated from publicly available census-tract level indices. After adjusting for study site, child body mass index, and demographics, working memory was related in the hypothesized direction to several dietary behaviors within all pediatric life stages. Working memory and cognitive flexibility were positively related to physical activity in middle childhood and adolescence. In adolescence, behavioral inhibition was positively related to physical activity and inversely related to sugar-sweetened beverage and total caloric intake. Associations with sleep were all non-significant. All significant associations reflected small effect sizes. Income, positive parenting, greenspace, and crime did not significantly influence any of the EF-health behavior associations. Findings highlight the need to consider EF domains, specific health behaviors, and developmental stage in creating intervention strategies that target EF to improve health behaviors. The small effect sizes reinforce the need for multi-tiered interventions to maximize health.

Public Health Sciences

Knapp EA, Kress AM, Ghidey R, Gorham TJ, Galdo B, Petrill SA, Aris IM, Bastain TM, Camargo CA, Jr., Coccia MA, Cragoe N, Dabelea D, Dunlop AL, Gebretsadik T, Hartert T, Hipwell AE, **Johnson CC**, Karagas MR, LeWinn KZ, Maldonado LE, McEvoy CT, Mirzakhani H, O'Connor TG, O'Shea TM, Wang Z, Wright RJ, Ziegler K, Zhu Y, Bartlett CW, and Lau B. A Latent Trait-based Measure as a Data Harmonization and Missing Data Solution Applied to the Environmental Influences on Child Health Outcomes Cohort. *Epidemiology* 2025; Epub ahead of print. PMID: 39884749. Full Text

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BACKGROUND: Collaborative research consortia provide an efficient method to increase sample size, enabling evaluation of subgroup heterogeneity and rare outcomes. In addition to missing data challenges faced by all cohort studies like nonresponse and attrition, collaborative studies have missing data due to differences in study design and measurement of the contributing studies. METHODS: We extend ROSETTA, a latent variable method that creates common measures across datasets collecting the same latent constructs with only partial overlap in measures, to define a common measure of socioeconomic status (SES) across cohorts with varying indicators in the Environmental influences on Child Health Outcomes Cohort, a consortium of pregnancy and pediatric cohorts. RESULTS: Starting with 52 indicators of prenatal SES from 39,372 participants across 53 cohorts, ROSETTA created three factors

representing key domains of SES: income and education, insurance and poverty, and unemployment. At least one factor score was available for 34,528 participants; two factors were available for more participants than any single indicator. Factors fit the data well, had content validity, and were correlated with alternative measures of SES (for income & education factor, r= 0.40-0.89). Higher SES as measured by the factor scores was associated with lower odds of prenatal smoking:OR income & education 0.42 (95% CI 0.38, 0.45). Missing data were reduced compared to most methods, except for multiple imputation. CONCLUSIONS: ROSETTA aids in pooled analysis of individual participant data by creating measures on a common scale and maximizing data in the presence of missing and mismatched measures.

Public Health Sciences

McCormack LA, MacKenzie DA, Deutsch A, Beene D, Hockett CW, Ziegler K, Knapp EA, Kress AM, Li ZR, Bakre S, Habre R, Jacobson L, Karagas MR, LeWinn K, Nozadi SS, Alshawabkeh A, Aris IM, Bekelman TA, Bendixsen CG, Camargo C, **Cassidy-Bushrow AE**, Croen L, Assiamira F, Fry R, Gebretsadik T, Hartert T, Hirko KA, Karr CJ, Kloog I, Loftus C, Magee KE, McEvoy C, Neiderhiser JM, O'Connor TG, O'Shea M, **Straughen JK**, **Urquhart A**, Wright R, and Elliott AJ. A descriptive examination of rurality in the Environmental influences on Child Health Outcomes Cohort: Implications, illustrations, and future directions. *J Rural Health* 2025; 41(1):e12908. PMID: 39731317. Full Text

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PURPOSE: The Environmental influences on Child Health Outcomes (ECHO) Cohort has enrolled over 60,000 children to examine how early environmental factors (broadly defined) are associated with key child health outcomes. The ECHO Cohort may be well-positioned to contribute to our understanding of rural environments and contexts, which has implications for rural health disparities research. The present study examined the outcome of child obesity to not only illustrate the suitability of ECHO Cohort data for these purposes but also determine how various definitions of rural and urban populations impact the presentation of findings and their interpretation. METHODS: This analysis uses data from children in the ECHO Cohort study who had residential address information between January 2010 and October 2023, including a subset who also had height and weight data. Several rural-urban classification schemes were examined with and without collapsing into binary rural/urban groupings (ie, the Rural-Urban Continuum Codes, 2010 Rural-Urban Commuting Area [RUCA] Codes, and Urban Influence Codes). FINDINGS: Various rural/urban definitions and classification schemes produce similar obesity prevalence (17%) when collapsed into binary categories (rural vs urban) and for urban participants in general. When all categories within a classification scheme are examined, however, the rural child obesity prevalence ranges from 5.8% to 24%. CONCLUSIONS: Collapsing rural-urban classification schemes into binary groupings erases nuance and context needed for interpreting findings, ultimately impacting health disparities research. Future work should leverage both individual- and community-level datasets to provide context, and all categories of classification schemes should be used when examining rural populations.

Public Health Sciences

Mwobobia J, White MC, Osazuwa-Peters OL, **Adjei Boakye E**, Abouelella DK, Barnes JM, Viet CT, Ramos K, Corbett C, and Osazuwa-Peters N. Depression, non-medical pain prescriptions, and suicidal behavior in cancer survivors. *J Cancer Surviv* 2025; Epub ahead of print. PMID: 39821751. Full Text

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PURPOSE: A cancer diagnosis results in significant distress and adverse psychosocial sequelae, including suicide, the 10th leading cause of death in the USA. Primary risks for death by suicide include depression and opioid abuse, which are prevalent among cancer survivors. Yet, it remains unclear whether they are also associated with other suicidal outcomes, such as ideation, planning, and suicidal attempt. METHODS: We used cross-sectional data from the National Survey on Drug Use and Health (2015-2019, N = 214,271), a nationwide study in the USA that provides data on mental health and other health concerns. Outcome of interest was suicidality (suicidal ideation, planning, and attempt). Main exposures were history of depression and non-medical use of pain prescriptions. Using weighted logistic regression analyses adjusted for sociodemographic factors and substance use, we estimated odds of suicidal ideation, planning, and attempt. RESULTS: There were 7635 cancer survivors in our study, which was our analytic sample. We found an associations between a history of cancer and suicidal ideation (aOR = 1.32, 95% CI 1.10, 1.58). Among cancer survivors, depression and non-medical use of pain prescriptions were consistently associated with suicidal ideation (aOR(depression) = 7.37, 95% CI 4.52, 12.03; aOR(pain prescriptions) = 3.36, 95% CI 1.27, 8.91, planning (aOR(depression) = 10.31, 95% CI 5.79, 18.34; and aOR(pain prescriptions) = 3.77, 95% CI 1.20, 11.85), and attempt (aOR(depression) = 4.29, 95% CI 1.41, 13.06). CONCLUSION: Both depression and non-medical pain prescriptions are independently associated with increased odds of suicidal behavior among cancer survivors. Routinely assessing for depression and history of non-medical use of pain prescriptions could be an important suicide prevention strategy in oncology. IMPLICATIONS FOR CANCER SURVIVORS: Given the increased risk of suicide mortality among cancer survivors, it is critical that risk factors for suicidal behavior, such as depression and use of non-medical pain prescriptions, are routinely screened for as part of cancer care.

Public Health Sciences

Nwosu ZC, Giza H, Nassif M, Charlestin V, Menjivar RE, Kim D, Kemp SB, Sajjakulnukit P, Andren A, Zhang L, Lai WK, **Loveless I**, **Steele NG**, Hu J, Hu B, Wang S, Pasca di Magliano M, and Lyssiotis CA. Multi-dimensional analyses identify genes of high priority for pancreatic cancer research. *JCI Insight* 2025; Epub ahead of print. PMID: 39774001. Full Text

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Pancreatic ductal adenocarcinoma (PDAC) is a drug resistant and lethal cancer. Identification of the genes that consistently show altered expression across patients' cohorts can expose effective therapeutic targets and strategies. To identify such genes, we separately analyzed five human PDAC microarray datasets. We defined genes as 'consistent' if upregulated or downregulated in ≥ 4 datasets (adjusted $P<0.05$). The genes were subsequently queried in additional datasets, including single-cell RNA-sequencing data, and we analyzed their pathway enrichment, tissue-specificity, essentiality for cell viability, association with cancer features e.g., tumor subtype, proliferation, metastasis and poor survival outcome. We identified 2,010 consistently upregulated and 1,928 downregulated genes of which >50%, to our knowledge, were uncharacterized in PDAC. These genes spanned multiple processes, including cell cycle, immunity, transport, metabolism, signaling and transcriptional/epigenetic regulation - cell cycle and glycolysis being the most altered. Several upregulated genes correlated with cancer features, and their suppression impaired PDAC cell viability in prior CRISPR/Cas9 and RNA interference screens. Further, the upregulated genes predicted sensitivity to bromodomain and extraterminal (epigenetic) protein inhibition, which, in combination with gemcitabine, disrupted amino acid metabolism and in vivo tumor

growth. Our results highlight genes for further studies in the quest for PDAC mechanisms, therapeutic targets and biomarkers.

Public Health Sciences
Santarossa S, **Blake RA**, **Buchanan H**, **Price M**, **Guzzardo R**, **Guzzardo C**, **Johnson LM**, **Morshall JM**, **Bate A**, **Bate W**, **Bakari R**, **Copeland L**, **Murphy D**, **Redding A**, and **Loree A**. Beyond the Status of Health: A Collection of Stories Representing Diverse Maternal Mental Health Perspectives. *J Patient Cent Res Rev* 2025; 12(1):35-49. PMID: 39906610. Full Text

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Public Health Sciences
Stolldorf DP, Storrow AB, Liu D, Jenkins CA, Hilton RA, Miller KF, Kim J, **Boopathy D**, **Gunaga S**, Kea B, **Miller J**, and Collins SP. A mixed-methods observational study of strategies for success in implementation science: overcoming emergency departments hurdles. *BMC Health Serv Res* 2025; 25(1):147. PMID: 39865238. Full Text

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BACKGROUND: Heart failure is a major public health concern, affecting 6.7 million Americans. An estimated 16% of emergency department (ED) patients with acute heart failure (AHF) are discharged home. Our Get with the Guidelines in Emergency Department Patients with Heart Failure (GUIDED-HF) toolkit aims to improve AHF self-care and facilitate safer transitions in care for these patients. We describe implementation barriers and facilitators, and the selection and refinement of implementation strategies, to facilitate future GUIDED-HF implementation. METHODS: A mixed-methods cross-sectional observational study was conducted in four United States EDs in two diverse healthcare systems in the Pacific West and Midwest. Data were collected using a survey and interviews with ED providers, nurses, and leaders. The survey assessed the ED context using the context scale of the Organizational Readiness to Change Assessment (ORCA). The Consolidated Framework for Implementation Research informed interviews. Quantitative data were summarized using medians (interquartile ranges) or percentages (frequencies). Wilcoxon rank-sum tests and Kruskal-Wallis tests were used to assess differences in the healthcare system and profession. Qualitative data were analyzed and summarized using rapid qualitative analysis. Convergence of quantitative and qualitative data was used to inform specific refining of implementation strategies to the local context (e.g., who should serve as champions, how best practice alerts should be implemented). RESULTS: Participants were predominately white (76%) with median (IQR) age 37.0 (32.0, 41.0). ED leaders/administrators, providers, and nurses comprised 15%, 55%, and 29% of participants, respectively. Sites reported an ORCA context scale score of 3.7 [3.4, 4.0] (scale of 1 = strongly disagree to 5 = strongly agree). Comparison of scores by profession showed a significant difference in the context score among providers (3.9 [3.5, 4.0]), leaders (3.7 [3.5, 4.0]), and nurses (3.6 [3.0, 3.9]) (p = 0.048). Qualitative data indicated implementation barriers (e.g.,

resource limitations, patient health literacy), facilitators (e.g., GUIDED-HF is patient-centric; site and intervention congruent values, norms, and goals), and site-specific needs due to contextual factors (e.g., education needs, feedback mechanisms, champions). CONCLUSIONS: Specific determinants of implementation exist in ED settings and require the refining of implementation strategies to overcome site-specific barriers and enhance facilitators. TRIAL REGISTRATION: n/a.

Public Health Sciences

Tatem G, Snowden E, **Williams A**, **Hoffert MM**, and **Passalacqua KD**. Assessing Program Culture in Virtual Fellowship Interviews: Insights From Pulmonary and Critical Care Fellows. *Cureus* 2025; 17(1):e77466. PMID: 39822253. Full Text

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BACKGROUND: Virtual interviewing for fellowship training programs has been widely adopted since the COVID-19 pandemic. However, whether fellowship candidates can adequately evaluate training program culture through virtual interviews is unclear. OBJECTIVE: Our aim was to explore how pulmonary and critical care fellows ascertained program culture during virtual and in-person fellowship program recruitment interviews, with the overall goal of improving our virtual recruiting interview processes. METHODS: Exploratory semi-structured one-on-one interviews (study-interviews) following a constructivist approach were done during the fall of 2022 with a convenience sample of current fellows within the pulmonary critical care medicine fellowship program in an urban tertiary care hospital. Questions probed fellows' perspectives on program culture, what features of program culture they valued, and how they evaluated program culture during their initial fellowship interviews (recruitment-interviews). Study-interviews were framed to explore four deductive themes, and transcripts were analyzed with inductive thematic analysis. RESULTS: Of the 11 fellows interviewed, two had completed in-person and nine had completed virtual recruitment-interviews. There was an overall favorable perception of program culture during all recruitment-interviews, regardless of format. Elements of program culture that fellows valued included training program quality, an academic focus, complexity in cases, workplace diversity, a positive socioemotional environment, and a collaborative/supportive working/learning environment. CONCLUSIONS: This study suggests that important elements of program culture can be evaluated by fellowship candidates through virtual interviews when applicants are allowed ample opportunity for high-quality interactions with faculty and current trainees.

Public Health Sciences

Taylor GL, Burjak M, Ray D, Blackwell CK, Santos HP, Ganiban J, Dunlop AL, Elliott AJ, Aschner JL, Stroustrup A, Bekelman TA, Barone C, Camargo CA, Jr., McEvoy CT, Tung I, Schweitzer JB, Herbstman J, Wright RO, Wright RJ, Akinkugbe AA, Kelly RS, Hartert TV, Patterson BL, Bendixsen C, **Cassidy-Bushrow AE**, O'Shea TM, and Fry RC. Associations among positive child health measures in the environmental influences on child health outcomes (ECHO) cohort. *Qual Life Res* 2025; Epub ahead of print. PMID: 39904821. Full Text

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PURPOSE: Effective measurement of positive child health is critical in improving public health. A proposed measure of positive health, a positive child health index (PCHI), is based on how many of 11 specific physical, developmental, and mental health conditions a child has (ranging from 0 to 11). Accepted measures of positive health, Patient-Reported Outcome Measurement Information System (PROMIS®) measures of global health, meaning and purpose, and life satisfaction, are based on child and caregiver perceptions. METHODS: The sample comprised 3713 children aged 5 to 17 years from the NIH Environmental influences on Child Health Outcomes (ECHO) Cohort with data to calculate PCHI and at least 1 child- or caregiver-reported PROMIS measure. Linear regressions were performed to test the associations between each PROMIS measure T-score and the PCHI, adjusting for gestational age, child sex, child age, and maternal factors (age, education, income). RESULTS: The PROMIS measure associated most strongly with PCHI was caregiver-reported global health, followed by child-reported global health. Caregiver-reported life satisfaction and child-reported meaning and purpose were higher for children with a PCHI = 0 compared with children with 3 or more health conditions but not when compared with children with only 1 or 2 conditions. Among children with 4 or more conditions, girls reported lower global health than boys. Sex differences were not found for caregiver-reported measures. CONCLUSION: PROMIS measures and PCHI offer complementary information on positive child health. PROMIS measures are intended as measures of a person's perception of their health, whereas PCHI reflects a cumulative impact of chronic health conditions from the perspective of health care systems. Both viewpoints are informative in public health promotion.

Public Health Sciences

Trendowski MR, Lusk CM, Wenzlaff AS, **Neslund-Dudas C**, Purrington KS, Beebe-Dimmer JL, and Schwartz AG. Association of Germline Pathogenic Variants in MUTYH and Other DNA Damage Response Genes With Lung Cancer Risk Among Non-Hispanic Whites and African Americans. *JCO Precis Oncol* 2025; 9:e2400558. PMID: 39854657. Full Text

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PURPOSE: Although lung cancer is one of the most common malignancies, the underlying genetics regarding susceptibility remain poorly understood. We characterized the spectrum of pathogenic/likely pathogenic (P/LP) germline variants within DNA damage response (DDR) genes among lung cancer cases and controls in non-Hispanic Whites (NHWs) and African Americans (AAs). MATERIALS AND METHODS: Rare, germline variants in 67 DDR genes with evidence of pathogenicity were identified using the ClinVar database. These P/LP variants were genotyped in a sample of 3,040 lung cancer cases and controls from the Inflammation, Health, Ancestry, and Lung Epidemiology study (NHW: n = 1,915; AA: n = 1,125) and were tested for their association with lung cancer using multivariate logistic regression adjusting for age, sex, pack-years, and race. RESULTS: We identified 49 unique rare P/LP variants in 21 genes among 156 carriers. Approximately 5.9% of lung cancer cases and 4.2% of controls carried at least one P/LP variant. P/LP variants in DDR genes were more common in lung cancer cases, particularly those diagnosed with adenocarcinoma (odds ratio [OR], 1.46 [95% CI, 1.00 to 2.14]). MUTYH variants were associated with lung cancer overall (OR, 1.82 [95% CI, 1.10 to 3.12]), with the strongest associations among never smokers (OR, 3.37 [95% CI, 1.08 to 10.26]), and in individuals who do not meet current USPSTF screening criteria (OR, 2.85 [95% CI, 1.20 to 7.53]). CONCLUSION: Germline variants in DDR genes appear to be associated with lung cancer, particularly when examined by gene subtype and morphologic subtype. MUTYH, a gene historically associated with colorectal and other GI malignancies, emerged as a candidate gene that should be examined in individuals who do not have a significant smoking history.

Public Health Sciences

Yadav RN, **Oravec DJ**, **Drost J**, **Flynn MJ**, **Divine GW**, **Rao SD**, and **Yeni YN**. Textural and geometric measures derived from digital tomosynthesis discriminate women with and without vertebral fracture. *Eur J Radiol* 2025; 183:111925. PMID: 39832416. Full Text

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Vertebral fractures are a common and debilitating consequence of osteoporosis. Bone mineral density (BMD), measured by dual energy x-ray absorptiometry (DXA), is the clinical standard for assessing overall bone quantity but falls short in accurately predicting vertebral fracture. Fracture risk prediction may be improved by incorporating metrics of microstructural organization from an appropriate imaging modality. Digital tomosynthesis (DTS)-derived textural and microstructural parameters have been previously correlated to vertebral bone strength in vitro, but the in vivo utility has not been explored. Therefore, the current study sought to establish the extent to which DTS-derived measurements of vertebral microstructure and size discriminate patients with and without vertebral fracture. In a cohort of 93 postmenopausal women with or without history of vertebral fracture, DTS-derived microstructural parameters and vertebral width were calculated for T12 and L1 vertebrae, as well as lumbar spine BMD and trabecular bone score (TBS) from DXA images. Fracture patients had lower BMD and TBS, while DTS-derived degree of anisotropy and vertebral width were higher, compared to nonfracture ($p < 0.02$ to $p < 0.003$) patients. The addition of DTS-derived parameters (fractal dimension, lacunarity, degree of anisotropy and vertebral width) improved discriminative capability for models of fracture status (AUC = 0.79) compared to BMD alone (AUC = 0.67). For twelve additional participants who were imaged twice, in vivo repeatability errors for DTS parameters were low (0.2 % - 7.3 %). The current results support the complementary use of DTS imaging for assessing bone quality and improving the accuracy of fracture risk assessment beyond that achievable by DXA alone.

Pulmonary and Critical Care Medicine

Duong DK, **Debiane LG**, **Cohen A**, **Peralta AR**, **Diaz-Mendoza J**, and **Simoff MJ**. Bone Plug in the Bronchoscopic Management of Postoperative Bronchopleural Fistulas. *Ann Thorac Surg Short Rep* 2024; 2(3):427-431. PMID: 39790421. Full Text

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BACKGROUND: Bronchopleural fistula (BPF) is a rare and often difficult postoperative complication to manage. This case series describes a bronchoscopic technique using a bone plug for closure of BPFs. METHODS: Six patients at Henry Ford Hospital from 2014 to 2021, who had a postoperative BPF after lung resection with curative intent for non-small cell lung cancer, underwent bronchoscopic placement of a customized bone plug. RESULTS: All 6 patients experienced initial resolution of the BPF after bone plug placement. Four of the 6 (66.7%) patients were inpatients, with severe pleural space infections requiring chest tube drainage; all patients clinically improved with resolution of persistent air leaks resulting in chest tube removal. Two of the 6 (33.3%) patients had BPF recurrence within 2 months, and 2 of the /6 (33.3%) patients also eventually required additional surgical repair. CONCLUSIONS: Endobronchial placement of a customized bone plug is an option for the management of postoperative BPF.

Pulmonary and Critical Care Medicine

Hidalgo Hernandez Y, and **Tatem G**. Virtual versus In-Person: What Applicants Really Want in the Interview Process. *ATS Sch* 2024; 5(4):482-485. PMID: 39822217. Full Text

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Pulmonary and Critical Care Medicine

Parsons AJ, **Franco-Palacios D**, **Kelly B**, **Grafton G**, **McIntosh J**, **Coleman D**, **Abdul Hameed AM**, and **Sayf AA**. Common Variable Immunodeficiency Associated With Noninfectious Pulmonary Complications and Its Treatment: Beyond Immunoglobulin Therapy. *Pulm Circ* 2025; 15(1):e70034. PMID: 39744645. Full Text

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Common variable immunodeficiency (CVID) is a type of primary immunodeficiency that presents as a heterogenous disorder characterized by hypogammaglobinemia, poor response to vaccines, recurrent sinopulmonary infections, and can have noninfectious systemic manifestations. We performed a single-center, retrospective, observational study of five patients with noninfectious complications of CVID. All patients had CVID as defined by the European Society of Immunodeficiencies criteria and had received intravenous immunoglobulin therapy. There were multiple pulmonary manifestations of CVID including frequent pneumonias, bronchiectasis, granulomatous lung disease, and pulmonary hypertension. All our patients were treated with pulmonary vasodilators for severe precapillary pulmonary hypertension along with individualized immunosuppression regimen for interstitial lung disease. Despite treatment for interstitial lung disease and PH, their conditions worsened over 2-3 years with all patients progressing toward organ transplant evaluation. Idiopathic thrombocytopenia and non-cirrhotic portal hypertension were common, with three patients probably suffering from nodular regenerative hyperplasia. Noninfectious complications of CVID can affect different organs and progress despite advanced

therapies. Single or multiorgan transplantation is a treatment option for patients with end-stage organ involvement refractory to medical therapy.

Radiation Oncology

Bagher-Ebadian H, **Brown SL**, Ghassemi MM, Acharya PC, Chetty IJ, **Movsas B**, **Ewing JR**, and **Thind K**. Probabilistic nested model selection in pharmacokinetic analysis of DCE-MRI data in animal model of cerebral tumor. *Sci Rep* 2025; 15(1):1786. PMID: 39805838. Full Text

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Best current practice in the analysis of dynamic contrast enhanced (DCE)-MRI is to employ a voxel-by-voxel model selection from a hierarchy of nested models. This nested model selection (NMS) assumes that the observed time-trace of contrast-agent (CA) concentration within a voxel, corresponds to a singular physiologically nested model. However, admixtures of different models may exist within a voxel's CA time-trace. This study introduces an unsupervised feature engineering technique (Kohonen-Self-Organizing-Map (K-SOM)) to estimate the voxel-wise probability of each nested model. Sixty-six immune-compromised-RNU rats were implanted with human U-251 N cancer cells, and DCE-MRI data were acquired from all the rat brains. The time-trace of change in the longitudinal-relaxivity (ΔR(1)) for all animals' brain voxels was calculated. DCE-MRI pharmacokinetic (PK) analysis was performed using NMS to estimate three model regions: Model-1: normal vasculature without leakage, Model-2: tumor tissues with leakage without back-flux to the vasculature, Model-3: tumor vessels with leakage and back-flux. Approximately two hundred thirty thousand (229,314) normalized ΔR(1) profiles of animals' brain voxels along with their NMS results were used to build a K-SOM (topology-size: 8 × 8, with competitive-learning algorithm) and probability map of each model. K-fold nested-cross-validation (NCV, k = 10) was used to evaluate the performance of the K-SOM probabilistic-NMS (PNMS) technique against the NMS technique. The K-SOM PNMS's estimation for the leaky tumor regions were strongly similar (Dice-Similarity-Coefficient, DSC = 0.774 [CI: 0.731-0.823], and 0.866 [CI: 0.828-0.912] for Models 2 and 3, respectively) to their respective NMS regions. The mean-percent-differences (MPDs, NCV, k = 10) for the estimated permeability parameters by the two techniques were: -28%, + 18%, and + 24%, for v(p), K(trans), and v(e), respectively. The KSOM-PNMS technique produced microvasculature parameters and NMS regions less impacted by the arterial-input-function dispersion effect. This study introduces an unsupervised model-averaging technique (K-SOM) to estimate the contribution of different nested-models in PK analysis and provides a faster estimate of permeability parameters.

Radiation Oncology

Gardner SJ, **Verdecchia K**, **Miller BM**, **Smith CE**, **Doemer A**, **Feldman A**, **Siddiqui F**, **Movsas B**, and **Thind K**. Institutional experience with implanted cardiac device risk level assessment: Comparing calculation and measurement. *Med Phys* 2025; Epub ahead of print. PMID: 39794286. Full Text

Department of Radiation Oncology, Henry Ford Cancer Institute, Henry Ford Health, Detroit, Michigan, USA.

BACKGROUND: The use of in-vivo dosimetry is a long-standing but also labor-intensive component of risk-level assessment for patients with implanted devices. A calculation-only approach, using treatment planning system (TPS)-calculated doses along with imaging doses estimates when relevant, has the potential to streamline the physics workflow without negatively impacting patient safety. PURPOSE: To

evaluate the feasibility of using a calculation-only approach for risk level assessment for patients with implanted electronic medical devices. METHODS: A total of 86 patients were included in this retrospective study. For each patient, in-vivo dosimetry measurements using optically stimulated luminescent dosimeter (OSLD) were compared to calculated doses (based on TPS calculated doses and an estimate of imaging doses when relevant). The comparison of OSLD doses and estimated predicted doses was structured in the following manner: (1) direct comparison of both absolute dose difference and percent difference for measured and calculated doses, (2) risk level assessment comparison using measured and estimated doses, and (3) sensitivity and positive predictive value assessment of each method for TG-203 risk level assessment. RESULTS: For all cases, the calculation-based approach yielded a risk level that was equivalent to or more conservative than the risk level from OSLD measurement. For 79 of 86 patients (91.9%), the calculated and measured doses provided the same risk level. For 7 of 86 patients (8.1%), the calculated dose yielded the more conservative risk level. The calculation-based dose estimate provided a sensitivity of 1.00 with a positive predictive value of 0.92. CONCLUSIONS: The use of a calculation-only approach has the potential to reduce workload while maintaining the efficacy of risk-level assessment for patients with implanted devices.

Radiation Oncology

Kaljee L, **Antwi S**, **Dankerlui D**, Harris D, Israel B, **White-Perkins D**, **Ofori Aboah V**, Aduse-Poku L, **Larrious-Lartey H**, Brush B, Coombe C, Patman L, Cawthorne N, Chue S, Rowe Z, **Mills C**, **Fernando K**, Daniels G, **Walker EM**, and **Jiagge E**. Cancer clinical trial participation: a qualitative study of Black/African American communities' and patient/survivors' recommendations. *JNCI Cancer Spectr* 2025; 9(1). PMID: 39585656. Full Text

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Caribbean Community Service Center, Detroit, MI 48224, United States.
Friends of Parkside, Detroit, MI 48213, United States.
Institute for Population Health, Detroit, MI 48202, United States.

BACKGROUND: Black/African Americans experience disproportionate cancer burden and mortality rates. Racial and ethnic variation in cancer burden reflects systemic and health-care inequities, cancer risk factors, and heredity and genomic diversity. Multiple systemic, sociocultural, economic, and individual factors also contribute to disproportionately low Black/African American participation in cancer clinical trials. METHODS: The Participatory Action for Access to Clinical Trials project used a community-based participatory research approach inclusive of Black/African American community-based organizations, Henry Ford Health, and the University of Michigan Urban Research Center. The project aims were to understand Black/African Americans' behavioral intentions to participate in cancer clinical trials and to obtain recommendations for improving participation. Audio-recorded focus group data were transcribed and coded, and searches were conducted to identify themes and subthemes. Representative text was extracted from the transcripts. RESULTS: Six community focus group discussions (70 participants) and 6 Henry Ford Health patient/survivor focus group discussions (29 participants) were completed. General themes related to trial participation were identified, including (1) systemic issues related to racism, health disparities, and trust in government, health systems, and clinical research; (2) firsthand experiences with health care and health systems; (3) perceived and experienced advantages and disadvantages of clinical trial participation; and (4) recruitment procedures and personal decision-making processes. Specific recommendations on how to address barriers were obtained. CONCLUSIONS: Community-based participatory research is effective in bringing communities equitably to the table. To build trust, health systems must provide opportunities for patients and communities to jointly identify factors affecting cancer clinical trial participation, implement recommendations, and address health disparities.

Radiation Oncology

Kovalchick M, **Lee HJ**, **Klochko C**, and **Thind K**. Validation of UniverSeg for Interventional Abdominal Angiographic Segmentation. *J Imaging Inform Med* 2025; Epub ahead of print. PMID: 39871044. Full Text

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Automatic segmentation of angiographic structures can aid in assessing vascular disease. While recent deep learning models promise automation, they lack validation on interventional angiographic data. This study investigates the feasibility of angiographic segmentation using in-context learning with the UniverSeg model, which is a cross-learning segmentation model that lacks inherent angiographic training. A retrospective review, after IRB approval, identified 234 patients who underwent interventional fluoroscopy of the celiac axis with iodinated contrast from January 1, 2019, to December 31, 2022. From 261 acquisitions, 303 maximum contrast images were selected, each generating a 128 × 128 pixel partition for arterial detail analysis and binary mask creation. Image-mask pairs were divided into three classes of 101 pairs each, based on arterial diameter and bifurcation number. UniverSeg was tested class independently in a fivefold nested cross-validation. Performance analysis for in-context learning determined average model convergence for class sizes from 1 to 81 pairs. The model was further validated by repeating the tests on the inverse segmentation task. Dice similarity coefficients for decreasing diameters were 78.7%, 72.5%, and 59.9% (σ = 5.96, 7.99, 14.29). Balanced average Hausdorff distances were 0.86, 0.71, and 1.16 (σ = 0.37, 0.52, 0.68) pixels, respectively. Inverted mask testing aligned with UniverSeg expectations for out-of-context problem sets. Performance improved with support class size, vessel diameter, and reduced bifurcations, plateauing to within ± 1.34 Dice score at N = 51. This study validates UniverSeg for arterial segmentation in interventional fluoroscopic procedures, supporting vascular disease modeling and imaging research.

Radiation Oncology

Maison POM, Arkoh P, Sani A, Mensah-Baidoo EE, Owusu G, Danso EY, Koufie NB, Andzie S, Gyamfi P, Omane E, **Antwi S**, **Palanisamy N**, **Hwang C**, **Walker E**, Ofori Aboah V, and **Jiagge EM**. Barriers to orthodox medical care of prostate cancer in Ghana. *Sci Rep* 2025; 15(1):1051. PMID: 39775019. Full Text

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Traditional medicine is widely used in sub-Saharan Africa, particularly in Ghana, where it is commonly integrated with modern orthodox medicine. This study examines the barriers that delay the pursuit of orthodox medical care for prostate cancer (PCa) in Ghana's Central region, where a blend of traditional and modern orthodox medicine exists. The preference for indigenous traditional medicine often results in late-stage presentations of PCa, adversely affecting patient outcomes. This prospective cross-sectional study was conducted from July to December 2022 at the Cape Coast Teaching Hospital (CCTH) and in four local communities. We investigated why men prefer traditional over orthodox medicine and identified cultural beliefs, attitudes, and gaps in health awareness that contribute to delays in diagnosing and treating PCa. The study involved administering questionnaires, providing education on PCa, and conducting free prostate-specific antigen (PSA) screening. Ethical approval was obtained from the Ethics Research Committee of the Ghana Health Service. A total of 282 patients participated, including 268 men from the communities and 14 diagnosed with PCa at CCTH after initially consulting traditional healers. Of the community-recruited patients who underwent PSA testing, 26% had elevated PSA levels and underwent further diagnostic procedures. Ultimately, nine of 268 community patients were confirmed to

have PCa. Most patients (57.4%) had limited education, which correlated with late presentations and various misconceptions about PCa. The study highlights significant cultural and economic barriers that lead to the late-stage presentation of PCa among men in Ghana's Central region. There is a critical need for a culturally sensitive, multi-pronged strategy that enhances public education about the benefits of early diagnosis and fosters collaboration between traditional healers and orthodox healthcare providers to improve prostate cancer outcomes in Ghana.

Radiation Oncology
Movsas B. What Are the Real Pros of Real-Time PROs (Patient-Reported Outcomes)? *JCO Oncol Pract* 2025; 2401000. Epub ahead of print. PMID: 39889255. Full Text

Henry Ford Cancer Institute, Detroit, MI.

Radiation Oncology
Poiset SJ, Lombardo J, Castillo E, Castillo R, Jones B, Miften M, Kavanagh B, Dicker AP, Boyle C, Simone NL, **Movsas B**, Grills I, Rusthoven CG, Vinogradskiy Y, and Wilson L. Patient-Reported Outcomes: Comparing Functional Avoidance and Standard Thoracic Radiation Therapy in Lung Cancer. *JCO Clin Cancer Inform* 2025; 9:e2400202. PMID: 39903899. Full Text

Thomas Jefferson University, Radiation Oncology, Philadelphia, PA.
UT Austin, Department of Biomedical Engineering, Austin, TX.
Emory University School of Medicine, Radiation Oncology, Atlanta, GA.
University of Colorado, Radiation Oncology, Aurora Court Anschutz Cancer Pavilion, Aurora, CO.
Henry Ford Cancer Institute, Radiation Oncology, Detroit, MI.
Beaumont Health, Radiation Oncology, Royal Oak, MI.

PURPOSE: Novel methods generate functional images using image processing techniques combined with four-dimensional computed tomography (4DCT) data (4DCT-ventilation). 4DCT-ventilation was implemented in a phase II, multicenter functional avoidance clinical trial. The work compares functional avoidance patient-reported outcomes (PROs) against historical standards. METHODS: Patients with locally advanced lung cancer undergoing curative-intent chemoradiation were accrued. 4DCT-ventilation imaging was generated and functional avoidance treatment plans created reduced dose to functional lung. PRO instruments included Functional Assessment of Cancer Therapy Lung questionnaire and accompanying subscales (including the Trial Outcome Index [TOI]), EuroQol-5 Dimension (EQ-5D), and EQ-Visual Analog Scale (EQ-VAS). The average change from baseline and percentage of clinically meaningful declines were calculated. We compared results against PROs from RTOG 0617 and PACIFIC trial data using Student t-tests and chi-square tests. RESULTS: Fifty-nine patients completed baseline PRO surveys. The median age was 65 (44-86) years, non-small cell lung cancer comprised 83%, and median dose was 60 Gy in 30 fractions. The percent of patients with clinically meaningful decline in FACT-TOI at 12 months was 47.8% for RTOG 0617% and 26.8% for functional avoidance (P = .03). The functional avoidance cohort demonstrated a significantly (P = .012) higher change in EQ-VAS score at 12 months (9.9 ± 3.3; average ± SE) compared with the PACIFIC cohort (1.6 ± 0.6). CONCLUSION: The current work demonstrates improved PROs from a phase II functional avoidance trial in certain subscales (FACT-TOI and EQ-VAS) compared with PROs from seminal studies (RTOG 0617 and PACIFIC). The presented data support investigation of 4DCT functional avoidance in a phase III setting.

Radiation Oncology
van Overeem Felter M, Møller PK, Josipovic M, Bekke SN, Bernchou U, Serup-Hansen E, **Parikh P**, **Kim J**, Geertsen P, Behrens CP, Madsen K, Vogelius IR, Topsøe JF, Berthelsen AK, Pøhl M, Schytte T, and Persson GF. 1-year efficacy results after MR-guided risk-adapted stereotactic radiotherapy of infra-diaphragmatic oligometastases in a multicenter phase II trial. *Radiother Oncol* 2025; 110748. Epub ahead of print. PMID: 39880308. Full Text

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BACKGROUND AND PURPOSE: The SOFT (Stereotactic ablative radiotherapy of infra-diaphragmatic sOFT tissue metastases) trial assesses the safety and efficacy of risk-adapted MR-guided stereotactic ablative radiotherapy (SABR) of infra-diaphragmatic soft tissue metastasis in patients with oligometastatic disease (OMD) (clinicaltrials.gov ID NCT04407897). This paper reports the one-year efficacy analysis and evaluates associations between local control (LC) and clinical and dosimetric parameters. MATERIALS AND METHODS: This investigator-initiated, multicenter, single-arm, phase 2 study recruited patients from four MR-linac centers in Denmark and the US. Patients with De novo or recurrent OMD with ≤5 metastases in ≤3 organs and patients with induced OMD or oligoprogressive disease (OPD) with ≤3 metastases were eligible. Fractionation schemes were 45-75 Gy in 3-8 fractions. RESULTS: The trial included 121 patients with 147 oligometastatic lesions, primarily in the liver (41 %), lymph nodes (35 %), or adrenal glands (14 %). The median follow-up time was 13.0 months, interquartile range (IQR) (11.7,13.7) months. The 1-year LC rate was 89 %, 95 % confidence interval (CI) (83,94 %). We did not observe any statistically significant associations between LC and clinical and dosimetric parameters. The median progression-free survival was 7.1 months, 95 % CI (6.0,9.4). One- and two-year overall survival was 82.6 %, 95 % CI (76.2 %,89.7 %), and 65.1 %, 95 % CI (56.4 %,75.3 %). Sixty-one patients (50 %) were kept off systemic therapy throughout the one-year follow-up. CONCLUSION: In our study, treatment with risk-adapted, MR-guided SABR resulted in a high one-year local control and survival rate and could keep half of the patients off systemic therapy within the first year of follow-up.

Research Administration

Fattahi M, Esmaeil-Zadeh M, **Soltanian-Zadeh H**, Rostami R, Mansouri J, and Hossein-Zadeh GA. Classification of female MDD patients with and without suicidal ideation using resting-state functional magnetic resonance imaging and machine learning. *Front Hum Neurosci* 2024; 18:1427532. PMID: 39845411. Full Text

School of Electrical and Computer Engineering, College of Engineering, University of Tehran, Tehran, Iran.
School of Cognitive Science, Institute for Research in Fundamental Sciences (IPM), Tehran, Iran.
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Spontaneous blood oxygen level-dependent signals can be indirectly recorded in different brain regions with functional magnetic resonance imaging. In this study resting-state functional magnetic resonance

imaging was used to measure the differences in connectivity and activation seen in major depressive disorder (MDD) patients with and without suicidal ideation and the control group. For our investigation, a brain atlas containing 116 regions of interest was used. We also used four voxel-based connectivity models, including degree centrality, the fractional amplitude of low-frequency fluctuations (fALFF), regional homogeneity, and voxel-mirrored Homotopic Connectivity. Feature selection was conducted using a sequential backward floating selection approach along with a Random Forest Classifier and Elastic Net. While all four models yield significant results, fALFF demonstrated higher accuracy rates in classifying the three groups. Further analysis revealed three features that demonstrated statistically significant differences between these three, resulting in a 90.00% accuracy rate. Prominent features identified from our analysis, with suicide ideation as the key variable, included the Superior frontal gyrus (dorsolateral and orbital parts), the median cingulate, and the paracingulate gyri. These areas are associated with the Central Executive Control Network (ECN), the Default Mode Network, and the ECN, respectively. Comparing the results of MDD patients with suicidal ideation to those without suicidal ideations suggests dysfunctions in decision-making ability, in MDD females suffering from suicidal tendencies. This may be related to a lack of inhibition or emotion regulation capability, which contributes to suicidal ideations.

Research Administration

Kaljee L, **Antwi S**, **Dankerlui D**, Harris D, Israel B, **White-Perkins D**, **Ofori Aboah V**, Aduse-Poku L, **Larrious-Lartey H**, Brush B, Coombe C, Patman L, Cawthorne N, Chue S, Rowe Z, **Mills C**, **Fernando K**, Daniels G, **Walker EM**, and **Jiagge E**. Cancer clinical trial participation: a qualitative study of Black/African American communities' and patient/survivors' recommendations. *JNCI Cancer Spectr* 2025; 9(1). PMID: 39585656. Full Text

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BACKGROUND: Black/African Americans experience disproportionate cancer burden and mortality rates. Racial and ethnic variation in cancer burden reflects systemic and health-care inequities, cancer risk factors, and heredity and genomic diversity. Multiple systemic, sociocultural, economic, and individual factors also contribute to disproportionately low Black/African American participation in cancer clinical trials. METHODS: The Participatory Action for Access to Clinical Trials project used a community-based participatory research approach inclusive of Black/African American community-based organizations, Henry Ford Health, and the University of Michigan Urban Research Center. The project aims were to understand Black/African Americans' behavioral intentions to participate in cancer clinical trials and to obtain recommendations for improving participation. Audio-recorded focus group data were transcribed and coded, and searches were conducted to identify themes and subthemes. Representative text was extracted from the transcripts. RESULTS: Six community focus group discussions (70 participants) and 6 Henry Ford Health patient/survivor focus group discussions (29 participants) were completed. General themes related to trial participation were identified, including (1) systemic issues related to racism, health disparities, and trust in government, health systems, and clinical research; (2) firsthand experiences with health care and health systems; (3) perceived and experienced advantages and disadvantages of clinical trial participation; and (4) recruitment procedures and personal decision-making processes. Specific recommendations on how to address barriers were obtained. CONCLUSIONS: Community-based participatory research is effective in bringing communities equitably to the table. To build trust, health systems must provide opportunities for patients and communities to jointly identify factors affecting cancer clinical trial participation, implement recommendations, and address health disparities.

Research Administration

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Department of Surgery, School of Medical Sciences, University of Cape Coast, Cape Coast, Ghana. pmaison@uccsms.edu.gh.
School of Medical Sciences, University of Cape Coast, Cape Coast, Ghana.
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Traditional medicine is widely used in sub-Saharan Africa, particularly in Ghana, where it is commonly integrated with modern orthodox medicine. This study examines the barriers that delay the pursuit of orthodox medical care for prostate cancer (PCa) in Ghana's Central region, where a blend of traditional and modern orthodox medicine exists. The preference for indigenous traditional medicine often results in late-stage presentations of PCa, adversely affecting patient outcomes. This prospective cross-sectional study was conducted from July to December 2022 at the Cape Coast Teaching Hospital (CCTH) and in four local communities. We investigated why men prefer traditional over orthodox medicine and identified cultural beliefs, attitudes, and gaps in health awareness that contribute to delays in diagnosing and treating PCa. The study involved administering questionnaires, providing education on PCa, and conducting free prostate-specific antigen (PSA) screening. Ethical approval was obtained from the Ethics Research Committee of the Ghana Health Service. A total of 282 patients participated, including 268 men from the communities and 14 diagnosed with PCa at CCTH after initially consulting traditional healers. Of the community-recruited patients who underwent PSA testing, 26% had elevated PSA levels and underwent further diagnostic procedures. Ultimately, nine of 268 community patients were confirmed to have PCa. Most patients (57.4%) had limited education, which correlated with late presentations and various misconceptions about PCa. The study highlights significant cultural and economic barriers that lead to the late-stage presentation of PCa among men in Ghana's Central region. There is a critical need for a culturally sensitive, multi-pronged strategy that enhances public education about the benefits of early diagnosis and fosters collaboration between traditional healers and orthodox healthcare providers to improve prostate cancer outcomes in Ghana.

Sleep Medicine

Aboukasm A, **Reffi AN**, and **Drake CL**. Z hypnotics in the management of narcolepsy: a case series. *J Clin Sleep Med* 2024; Epub ahead of print. PMID: 39745471. Full Text

Departments of Neurology and Sleep Medicine, Henry Ford Hospital, Detroit, MI.
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STUDY OBJECTIVES: Here we report our experience treating patients with narcolepsy using benzodiazepine receptor agonists (BzRA), zolpidem (Zol) or eszopiclone (Esz) taken at bedtime for both excessive daytime sleepiness (EDS) and cataplexy. METHODS: We reviewed the medical records of 53 patients diagnosed with narcolepsy, between 2002 and 2023. Twenty-three patients, 8 with type1 (NT1), 13 with type 2 (NT2) and 2 with secondary narcolepsy, were treated with BzRA's (20 Zol and 3 Esz). RESULTS: Seven out of 8 (88%) with NT1, 9 out of 13 (69%) with NT2 and 2 out of 2 (100%) with secondary narcolepsy, treated with BzRA, had good to excellent subjective response in their symptoms of EDS and/or cataplexy; 5 patients, 1 of whom with NT1, had marginal or no response. Three of the responding patients remained on zolpidem in monotherapy (ie. no stimulants). CONCLUSIONS: The BzRa drugs may be effective to manage several of the cardinal symptoms of narcolepsy, regardless of the narcolepsy type. Placebo controlled trials are needed to confirm our observations.

Sleep Medicine

Cole TA, Ong LE, Carsten B, Tappenden PC, **Reffi AN**, and Orcutt HK. Trauma typologies and internalizing psychopathology: A hierarchical perspective on the unique role of congruent and incongruent criterion a stressors. *Psychol Trauma* 2025; Epub ahead of print. PMID: 39899051. Full Text

Department of Psychology, Northern Illinois University.
Thomas Roth Sleep Disorders and Research Center, Henry Ford Health.

OBJECTIVE: Trauma exposure poses a risk for diagnoses beyond trauma and stressor-related disorders listed in current psychological taxonomies. Alternative models, such as the Hierarchical Taxonomy of Psychopathology, posit that psychological phenomena are better organized in a hierarchical manner, with broader dimensions accounting for the covariation among lower order syndromes. Thus, the present study investigated the relationships between trauma exposure and internalizing syndromes through higher order psychological dimensions. METHOD: Undergraduates (N = 585) at a large midwestern university completed questionnaires, which included the Life Events Checklist for the Diagnostic and Statistical Manual of Mental Disorders (5th ed.), the Posttraumatic Stress Disorder Checklist for the Diagnostic and Statistical Manual of Mental Disorders (5th ed.), the Inventory for Depression and Anxiety Symptoms (2nd ed.), and the Childhood Trauma Questionnaire. Three structural equation models with stressors congruent and incongruent with Criterion A listed as predictors were used to examine the total, indirect, and direct effects for all internalizing indicators and first-order factors. RESULTS: After accounting for higher order dimensions, only insomnia and panic maintained a unique portion of variance explained by trauma variety. Trauma variety and interpersonal index traumas explained unique proportions of posttraumatic stress symptoms, but not distress or fear. CONCLUSIONS: Findings support the utility of assessing stressors through shared mechanisms within a hierarchical framework and substantiate trauma-induced insomnia theories through a novel relationship between trauma variety and insomnia. (PsycInfo Database Record (c) 2025 APA, all rights reserved).

Surgery

Abusuliman M, **Jafri SM**, Summers BB, Beduschi T, Boike J, Farmer DG, Horslen S, Lyer K, Langnas AN, Mangus RS, Matsumoto CS, Mavis AM, Mazariegos GV, **Nagai S**, O'Leary J, Schiano TD, Sudan DL, Abusuliman A, Sulejmani N, and Segovia MC. Trends in the Perioperative Practices for Immunological Assessment and Immunosuppression Strategies for Patients Undergoing Intestinal Transplantation at American Transplant Centers. *Transplant Proc* 2025; Epub ahead of print. PMID: 39890513. Full Text

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BACKGROUND: Intestinal transplantation (IT) is a complex procedure that requires nuanced immunosuppressive strategies to optimize patient outcomes. Despite advancements, significant variability remains in immunosuppressive protocols across transplant centers due to a lack of consensus on the optimal approaches for induction, maintenance, and clinical testing. This variability complicates standardization and identification of best practices for IT recipients. METHODS: A descriptive survey study was conducted to characterize immunosuppressive and testing strategies in IT at major transplant centers in the United States. Ten centers known to have performed over 10 ITs since 2015 were selected from the Scientific Registry of Transplant Recipients database. A 22-question survey was distributed to surgical directors, collecting data on pre-, peri-, and post-transplant immunological testing, desensitization strategies, immunosuppressive regimens, and management of antibody-mediated rejection (AMR) and acute cellular rejection (ACR). RESULTS: Nine centers (90%) responded. All centers conducted pretransplant human leukocyte antigen (HLA) and donor-specific antibody (DSA) testing, with varying frequencies and methodologies. Desensitization was reported by 44% of centers for isolated IT and by 22% for multivisceral transplants. Induction therapy predominantly involved antithymocyte globulin (89%) and rituximab (44%). Tacrolimus was universally used for maintenance, with varying trough level targets across centers. Post-transplant DSA testing was performed by all centers, and protocol-driven endoscopic bowel biopsies were routine at 67% of centers. AMR was diagnosed at 89% of centers, with plasmapheresis and IVIG being the most common treatments. Variability was noted in desensitization practices and AMR management. CONCLUSION: This survey highlights considerable consistency in pre- and post-transplant testing and immunosuppressive regimens for IT recipients, while significant variability exists in desensitization strategies and AMR management. Further research is needed to standardize these practices to improve patient outcomes across transplant centers.

Surgery

Chahrour M, **Chamseddine H**, **Shepard A**, **Nypaver T**, **Weaver M**, **Boules T**, Hoballah JJ, Aboul Hosn M, and **Kabbani L**. Endoscopic vein harvest is associated with worse but improving outcomes in infrainguinal bypass. *J Vasc Surg* 2024; Epub ahead of print. PMID: 39743157. Full Text

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OBJECTIVE: The impact of great saphenous vein harvest technique on infrainguinal bypass outcomes remains a matter of debate, with no robust evidence favoring a specific technique over the other. This study aims to compare the outcomes of open vein harvest (OVH) with endoscopic vein harvest (EVH) in patients undergoing infrainguinal bypass surgery. METHODS: Patients who underwent an infrainguinal bypass from a femoral origin using a single-segment great saphenous vein between 2011 and 2023 were identified in the Vascular Quality Initiative infrainguinal bypass module. Only patients undergoing a bypass for peripheral artery disease were included, and those undergoing in-situ bypass were excluded. Patients were then classified according to their vein harvest technique into OVH and EVH groups. Three-to-one nearest-neighbor propensity score matching without replacement was performed to ensure balance of covariates between the two comparison groups. Kaplan-Meier and Cox regression analysis were used to estimate long-term event rates and evaluate the association of vein harvest technique with the primary outcomes of primary patency, primary-assisted patency, secondary patency, reintervention, amputation, and major adverse limb events, defined as the composite outcome of amputation and/or reintervention. RESULTS: A total of 7929 patients who underwent OVH were matched to 2643 patients who underwent EVH. All baseline characteristics, demographics, and operative details were balanced after propensity score matching. EVH had a significantly lower rate of surgical site infections (1.8% vs

2.9%; P = .003), whereas other perioperative outcomes, including graft infection (P = .12), myocardial infarction (P = .16), stroke (P = .13), and return to operating room (P = .14) were similar between the two groups. At 1-year follow-up, OVH patients had a significantly higher primary patency (71% vs 65%; P < .001), primary-assisted patency (86% vs 81%; P < .001), and secondary patency (90% vs 85%; P < .001), and significantly lower rates of amputation (6% vs 9%; P < .001), reintervention (20% vs 25%; P < .001), and major adverse limb events (25% vs 30%; P < .001) compared with EVH patients. The primary patency of EVH bypasses significantly increased from 59% to 70% between 2011 and 2020 (P = .042). Although OVH had a significantly higher primary patency compared with EVH in 2011 to 2012 (72% vs 59%; P = .006), this difference diminished over time, with no significant difference observed in the most recent interval (2019-2020) studied (73% vs 70%; P = .214). CONCLUSIONS: Although EVH is associated with a lower postoperative wound complication rate, OVH conferred superior long-term outcomes of patency, reintervention, and limb salvage over the study period. Nonetheless, EVH has demonstrated improvements in primary patency over the years, significantly narrowing the gap in this outcome between the two harvest methods.

Surgery

Chamseddine H, **Shepard A**, **Constantinou C**, **Nypaver T**, **Weaver M**, **Boules T**, **Kavousi Y**, **Onofrey K**, **Peshkepija A**, **Halabi M**, and **Kabbani L**. Preoperative smoking cessation improves carotid endarterectomy outcomes in asymptomatic carotid stenosis patients. *J Vasc Surg* 2024; Epub ahead of print. PMID: 39608415. Full Text

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OBJECTIVE: Smoking cessation has been suggested as having the potential to improve the outcomes of carotid endarterectomy (CEA) and mitigate the risk of long-term stroke in patients with asymptomatic carotid stenosis (ACS). This study aims to compare the perioperative and long-term outcomes of CEA in patients with ACS across different smoking status groups. METHODS: All patients receiving an elective CEA for ACS between 2013 and 2023 were identified in the Vascular Quality Initiative (VQI). Patients with an ipsilateral carotid stenosis <70% and those receiving a concomitant coronary artery bypass graft were excluded. Patients were then classified according to their smoking status: never smokers, former smokers (defined as those who have stopped smoking more than 30 days prior to their operation), and current smokers. Patient characteristics and outcomes were compared using the $\chi(2)$ or Fischer exact test as appropriate for categorical variables and the analysis of variance or Kruskal-Wallis test as appropriate for continuous variables. Cox regression analysis was used to study the association between smoking status and the primary outcomes of long-term stroke and major adverse cardiac events (MACE) defined as the composite outcome of stroke, myocardial infarction, and/or mortality. RESULTS: A total of 77,664 patients received a CEA for ACS, of which 19,416 patients (25%) were never smokers, 39,374 patients (51%) were former smokers, and 18,874 patients (24%) were current smokers. Patients in the three groups had similar rates of perioperative stroke (P = .79), myocardial infarction (P = .07), mortality (P = .23), and MACE (P = .17). At 18-month follow-up, former and never smokers had similar rates of stroke (former 0.9% vs never 0.8%; P = .92), with former smokers exhibiting a lower stroke risk than current smokers (former 0.9% vs current 1.5%; P = .001). At 18 months, former smokers had a significantly lower rate of MACE compared with current smokers (former 11.8% vs current 13.2%; P = .03), but a higher rate compared with never smokers (former 11.8% vs never 8.7%; P < .001). On multivariate Cox regression analysis, compared with current smokers, former smokers were independently associated with a lower risk of stroke (hazard ratio [HR], 0.68; 95% confidence interval [CI], 0.53-0.87; P = .002), mortality (HR, 0.79; 95% CI, 0.74-0.84; P < .001), and MACE (HR, 0.77; 95% CI, 0.70-0.83; P < .001). No difference in long-term stroke risk was observed between former and never smokers (HR, 1.06; 95% CI, 0.82-1.38; P = .65). CONCLUSIONS: This study demonstrates that preoperative smoking cessation in patients with ACS significantly reduces the risk of stroke, mortality, and MACE following CEA compared with continued smoking, aligning their outcomes more closely with those of never smokers. Optimizing patients with ACS prior to surgery should include smoking cessation counseling. Vascular surgeons play a critical role in

encouraging smoking cessation, as their guidance can significantly improve patient outcomes following CEA.

Surgery
Diffley M, **Tang A**, **Sawar K**, **Al-Saghir T**, **Gonte M**, **Hall J**, **Tepper D**, **Darian V**, **Evangelista M**, and **Atisha D**. Comparative Postoperative Complications of Acellular Dermal Matrix and Mesh Use in Prepectoral and Subpectoral One-Stage Direct to Implant Reconstruction: A Retrospective Cohort Study. *Ann Plast Surg* 2025; Epub ahead of print. PMID: 39874556. Full Text

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BACKGROUND: One-stage direct-to-implant (DTI) breast reconstruction is increasingly popular with the use of prepectoral reconstruction leading to increased demand for structural scaffolds. It is vital to determine if differences in safety profiles exist among scaffolds. METHODS: We performed a retrospective cohort study of consecutive patients in our breast cancer center undergoing DTI reconstruction. Outcomes relating to postoperative infections, wound complications, and implant related complications were extracted. Outcomes were grouped into major, minor, and long-term complications. Univariate and multivariate analysis determined outcome differences and accounted for confounding variables. RESULTS: Two hundred forty-two patients (404 breasts) underwent DTI reconstruction. One hundred ninety-two breasts were reconstructed with FlexHD Pliable Preformed (PP; MTF Biologics, Edison, NJ), 122 with AlloDerm Ready To Use (RTU; Allergan Aesthetics, Irvine, CA), 22 with DermACELL (LifeNet Health, Virginia Beach, VA), 21 with Galaflex (Galatea Surgical, Lexington, MA), 22 with Meso BioMatrix (MTF Biologics), and 25 with autologous dermal flaps alone. Univariate analysis demonstrated statistically significant differences among scaffolds in the incidence of cellulitis treated with oral antibiotics, capsular contracture, explantation for capsular contracture, seroma requiring operative drainage, minor complications, and long-term complications. On multivariate regression, FlexHD PP had reduced rates of capsular contracture, explantation for capsular contracture, minor complications, and long-term complications compared to AlloDerm RTU. Reconstruction with Galaflex had increased rates of capsular contracture when compared to FlexHD PP. CONCLUSIONS: Certain structural scaffolds have differing safety profiles that should be considered when selecting, which product to use in DTI reconstruction.

Surgery
Gravely AK, Claasen M, **Ivanics T**, Winter E, Peralta P, Selzner M, and Sapisochin G. Factor V Serves as an Early Biomarker for Graft Loss After Liver Transplant: A Prospective Evaluation. *Clin Transplant* 2025; 39(2):e70086. PMID: 39869426. Full Text

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BACKGROUND: Low post-operative day (POD) 1 Factor V has been retrospectively associated with graft loss after liver transplantation when stratified by a cutoff of 0.36 U/mL. We aimed to validate this prospectively. METHODS: Patients transplanted at Toronto General Hospital were recruited (May 2018-March 2021). Factor V measurements were obtained on POD1-3, 5, and 7. Graft and patient survival at 3, 6, and 12 months were primary and secondary outcomes, respectively. We identified an optimal cutoff through receiver operating characteristic (ROC) analysis and the Youden index. Kaplan-Meier method and Log-rank tests were used to assess/compare survival. RESULTS: One hundred and twenty-nine patients were included. One hundred and eight had Factor V >0.36 and 21 had ≤0.36 U/mL. This cutoff was predictive of 6- and 12-month graft survival and 12-month patient survival. With an optimal cutoff of 0.46 U/mL on POD1, 87 patients had Factor V >0.46 and 42 had ≤0.46 U/mL. Three-, 6-, and 12-month graft survival rates were 100%, 98.8%, and 98.8%, for patients with Factor V >0.46 U/mL, and 92.9%,

87.7%, and 87.7% for Factor V ≤0.46 U/mL. Similarly, 3-, 6-, and 12-month patient survival rates were 98.8%, 96.4%, and 95.0% for patients with Factor V >0.46 U/mL, and 92.9%, 88.0%, and 82.9% for Factor V ≤0.46 U/mL. Stratification below the novel cutoff was associated with decreased graft survival at months 3 (p = 0.012), 6 (p = 0.006), and 12 (p = 0.006), and decreased patient survival at 12 months (p = 0.022). CONCLUSIONS: Factor V serves as an early biomarker for graft loss, with an optimal predictive cutoff of 0.46 U/mL in this prospective population. Validation of this new cutoff is necessary.

Surgery

Guerra-Londono CE, **Uribe-Marquez S**, **Shah R**, and Gottumukkala V. The increasing global burden of cancer: implications for anaesthesia and peri-operative medicine. *Anaesthesia* 2025; 80 Suppl 2:3-11. PMID: 39777643. Full Text

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INTRODUCTION: Most patients with cancer will require surgery at some point in their lifetime. As the global burden of cancer continues to increase, changes and challenges in cancer epidemiology and care are also borne peri-operatively. METHODS: Due to its broad scope, a formal systematic electronic literature search was not performed. This narrative review examines how an increasing global burden of cancer affects anaesthesia and peri-operative medicine. We aimed to describe current cancer statistics; economic implications; the increasing survival of individuals with cancer; and the role of anaesthetists in enhancing the quality of life and survival after oncological surgery. RESULTS: Epidemiological reports show wide variation in cancer incidence and mortality worldwide. Countries with a lower human development index will be disproportionately affected by greater increases in cancer burden. At the same time, these countries will also suffer larger deficits in the surgical and anaesthetic workforce. Cancer has significant macro- and micro-economic implications. Thus, public health and policy should address the large economic burden of cancer surgery and care. The improvement in cancer-related survival can be attributed to research focused on a deeper understanding of tumour biology; effective awareness education campaigns and screening programmes; early diagnosis; newer cancer therapies; and patient-centred precision care. Increasing survival brings new global challenges, such as delivering an adequate survivorship care plan and addressing long-term psychosocial concerns in survivors. Anaesthetists are involved in all phases of a patient's cancer journey including facilitating diagnostic procedures; providing comprehensive peri-operative care needs for ablative procedures; provision of critical care; addressing acute and chronic pain; and provision of integrative and palliative care services. DISCUSSION: Deeper engagement of anaesthetists in cancer care programmes will be instrumental in reducing postoperative complications; improving the quality of life for patients; enhancing population health; and contributing to improved global economies.

Surgery

Haley E, **Coyne P**, **Carlin A**, **Santarossa S**, **Loree A**, **Braciszewski J**, **Brescacin C**, and **Matero L**. Characteristics and Clinical Outcomes of Women with Polycystic Ovary Syndrome After Bariatric Surgery. *Obes Surg* 2025; Epub ahead of print. PMID: 39821895. Full Text

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BACKGROUND: Polycystic ovary syndrome (PCOS) commonly co-occurs with obesity, medical comorbidities, and psychiatric symptoms. Bariatric surgery is an effective treatment for co-occurring obesity and PCOS. While the incidence of PCOS declines substantially after bariatric surgery, the condition is still present for a subset of women. Examining characteristics and clinical outcomes of those with and without PCOS post-surgery may underscore potential risk factors or intervention targets. METHODS: Individuals up to four years after bariatric surgery were invited to participate in this cross-sectional survey study, which included validated measures of depression, anxiety, eating disorder pathology, and quality of life. Post-surgical weight outcomes, medical comorbidities, and mental health treatment engagement were also assessed. Regression analyses were performed to examine differences in outcomes between those with and without a PCOS diagnosis after bariatric surgery. RESULTS: Of the 657 female (sex assigned at birth) participants who underwent bariatric surgery, 7% (n = 46) reported having a current diagnosis of PCOS. All females identified as women. Women with PCOS were significantly younger ($p < 0.001$) and were more likely to endorse migraines ($p < 0.007$) and loss of control (LOC) eating episodes (< 0.001) since undergoing surgery. Additionally, 47.8% of women with PCOS endorsed clinically significant anxiety, compared to 25.7% of women without PCOS ($p = 0.03$). There were no differences in other demographic, psychiatric, or medical characteristics. CONCLUSION: Despite the low prevalence of PCOS diagnoses in the four years after bariatric surgery, this subpopulation may be particularly susceptible to migraines, disinhibited eating behavior, and anxiety, although weight and cardiometabolic outcomes were comparable to those without a diagnosis of PCOS post-surgically.

Surgery
Hutchings H, Aspiras O, Lucas T, and **Okereke I**. Addressing Lung Cancer Screening Disparities: More Work To Be Done. *Ann Thorac Surg Short Rep* 2024; 2(4):673. PMID: 39790572. Full Text

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Surgery
Kaljee L, **Antwi S**, **Dankerlui D**, Harris D, Israel B, **White-Perkins D**, **Ofori Aboah V**, Aduse-Poku L, **Larrious-Lartey H**, Brush B, Coombe C, Patman L, Cawthorne N, Chue S, Rowe Z, **Mills C**, **Fernando K**, Daniels G, **Walker EM**, and **Jiagge E**. Cancer clinical trial participation: a qualitative study of Black/African American communities' and patient/survivors' recommendations. *JNCI Cancer Spectr* 2025; 9(1). PMID: 39585656. Full Text

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BACKGROUND: Black/African Americans experience disproportionate cancer burden and mortality rates. Racial and ethnic variation in cancer burden reflects systemic and health-care inequities, cancer risk

factors, and heredity and genomic diversity. Multiple systemic, sociocultural, economic, and individual factors also contribute to disproportionately low Black/African American participation in cancer clinical trials. METHODS: The Participatory Action for Access to Clinical Trials project used a community-based participatory research approach inclusive of Black/African American community-based organizations, Henry Ford Health, and the University of Michigan Urban Research Center. The project aims were to understand Black/African Americans' behavioral intentions to participate in cancer clinical trials and to obtain recommendations for improving participation. Audio-recorded focus group data were transcribed and coded, and searches were conducted to identify themes and subthemes. Representative text was extracted from the transcripts. RESULTS: Six community focus group discussions (70 participants) and 6 Henry Ford Health patient/survivor focus group discussions (29 participants) were completed. General themes related to trial participation were identified, including (1) systemic issues related to racism, health disparities, and trust in government, health systems, and clinical research; (2) firsthand experiences with health care and health systems; (3) perceived and experienced advantages and disadvantages of clinical trial participation; and (4) recruitment procedures and personal decision-making processes. Specific recommendations on how to address barriers were obtained. CONCLUSIONS: Community-based participatory research is effective in bringing communities equitably to the table. To build trust, health systems must provide opportunities for patients and communities to jointly identify factors affecting cancer clinical trial participation, implement recommendations, and address health disparities.

Surgery

Madill-Thomsen KS, Gauthier PT, **Abouljoud M**, Bhati C, Bruno D, Ciszek M, Durlik M, Feng S, Foroncewicz B, Grąt M, Jurczyk K, Levitsky J, McCaughan G, Maluf D, Montano-Loza A, **Moonka D**, Mucha K, Myślak M, Perkowska-Ptasińska A, Piecha G, Reichman T, Tronina O, Wawrzynowicz-Syczewska M, Zeair S, and Halloran PF. Defining an NK Cell-enriched Rejection-like Phenotype in Liver Transplant Biopsies From the INTERLIVER Study. *Transplantation* 2025; Epub ahead of print. PMID: 39780312. Full Text

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BACKGROUND: Initial analysis of liver transplant biopsies in the INTERLIVER study (ClinicalTrials.gov; unique identifier NCT03193151) using rejection-associated transcripts failed to find an antibody-mediated rejection state (ie, rich in natural killer [NK] cells and with interferon-gamma effects). We recently developed an optimization strategy in lung transplants that isolated an NK cell-enriched rejection-like (NKRL) state that was molecularly distinct from T cell-mediated rejection (TCMR). Here we apply the same strategy to a liver transplant biopsy population. METHODS: We used this strategy to search for a molecular NKRL state in 765 consented liver transplant biopsies collected at participating international centers for gold-standard histology and molecular assessment by genome-wide microarrays. Validation through a training set-test set approach of an optimized selection of variables as inputs into unsupervised

rejection classification identified an NKRL state in livers. RESULTS: The full model classified 765 biopsies into the following molecular phenotypes, characterized by their gene expression: no-rejection 54%, TCMR 16%, NKRL 13%, and injury 16%. Top TCMR transcripts were expressed in effector T cells; top NKRL transcripts were almost exclusively expressed in NK cells; and both had increased interferon-γ-inducible transcripts, which were more pronounced in TCMR. Most TCMR biopsies had significant parenchymal injury, molecular fibrosis, and abnormal biochemistry. NKRL biopsies had no excess of injury, fibrosis, or biochemistry abnormalities. CONCLUSIONS: Optimized rejection algorithms indicate that some liver transplants manifest an NKRL state that is well tolerated in the short term postbiopsy and with minimal injury and relatively normal biochemistry, while also underscoring the potential of TCMR to produce extensive parenchymal injury.

Surgery

Mankani MH, Mahmud O, **Hafeez MS**, Javed MA, Arain MA, Ul-Haq M, and Rana AA. Factors Associated With Long-term Kidney Allograft Survival: A Contemporary Analysis of the UNOS Database. *Transplant Proc* 2025; Epub ahead of print. PMID: 39893091. Full Text

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BACKGROUND: Various clinicopathologic markers, such as 1-year serum creatinine (Cr), have been used to prognosticate kidney allografts after transplantation. However, a contemporary analysis of their relationship with long-term graft survival is lacking. This study aimed to analyze recent data on the association of prognostic factors with kidney allograft survival in patients who underwent transplantation in the modern era. METHODS: Adult kidney-transplant recipients in the UNOS database (2008-2020) were identified. Living and deceased donor allografts were analyzed separately and stratified by 1-year serum Cr level: ≤1.0, 1.0 to 1.5, 1.5 to 2.0, and >2.0 mg/dL. Time-to-event analysis was performed with long-term death-censored graft survival as the primary outcome. In addition, factors associated with raised 1-year serum Cr and with long-term allograft failure were identified. RESULTS: 174,547 patients were included. Ten-year survival decreased with increasing 1-year creatinine, and these trends persisted on adjusted analysis for both living donor (Cr ≤ 1.0 mg/dL: reference; Cr 1.0-1.5 mg/dL aHR = 1.77 [1.59-1.96]; Cr 1.5-2.0 mg/dL aHR = 3.24 [2.89-3.64] and; Cr > 2.0 mg/dL aHR = 9.78, [8.64-11.07], P < .01) as well as deceased donor allografts (Cr ≤ 1.0 mg/dL: reference; Cr 1.0-1.5 mg/dL aHR = 1.74 [1.63-1.86]; Cr 1.5-2.0 mg/dL aHR = 3.06 [2.84-3.30] and; Cr > 2.0 mg/dL aHR = 8.51, [7.89-9.18], P < .01). CONCLUSION: These results characterize the association between 1-year serum creatinine levels and other clinicopathologic factors with long-term kidney allograft survival. We demonstrate the ability of prognostic factors to stratify patients by risk of graft failure in a contemporary patient cohort that is representative of current practice and outcomes.

Surgery

Moazzam Z, Hawkins AT, Regenbogen SE, Holder-Murray J, Silviera M, Ejaz A, Balch GC, and Khan A. Association of Enhanced Recovery After Surgery (ERAS) with textbook outcomes among patients undergoing surgery for rectal cancer. *Surgery* 2025; 180:109062. PMID: 39793415. Full Text

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BACKGROUND: Surgical resection is the cornerstone of rectal cancer treatment but can be associated with adverse short-term postoperative outcomes. We sought to assess the factors associated with achievement of optimal outcomes among patients undergoing surgery for rectal cancer. METHODS: In this multicenter retrospective cohort study, the US Rectal Cancer Consortium database was used to identify patients who underwent surgery for nonmetastatic rectal cancer between 2007 and 2018. The primary outcome was achievement of a Textbook Outcome. A Textbook Outcome is a composite outcome defined as the absence of any postoperative complications, extended length of stay (>75th percentile), 90-day readmission, and 90-day mortality. Multivariable logistic regression analyses were conducted to identify factors associated with the achievement of a Textbook Outcome, and reported as odds ratios and 95% confidence intervals. RESULTS: Among 1,102 patients who underwent surgery for rectal cancer, Textbook Outcome was achieved by 41.8% (n = 461) of patients. On multivariable analyses, American Society of Anesthesiologists-Physical Status >2 (odds ratio 0.66, 95% confidence interval 0.50-0.88), diabetes (0.57, 0.38-0.87), operative time >3.5 hours (0.52, 0.39-0.69), and perioperative packed red blood cells transfusion (0.20, 0.12-0.34) were associated with decreased odds of achieving a Textbook Outcome. Conversely, Enhanced Recovery After Surgery was associated with increased odds of achieving a Textbook Outcome (1.93, 1.45-2.58). CONCLUSIONS AND RELEVANCE: Despite improvement in recent years, short-term outcomes after rectal cancer surgery remain suboptimal. Patient optimization strategies such as Enhanced Recovery After Surgery are essential to facilitate the achievement of optimal outcomes in patients undergoing rectal cancer surgery.

Surgery
Nasser H. Surgical management of candy cane syndrome after Roux-en-Y gastric bypass. *Surg Obes Relat Dis* 2025; Epub ahead of print. PMID: 39828475. Full Text

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Surgery
Pegues JN, Chang CH, **Alnajjar RM**, Zhou S, Hawkins RB, DeLucia A, 3rd, Schwartz CF, Thompson MP, Braun TM, Barnes GD, Hammond EN, Pagani FD, and Likosky DS. Disparities in 180-day Infection Rates Following Coronary Artery Bypass Grafting and Aortic Valve Replacement. *J Thorac Cardiovasc Surg* 2025; Epub ahead of print. PMID: 39824343. Full Text

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OBJECTIVE: To compare sex and racial differences in 180-day infection rates after coronary artery bypass grafting (CABG) and aortic valve replacement (AVR). METHODS: A Statewide Society of

Thoracic Surgeons Adult Cardiac Surgery Database was linked to Medicare claims data to identify 8,887 beneficiaries undergoing CABG and AVR (surgical or transcatheter) between 2017 and 2021. The primary outcome was the incidence of 180-day infection. Secondary outcomes included ten infection subtypes. Multivariable logistic regression was used to evaluate the relationship between sex and race (Black versus non-Black) and infections. Two secondary analyses were conducted: (1) robustness of the primary analysis after excluding urinary tract infections "UTIs" given established sex-related differences and (2) testing a sex*race interaction. RESULTS: The mean (SD) age of the cohort was 74.5 (8.9) years, with 36.9% female and 4.2% Black. The infection rate was 19.6%, although varied by patient sex (female versus male: 23.7% versus 17.1%) and race (Black versus non-Black: 28.0% versus 19.2%), both p<0.0001. Differences in infection rates for females were driven by UTI, while pneumonia for Black patients. Risk-adjusted odds of infection were 1.6-fold significantly higher among female while non-significant for among Black patients. A sex*race interaction was present, with non-Black females versus non-Black males having a 1.63 higher odds of infection. CONCLUSION: This multi-center study identified a 1.6-fold higher odds of infection among female patients. Non-Black female versus male patients had a 63% higher odds of infection. Transdisciplinary collaborative learning interventions should be considered to address these known disparities in infection rates.

Surgery

Raza SS, Zhou S, Barnett NM, Chang CH, Hawkins RB, **Alnajjar R**, DeLucia A, 3rd, Schwartz CF, Thompson MP, Braun TM, Hammond EN, Wolverton J, Pagani FD, and Likosky DS. Interhospital Variability in 180-day Infections Following Cardiac Surgery. *J Thorac Cardiovasc Surg* 2025; Epub ahead of print. PMID: 39800274. Full Text

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OBJECTIVE: This study sought to: (1) evaluate hospital-level variation in infections following cardiac surgery and (2) develop and evaluate a 180-day infection quality metric. METHODS: This study evaluated Medicare claims that were merged with institutional Society of Thoracic Surgeons Adult Cardiac Surgery Database files among patients undergoing cardiac surgery across 33 Michigan centers. The primary outcome was an infection within 180 days of surgery. Adjusted institutional infection rates were estimated using logistic regression with robust variance estimation. Terciles of observed/expected ratios were created to assess interhospital variability in infections and associated morbidity and mortality. RESULTS: In total, 5,466 operations were evaluated. Average (SD) age was 71.1 ± 7.8 years, 29.5% were female, and 4.8% of patients were of Black race. The infection rate was 21.2% although higher among females. Infections were associated with lower left ventricular ejection fraction, diabetes, severe chronic lung disease, cerebrovascular disease, and urgent operations (all p<0.0001). The most common infection was pneumonia (8.5%). Adjusted infection rates varied 39.5% across hospitals (7.2%-46.7%). Patients in the highest versus lowest observed/expected infection tercile hospitals had increased associated discharge to extended care/rehabilitation (27.9% versus 24.7%, p<0.0001) although equivalent stroke and mortality risk. CONCLUSIONS: One in five Medicare beneficiaries develop a 180-day infection following cardiac surgery, with rates varying 39.5% across hospitals. Patients at higher versus lower O:E tercile hospitals were more commonly discharged to extended care/rehabilitation settings although equivalent rates of

stroke and mortality. Collaborative learning interventions may be warranted to advance the observed variability in 180-day infections.

Urology
Butaney M, and **Jeong W**. Surgical options for advanced renal cell carcinoma. *Urol Oncol* 2025; Epub ahead of print. PMID: 39893105. Full Text

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Detection of advanced renal cell carcinoma (RCC) is not uncommon, although there has been a stage migration due to frequent use of abdominal imaging allowing early detection of renal masses. Since open IVC thrombectomy was introduced in 1972, minimally invasive approaches such as laparoscopic approach, hand-assisted approach and robotic approach have been adopted. While robotic surgery has potential benefits to improve perioperative outcomes, and our experience with robotic surgery has grown significantly over the last decade, open surgery at an academic center remains the standard of care in this setting. In the setting of metastatic RCC, cytoreductive nephrectomies have been discussed for many years but their indications are unclearly defined, although cytoreductive nephrectomy can be considered in patients with disease largely limited to the kidney or on-going or impending symptomatic disease. Significant advances have been made in systematic therapy for RCC which will eventually lead to the evolution of neoadjuvant and adjuvant therapy in patients with advanced RCC. The surgical management of advanced RCC is a major and complex undertaking but has shown to be feasible and effective.

Urology
Çayan S, Altay AB, **Rambhatla A**, Colpi GM, and Agarwal A. Is There a Role for Hormonal Therapy in Men with Oligoasthenoteratozoospermia (OAT)? *J Clin Med* 2024; 14(1). PMID: 39797269. Full Text

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Hormonal factors play an essential role as an underlying causative factor of oligoasthenoteratozoospermia (OAT), and these patients can benefit from hormonal medications that modulate the hypothalamic-pituitary-gonadal axis. This review aims to outline the various medications used as hormonal therapy in treating infertile men with OAT. This manuscript focuses on essential hormonal evaluation, identifying men who would benefit from treatment, selecting the appropriate medication, determining the duration of therapy, and evaluating hormonal treatment outcomes. Additionally, novel markers that can broaden the horizon of hormonal treatment in infertile men with OAT are discussed. Hormonal-based therapy options in men with OAT include selective estrogen receptor modulators (SERMs), aromatase inhibitors (AIs), dopamine agonists, and injections such as gonadotropin-releasing hormone (GnRH) analogs and gonadotropins. Treatment duration and the expected success will dictate the final treatment type for couples. In conclusion, hormonal therapy may improve spermatogenesis in infertile men with low serum testosterone. Gonadotropins and SERMs may increase sperm parameters in men with infertility and normal serum gonadotropin levels. AIs might help improve spermatogenesis in infertile men with a total testosterone (ng/mL)/estradiol (pg/mL) ratio < 0.10. In addition, dopamine agonists may play a role in enhancing spermatogenesis in infertile men with hyperprolactinemia.

Urology

Cirulli GO, **Stephens A**, **Chiarelli G**, **Finati M**, **Bertini A**, **Chase M**, **Tinsley S**, **Arora S**, Sood A, Lughezzani G, Buffi N, Carrieri G, Salonia A, Briganti A, Montorsi F, **Rogers C**, and **Abdollah F**. Comparing PSA Screening Patterns and Their Role as Predictor of Prostate Cancer Diagnosis: Analysis of a Contemporary North American Cohort. *Prostate* 2025; e24856. Epub ahead of print. PMID: 39869547. Full Text

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INTRODUCTION: PSA screening remains a pivotal tool for early prostate cancer (PCa) detection. International guidelines rely on evidence from three major randomized clinical trials: ERSPC, PLCO, and CAP. We aim to examine the percentage of patients in real-world practice who get PSA screening as defined by each of the aforementioned trials. Moreover, we seek to evaluate if the different PSA screening patterns have a different impact on PCa incidence and its features at diagnosis. MATERIALS AND METHODS: Our institutional database was queried to identify men aged 55-69 who received at least one PSA test, did not develop PCa or die within 6 years of the initial test, had follow-up within our system at least 6 years after the initial test, and did not have a previous PCa diagnosis. A total of 28,612 patients met our selection criteria. We categorized patients into three distinct PSA screening patterns based on testing frequency (PLCO: 1 PSA test per year for 6 years; ERSPC: 2 or 3 PSA tests over 6 years; CAP: 1 PSA test over 6 years). Our primary outcomes were any PCa incidence and clinically significant PCa (csPCa, defined as ISUP ≥ 3) incidence. Secondary outcome was the rate of cM1 disease. Competing risks cumulative incidence curves were used to depict any PCa and csPCa diagnosis with death before a diagnosis considered a competing risk. Multivariable competing risks regression (CRR) was used to assess the impact of the different screening patterns on any PCa and csPCa incidence, after adjusting for confounding factors. RESULTS: The most prevalent PSA screening pattern was ERSPC, including 15,530 patients (54.3%), followed by the CAP with 9003 patients (31.5%), and the PLCO with only 4079 patients (14.2%). The median (IQR) follow-up time was 4.8 (1.7-10.8) years. At 10 years, any PCa incidence was 7.4% versus 5.6% versus 2.5% for PLCO versus ERSPC versus CAP, respectively, while for csPCa, the rates were 2.5% versus 2.5% versus 1.2% (both $p < 0.001$). On multivariable analyses, PLCO and ERSPC patterns were associated with 2.92-fold and 2.31-fold higher risks from 1 year to the next of any PCa diagnosis, respectively, compared to CAP pattern (both $p < 0.001$). Similarly, patients with PLCO and ERSPC patterns had 2.07-fold and 2.31-fold higher risks, respectively, of csPCa diagnosis compared to CAP pattern (both $p < 0.001$). In men with PCa diagnosis, the rates of cM1 disease were respectively 1.7% vs 5.6% vs 10.8% for PLCO versus ERSPC versus CAP, respectively ($p = 0.0009$). CONCLUSION: We observed that the most common screening pattern in "real-world" clinical practice is close to what ERSPC recommend, and this pattern seems to achieve a reasonable reduction in the risk of advanced PCa, while limiting overdiagnosis.

Urology

Finati M, Cindolo L, Busetto GM, Arcaniolo D, Perdonà S, Lucarelli G, Veccia A, Aveta A, Autorino R, and Pandolfo SD. Ejaculation preservation in BPH: a question of size? *Minerva Urol Nephrol* 2024; 76(6):794-796. PMID: 39831862. Full Text

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Urology
Kolanukuduru KP, **Jeong W**, **Pistin L**, **Abdollah F**, Tewari AK, and Menon M. Treatment decision regret after precision prostatectomy: An analysis of patient-reported outcomes predicting decision regret. *BJUI Compass* 2025; 6(1):e476. PMID: 39877582. Full Text

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OBJECTIVES: This study aimed to assess postoperative decision regret (DR) after precision prostatectomy (PP), a novel subtotal surgical technique for prostate cancer (PCa) that involves the preservation of the unilateral capsule and seminal vesicle, and to identify factors predictive of DR after PP. MATERIALS AND METHODS: After a shared decision-making process, 128 patients underwent PP for the treatment of localised PCa. Given the subtotal nature of the surgery, patients were informed about the possibility of a detectable prostate-specific antigen and secondary treatment. Between 6 and 12 months of follow-up, DR was analysed using the previously validated decision regret score (DRS). A univariable linear regression analysis was performed to analyse factors predictive of DR after PP. RESULTS: Between 6 and 12 months after PP, objective measurements of DR were obtained on 64 patients who completed the DRS. At the time of DRS, 16 patients were impotent (SHIM < 17), while six were incontinent (≥1 pad/day). The median time to DRS was 10 months (IQR 7.5-11.8). Only two patients (3.1%) reported significant DR after PP (DRS > 25), while 53 patients (83%) reported no regret (DRS = 0). The median DRS was 0 (0-0). Incontinence and impotence at the time of DRS predicted higher DR after PP (incontinence estimate: 11.3 ± 3.2, $p < 0.001$; impotence estimate: 5.4 ± 2.3, $p = 0.02$). CONCLUSIONS: The incidence of DR after PP is low, with only 3% of patients reporting significant regret. Patients who are either incontinent or impotent after PP are more likely to regret their decision. Further studies with larger sizes and longer follow-ups are required to measure the longitudinal trends in DR after PP.

Urology
Mahmutoglu AM, Agarwal A, Sahin B, Reiss TA, Sengupta P, Pinggera GM, Alipour H, Cannarella R, Wyns C, Arafa M, Calogero AE, Mostafa T, Chung E, Farkouh A, Motawi A, **Rambhatla A**, Palani A, Colpi GM, Gül M, Çayan S, Rosas IM, Hamoda TAA, and Shah R. Reducing Quotation Errors in Scientific Manuscripts: A Novel Approach from the Global Andrology Forum. *World J Mens Health* 2025; Epub ahead of print. PMID: 39843175. Full Text

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PURPOSE: This study investigated 1) the frequency of quotation errors in multi-authored medical manuscripts in andrology, 2) analyzed common types of quotation errors and the methods used to rectify them, and 3) evaluated their impact on manuscript accuracy, credibility, and research conclusions. MATERIALS AND METHODS: Twelve manuscripts written by the Global Andrology Forum (GAF) members between 2023 and 2024 were randomly selected for this study. The manuscripts and "Quotation Verification Sheets" were analyzed by senior GAF researchers to detect the number and types of quotation errors. The error rate was calculated by the total number of quotation errors and total number of all cited references in each manuscript. The impact on manuscript sections was assessed using a 0-4 grading scale. The Spearman correlation test was used to assess the correlation between scalar variables, and the Mann-Whitney U test was utilized to compare scalar variables between two groups. RESULTS: The median value of quotation errors was 10.3%. Factual inaccuracy was the most common type of error, and was observed in all twelve manuscripts at various rates. The number of errors was significantly associated with the number of references (ρ=0.706; p=0.010) and in-text citations (ρ=0.636; p=0.026). Factual inaccuracy (ρ=0.588; p=0.044) and factual interpretation (ρ=0.861; p=0.013) were also correlated with the total number of quotation errors. However, no significant associations were found between quotation errors and author numbers or their qualifications. The quotation errors adversely impacted the manuscript discussion, followed by the overall message. CONCLUSIONS: Quotation errors are common in multi-authored medical manuscripts in andrology-related scientific articles. Journal editorial offices should incorporate quotation verification into the review process. Limiting references and in-text citations to only strictly necessary ones may help improve quotation accuracy. The quotation verification model proposed by GAF offers a practical and structured approach for detecting and correcting quotation errors.

Urology

Maison POM, Arkoh P, Sani A, Mensah-Baidoo EE, Owusu G, Danso EY, Koufie NB, Andzie S, Gyamfi P, Omane E, **Antwi S**, **Palanisamy N**, **Hwang C**, **Walker E**, Ofori Aboah V, and **Jiagge EM**. Barriers to orthodox medical care of prostate cancer in Ghana. *Sci Rep* 2025; 15(1):1051. PMID: 39775019. Full Text

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Traditional medicine is widely used in sub-Saharan Africa, particularly in Ghana, where it is commonly integrated with modern orthodox medicine. This study examines the barriers that delay the pursuit of orthodox medical care for prostate cancer (PCa) in Ghana's Central region, where a blend of traditional and modern orthodox medicine exists. The preference for indigenous traditional medicine often results in late-stage presentations of PCa, adversely affecting patient outcomes. This prospective cross-sectional study was conducted from July to December 2022 at the Cape Coast Teaching Hospital (CCTH) and in four local communities. We investigated why men prefer traditional over orthodox medicine and identified cultural beliefs, attitudes, and gaps in health awareness that contribute to delays in diagnosing and treating PCa. The study involved administering questionnaires, providing education on PCa, and conducting free prostate-specific antigen (PSA) screening. Ethical approval was obtained from the Ethics Research Committee of the Ghana Health Service. A total of 282 patients participated, including 268 men from the communities and 14 diagnosed with PCa at CCTH after initially consulting traditional healers. Of the community-recruited patients who underwent PSA testing, 26% had elevated PSA levels and underwent further diagnostic procedures. Ultimately, nine of 268 community patients were confirmed to have PCa. Most patients (57.4%) had limited education, which correlated with late presentations and various misconceptions about PCa. The study highlights significant cultural and economic barriers that lead to the late-stage presentation of PCa among men in Ghana's Central region. There is a critical need for a culturally sensitive, multi-pronged strategy that enhances public education about the benefits of early diagnosis and fosters collaboration between traditional healers and orthodox healthcare providers to improve prostate cancer outcomes in Ghana.

Urology

Mercedes R, Corey Z, Gaither T, Lehman E, Lemack GE, Clifton MM, Klausner AP, Mehta A, **Atiemo H**, Lee R, Sorensen MD, Smith R, Buckley J, Thompson RH, Breyer BN, Badalato GM, Wallen EM, and Raman JD. Impact of Subsequent Fellowship on Urology Chief Resident Case Log Volumes. *J Surg Educ* 2025; 82(4):103433. PMID: 39848088. Full Text

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OBJECTIVE: To characterize the impact of subsequent fellowship on the case log experience of trainees throughout their residency and specifically their chief resident year. MATERIALS AND METHODS: Urology resident case logs from 2010 to 2022 were obtained from 13 institutions for total residency and chief years. Five categorized index procedures were included for analysis: General Urology; Endourology; Reconstructive Urology; Urologic Oncology; and Pediatric Urology. Subsequent fellowship data (yes/no and type) were available for 338. Regression models analyzed the interactions of case log volumes and subsequent fellowship RESULTS: Of the 338 residents, 141 (42%) went onto practice and 197 (58%) completed a fellowship including 53 in oncology, 44 in reconstruction, 43 in endourology, 29 in pediatric,

and 28 in another nonindexed domain. A total of 419,353 cases were logged during training, including 125,319 (30%) during the chief resident year. The median number of total cases completed per resident increased irrespective of subsequent fellowship. Conversely, the median number of total cases completed during chief year declined with the slope of decline being significant in those residents not completing a fellowship [slope = -2.44, CI: (-4.66, -0.23), p-value = 0.031]. Temporal trends demonstrated that absence of subsequent fellowship was associated with decrease in chief resident cases across all index domains (p for all < 0.001). The specific type of fellowship, however, had no association with chief year trends. CONCLUSIONS: The median number of chief resident cases has declined, most significantly in those trainees not pursuing a fellowship, possibly reflecting a focus on urology encounters which are not captured in ACGME logs.

Urology
Raza J. Editorial Comment. *J Urol* 2025; 101097. Epub ahead of print. PMID: 39772636. Full Text

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Urology
Salka BR, Boynton D, Nwachukwu C, Lyu B, Noyes SL, Tobert CM, and Lane BR. Concordance of surgical treatment selection with the AUA guidelines for localized renal masses. *Urol Oncol* 2025; Epub ahead of print. PMID: 39884897. Full Text

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OBJECTIVE: To examine and evaluate guideline concordance of surgical treatment selection at a community-based health system. The AUA guidelines provide specific guidance regarding appropriate utilization of radical nephrectomy (RN) and partial nephrectomy (PN). However, nearly 40% of patients did not fit a guideline-specified scenario in a prior report. METHODS: Retrospective review of consecutive surgical patients (7/2019-9/2022) identified indications for RN/PN relative to 3 criteria: tumor complexity (RENAL ≥ 9), oncologic risk (size ≥ 7cm, cT3a, infiltrative features, and/or renal mass biopsy with high-risk features), and renal function (preoperative GFR ≥ 60 ml/min/1.73m(2); predicted GFR following RN ≥ 45 ml/min/1.73m(2)). RESULTS: Of 372 surgeries for cT1a-cT3aN0M0 renal masses, 138 were RN (37%) and 234 were PN (63%). Overall, 247 patients (66%) fit a guideline-specified scenario: 35 (9%) had a strong indication for RN of whom 34 underwent RN (97%) and 212 (57%) had a strong indication for PN of whom 191 underwent PN (90%). Of 125 patients (34% of total) that did not fit guidelines scenarios, 83 underwent RN (66%) and 42 underwent PN (34%). Oncologic risk was the most influential factor in both guideline-specified and non-specified cases with 96% of patients with high-oncologic risk undergoing RN whether renal function was adequate or impaired. Fellowship-trained urologic-oncologists were more likely to perform PN than general urologists for non-specified cases (47% vs. 28%, P < 0.001). CONCLUSION: We found strong AUA guideline compliance for RN and PN with some over-utilization of RN. Our results confirm that more than one third of cases are uncategorized. Subsequent iterations of guidelines could incorporate more cases by expanding indications for appropriate RN. Regardless, complex cases may benefit from tumor boards and multidisciplinary review.

Anesthesiology

Khairy M, Hawatian K, Bradley T, Rao A, Booher TR, Haupfear I, **Dercon S**, **Zetuna S**, **Attisha T**, **Mcclain-Gierach S**, Khalil F, **Page B**, **Gunaga S**, **Miller J**, and **Karmo B**. 766 Hematoma expansion in patients with spontaneous intracranial hemorrhage: Role of emergency department transfer. *Acad Emerg Med* 2024; 31(S1):339. Full Text

Background and Objectives: Patients with spontaneous intracranial hemorrhage (sICH) have high mortality and frequently require transfer to a Comprehensive Stroke Center (CSC). The transfer process can delay critical aspects of guideline-based care. Our objective was to measure the association of ED transfer with hematoma expansion in patients with sICH. Methods: This was an observational study analysing the Get with the Guidelines Stroke Registry from large CSC receiving transfers across southeast Michigan. We analysed data from 2019 to 2023 of all sICH adults admitted to the CSC, excluding those with traumatic etiology. Transfer patients were defined as those sent to the CSC from a separate ED. Investigators calculated hematoma volume for presenting and 24-h CT images using the ABC/2 formula. The registry also included validated ICH score data, incorporating age, ICH volume, intraventricular extension, and anatomical location. The primary outcome was hematoma expansion, defined by any increase in hematoma volume from baseline. Analysis included descriptive statistics and multivariable logistic regression. Results: We included 333 patients with spontaneous ICH. The mean age was 62.1?±?15.2?years, 179 (53.8%) presenting directly to a CSC and 154 (46.3%) requiring transport to the CSC. The overall cohort had 161 (48.4%) females, 177 (53.2%) African Americans, and 105 (31.5%) Caucasians. There were 52 (34.0%) patients on anticoagulation: 27 (51.9%) in the non-transfer cohort and 25 (48.1%) in the transfer cohort. Among the 52 patients on anticoagulation, 33 (63.5%) were on direct oral anticoagulants (DOAC). Mortality was similar in both groups: 31 (17.3%) patients in the non-transfer cohort and 25 (16.2%) in the transfer cohort (p?=?0.79). Hematoma expansion was present in 51 (15.4%) patients: 11 (6.1%) in the non-transfer cohort and 40 (25.9%) in the transfer cohort. Adjusting for baseline ICH score and use of a DOAC, transfer patients had significantly higher odds of hematoma expansion compared to non-transfer patients (odds ratio 5.1, 95% CI 2.5–10.3, p?<?0.001). Conclusion: Among all patients with sICH presenting to a CSC, patients requiring transfer had significantly greater odds of hematoma expansion compared to those not requiring transfer. Further data is needed to determine if delays in guideline-based care explain this finding.

Cardiology/Cardiovascular Research

Chang CH, **Keteyian SJ**, Hummel SL, Koelling TM, Nallamothu BK, Sandhu AT, Dorsch MP, and Golbus JR. Guideline Directed Medical Therapies Among Heart Failure Patients Enrolled In Cardiac Rehabilitation. *J Card Fail* 2025; 31(1):252. Full Text

Background: Heart failure with reduced ejection fraction (HFrEF) guideline-directed medical therapy (GDMT) is lifesaving though medical optimization occurs rarely and slowly. With frequent in-person assessments, cardiac rehabilitation (CR) could be an important opportunity for GDMT optimization. We sought to describe prescribed GDMT among CR enrollees with HFrEF. We hypothesized that GDMT optimization would be low throughout CR. Methods: We queried the University of Michigan EMR and identified patients with most recent (within 12 months) LVEF ≤ 40% and a primary diagnosis of HF who attended CR between January, 2016 and August, 2023. We defined CR cycles as at least 6 CR sessions with no greater than 6 months between consecutive sessions. Using a previously validated algorithm, we generated medication optimization scores (MOS) at the first and final CR session within each cycle. Inputs for the algorithm used data closest to each time point. This included HF GDMT (excluding SGLT2 inhibitors), NYHA classification (assumed NYHA class 2 or 3 HF), systolic BP (SBP), heart rate, creatinine, potassium, allergies, and race we used an SBP cutoff of 100mmHG to define eligibility for titration. The MOS is a percent between 0 (least optimized) and 100 (most optimized). Descriptive statistics were used to summarize population characteristics, and Wilcoxon Signed-Rank analysis was used to compare MOSs at the start and end of CR. Results: 172 CR cycles were completed by 152 patients (63.8% male, 78.3% White, mean age 67.5 [SD 12.1] years), including 18 patients who completed 2 CR cycles and 2 who completed 3 CR cycles (Table 1). The mean number of sessions per CR cycle was 26.3 (SD 10.6). At the end of CR, 85 (49.4%) patients were on a beta-blocker, 84 (48.8%)

an ACE inhibitor/ARB/ARNI, and 31 (18.0%) an MRA. After accounting for contraindications to GDMT, patients were eligible for initiation or uptitration of at least 1 class of GDMT at the end of 144 (83.7%) CR cycles (Table 1). The median MOS at the start of CR was 39% (IQR 14 - 57) and at the end of CR was 35% (IQR 14 - 57) (p= 0.79). Conclusion: GDMT utilization among patients with HFrEF participating in CR is suboptimal and does not improve over time in routine practice. There is substantial opportunity to develop and validate strategies to improve GDMT prescribing during CR.

Cardiology/Cardiovascular Research
Cowger J, and Chakouri N. Patient-reported Outcomes In Heart Failure: Insights From A Simplified Kccq In Heartmate 3 Lvad Recipients. *J Card Fail* 2025; 31(1):200-201. Full Text

Background: Patient-reported outcomes, such as the Kansas City Cardiomyopathy Questionnaire (KCCQ), are pivotal in assessing the impact of left ventricular assist device (LVAD) support on patients' heart failure-related quality of life (hf-QOL) as part of hierarchical outcomes. However, translating improvements in composite KCCQ scores into a meaningful message for patients and referring providers remains challenging. In registries, incompleteness of KCCQ scores is also common after 1 year, perhaps due to questionnaire length. Purpose: This study aims to a) evaluate the utility of a simplified KCCQ score in describing the LVAD patient journey and b) to generate a patient-friendly graphic on hf-QOL trajectory for use during shared decision making encounters. Methods: Question-level KCCQ responses were analyzed in HeartMate 3 LVAD recipients from the MOMENTUM 3 studies (2,200 patients) preoperatively and at 6- 12-, and 24-months after implant. Patients had to complete one preoperative and ≥1 postoperative KCCQ assessment for inclusion. The simplified LVAD-KCCQ is as follows: 23 KCCQ questions from 5 domains were simplified into 5 questions, 1 from each domain. Response options were consolidated into severely, moderately and minimal/none from 5-7 prior options. The trajectories of within patient changes in the simplified KCCQ domains were evaluated at each time point. Results: There were sustained improvements from baseline in the summary standard and simplified KCCQ scores and within each simplified domain, beginning 6 months postoperatively (table 1, figure 1). Intra-patient improvements occurred rapidly in each domain and were sustained to two years. Of those who were severely limited in their enjoyment of life (blue) prior to LVAD (n=1133), <17.8% (n=202) and <8.2% (n=93) had persistently severe limitations at 6 months and 1 year, respectively. Overall, 63% of patients has no/minimal limitations at 2 years (Fig 1A, Fig 2). Similar rapid and sustained improvements were noted for response to the other simplified KCCQ domains (Fig 1B-C). Conclusion: An assessment of individual simplified KCCQ domain responses allows for a succinct assessment of the patient journey after HM3. These data may assist in improving KCCQ data compliance with registries and in conveying average changes in hf-QOL after LVAD to patients.

Cardiology/Cardiovascular Research
Husain A, **Hawatian K**, **Emakhu JO**, **Morton TJ**, **Cook B**, **Klausner N**, **Schwab E**, **Nassereddine H**, **Tuttle JE**, **Wanis N**, **Almri Y**, **Klausner HA**, **Gunaga S**, **Krupp SS**, **McCord J**, and **Miller J**. 280 Exploring the value of nonspecific electrocardiogram findings in the setting of low high-sensitivity troponin levels. *Acad Emerg Med* 2024; 31(S1):136. Full Text

Background and Objectives: The value of non-specific electrocardiogram (ns-ECG) findings to modify the risk for myocardial infarction (MI) in the context of low high-sensitivity cardiac troponin I (hs-cTnI) is uncertain. Our objective was to assess the relationship between ns-ECG findings and the occurrence of 30-day major adverse cardiac events (MACE) among patients with low hs-cTnI values. Methods: We conducted a secondary analysis of the RACE-IT trial, a cluster randomized trial performed across 9 EDs from July 2020 through March 2021. The trial included all patients being evaluated for MI and tested the safety and effectiveness of a 0/1-h accelerated protocol using hs-cTnI compared to conventional troponin testing using a 0/3-h protocol. The trial excluded patients with ST-elevation MI and hs-cTnI values >?99th percentile. For this analysis, we included patients that ruled-out in 0/1-h (all hs-cTnI values <8?ng/L). We defined ns-ECG findings as left bundle branch block (LBBB), ST-segment depression or elevation less than 1?mm, or T-wave inversions (TWI). Adjudicators determined 30-day MACE (death or MI). Analysis included descriptive statistics and multivariable logistic regression. Results: We included 16,606 patients who ruled-out for MI within 1-h in this analysis. The mean age was 53.4?years (SD 17.8), 9820 (59.3%) were female, and 5367 (32.3%) Black. There were 3345 (20.1%) patients with ns-ECG findings, of which

2145 (12.9%) had ST-segment changes and 1317 (8.4%) had TWI. Thirty-day MACE occurred in 66 (0.40%) patients, including 47 (0.29%) deaths (38 adjudicated as non-cardiac) and 19 (0.11%) MIs (16 adjudicated as Type II AMI). There was no significant difference in MACE events based on the presence of ns-ECG findings overall (OR 1.38, 95% CI 0.79–2.39, p?=?0.257). The presence of ST-segment changes, however, had a trend towards greater odds of MACE (OR 2.53, 95% CI 0.92–6.99, p?=?0.076). Conclusion: Non-specific ECG findings in the setting of low hs-TnI were not associated with greater MACE events in this large trial with a low overall prevalence of MACE.

Cardiology/Cardiovascular Research

Kramarenko DR, Shukr B, **Stephan J**, **Bin L**, **Peterson E**, Amin AS, **Lanfear D**, and Pinto Y. Premature Ventricular Contractions As A Predictive Marker For Cardiac Events In Stable Heart Failure Patients. *J Card Fail* 2025; 31(1):253-254. Full Text

Introduction: Even though premature ventricular contractions (PVCs) are often viewed as harmless, recent studies show that a πρεχεδινγ PVC beat might be inefficient. It suggests that even a moderate number of PVCs could reduce contractile efficiency and elevate event risk. Yet, the prevalence of moderate to high PVCs (>5%) in stable heart failure (HF) patients and the association between PVC percentage and cardiac event risk in stable HF patients are still unclear. Aim: This study aimed to quantify HF patients with >5% PVCs and to evaluate the predictive power of PVCs for cardiac events. Methods: Our study retrospectively reviewed 651 HF patients from Amsterdam UMC (AUMC) with LVEF < 40% or NTproBNP > 600 pg/ml, and 180 HF patients from Henry Ford Hospital (HFH) with LVEF < 40%. We employed a multivariable Cox regression model to evaluate predictors of cardiac events, such as all-cause mortality, VT/VF and/or ICD shocks, and cardiac arrest, selecting variables with p < 0.05 from univariable analysis. For survival models, numeric variables not fitting a normal distribution were transformed into categorical variables using ROC-derived thresholds. Results: In AUMC and HFH cohorts, the median age was 64 years, with 43.5% and 50% females, respectively. Approximately, 9-11% of patients in both cohorts had more than 5% PVCs. In AUMC cohort, individuals in the top three PVC deciles faced significantly higher event risk than lower deciles (Figure 1). Based on univariable analysis, four predictors, including PVC %, NT-proBNP, occurrences of bi/trigeminy, and NSVT were selected for inclusion in the multivariable survival model. Thresholds of 0.5% for PVCs and 6000 pg/ml for NTproBNP were used. PVCs greater than 0.5% were significantly linked to an increased risk of cardiac events, exhibiting hazard ratios (HR) greater than two across all models with significant p-values, and slightly outperforming NSVT in predictive strength. (Table 1) Conclusions: Our analysis across two independent cohorts reveals that 9-11% of stable HF patients exhibit a notable PVC burden (>5% of total beats), even with adequate treatment. In AUMC cohort, PVC burden exceeding 0.5%, equal to about 3-4 beats per minute, is significantly associated with increased cardiac event risk, suggesting PVC's predictive power may rival that of NSVTs.

Cardiology/Cardiovascular Research

Maligireddy AR, Macari R, Khan S, Sharma A, Gokul K, Rojulpote C, **Aggarwal V**, and Mikhalkova D. Percutaneous Coronary Intervention In Nstemi Patients With Heart Failure And Leukemia: Insights From The National Readmission Database. *J Card Fail* 2025; 31(1):273. Full Text

Background: Cardiac disease is often associated with oncology patients. Our study aims to address the knowledge gap regarding the outcomes of non-ST-elevation myocardial infarction (NSTEMI) patients who have leukemia with concomitant heart failure and are undergoing percutaneous coronary intervention (PCI), providing new insights into this underexplored area. Methods: Between 2016 and 2020, we utilized the National Readmission Database to identify adult patients hospitalized for Non-ST-Elevation Myocardial Infarction (NSTEMI) who have a diagnosis heart failure and leukemia. All statistical analyses were conducted using Stata 18.0 software. Results: From our inclusion criteria, we identified 4,451 hospitalizations, of which 1,286 (28.9%) underwent PCI. The baseline patient characteristics are reported in Table 1. Compared to patients who were not re-vascularized, PCI patients were younger (median age 76 vs 79 years, p<0.05) and had a lower frailty score (median score 4.4 vs 5.6, p<0.05). Mortality was higher in patients who were not re-vascularized (no-PCI) (11.8% vs 5.6%, p<0.05). Gastrointestinal bleeding rates were similar between the two groups (7.1% vs 5.6%, p>0.05). Interestingly, acute kidney injury rates were higher in the non-PCI group (43% vs 37%,p<0.05). Conclusion: The observed higher

mortality and complication rates in the non-PCI group, characterized by older age and higher frailty, underscore the impact of patient selection on treatment outcomes. This disparity highlights the complexity of managing NSTEMI patients with comorbid conditions, suggesting a need for more nuanced approaches to treatment planning and further research to optimize strategies for this high-risk population.

Cardiology/Cardiovascular Research
Millard MJ, Ashburn NP, Snavely AC, Allen BR, Christenson RH, Madsen T, **McCord J**, Mumma BE, Hashemian T, Supples MW, Stopyra JP, Wilkerson RG, and Mahler SA. 540 Performance of the high-sensitivity troponin in the evaluation of patients with acute coronary syndrome pathway among patients with known coronary disease in a United States population. *Acad Emerg Med* 2024; 31(S1):254-255. Full Text

Background and Objectives: The high-sensitivity cardiac troponin T (hs-cTnT) High-STEACS early rule-out pathway is designed to rule-out myocardial infarction (MI) in emergency department (ED) patients with symptoms concerning for acute coronary syndrome (ACS). However, its diagnostic performance in patients with known coronary artery disease (CAD) is unclear. The objective of this study is to assess the performance of the algorithm among patients with and without known CAD in a multisite U.S. cohort. Methods: We conducted a secondary analysis of the STOP-CP cohort, which enrolled adult ED patients with possible ACS across 8 U.S. sites (1/25/2017–9/6/2018). Participants were stratified into outpatient and admission dispositions using established High-STEACS hs-cTnT (Roche, Basel, Switzerland) cut-points. Known CAD was determined by the treating provider and defined as prior MI, coronary revascularization, or ?70% coronary stenosis. Algorithm performance was evaluated for the adjudicated outcome of 30-day cardiac death or MI. Fisher's exact tests compared disposition and 30-day cardiac death or MI rates among patients with and without known CAD. Negative predictive values (NPV) for 30-day cardiac death or MI were calculated along with exact 95% confidence intervals and compared based on CAD status with a Fisher's exact test. Results: Among 1328 patients, 46.4% (616/1328) were female and 31.7% (421/1328) had known CAD, with a mean age of 57.4±12.8?years. At 30?days, cardiac death or MI occurred in 13.6% (180/1328). High-STEACS classified fewer patients with known CAD to the outpatient disposition vs. those without known CAD (47.0% [198/421] vs. 71.4% [648/907]; p?<?0.001). Among those with an outpatient disposition, cardiac death or MI at 30?days was increased in patients with known CAD (3.5% [7/198]) vs. those without known CAD (1.2% [8/648]); p?=?0.04. The NPV for 30-day cardiac death or MI was 96.5% (95% CI: 92.9–98.6) in patients with known CAD compared to 98.8% (95% CI: 97.6–99.5) in patients without known CAD; p?=?0.06. Conclusion: The hs-cTnT High-STEACS algorithm classified a large proportion of patients to the outpatient disposition. However, patients with known CAD assigned to the outpatient disposition had a moderate adverse event rate, suggesting that clinicians may need to be cautious using High-STEACS in patients with known CAD.

Cardiology/Cardiovascular Research
Montgomery C, Ashburn NP, Snavely AC, Allen BR, Christenson RH, Madsen T, **McCord J**, Mumma BE, Hashemian T, Supples MW, Stopyra JP, Wilkerson RG, and Mahler SA. 86 Do sex-specific high sensitivity troponin cut points improve safety and efficacy? *Acad Emerg Med* 2024; 31(S1):47. Full Text

Background and Objectives: Data comparing the performance of sex-specific to non-sex-specific high-sensitivity cardiac troponin (hs-cTn) cut-points for diagnosing acute coronary syndrome (ACS) are limited. This study evaluated the safety (30-day cardiac death or myocardial infarction [MI]) and efficacy (rule-out rate) when using sex-specific vs. non-sex-specific (overall) 99th percentile hs-cTnT cut-points. Methods: We conducted a secondary analysis of the STOP-CP cohort, which prospectively enrolled adult ED patients with possible ACS across 8 U.S. sites (1/25/2017–9/6/2018). Participants with both 0- and 1-h hs-cTnT measures (Roche, Basel, Switzerland) less than the 99th percentile were classified into the rule-out group. The 99th percentile was defined using (1) a sex-specific strategy using a 99th percentile of 22?ng/L for males and 14?ng/L for females and (2) an overall strategy using a 99th percentile of 19?ng/L. The safety outcome was adjudicated cardiac death or MI at 30?days. Efficacy was determined by the proportion classified to the rule-out group. McNemar's test compared rule-out rates between strategies. Negative predictive values (NPV) with 95% confidence intervals were calculated and compared using a generalized score statistic. The net reclassification improvement (NRI) index further compared performance. Results: During the study period 1430 patients were enrolled, of which 45.8% (655/1430)

were female and the mean age was 57.6?±?12.8?years. At 30?days, cardiac death or MI occurred in 12.8% (183/1430). The rule-out rate was lower when using sex-specific vs. overall cut-points (69.2% [990/1430] vs. 71.7% [1025/1430]; p?<?0.001). Among rule-out patients, the rate of 30-day cardiac death or MI was similar in the sex-specific (2.0% [20/990]) vs. overall (2.1% [22/1025]) cut-point strategies, which yielded similar NPVs of 98.0% (95% CI: 96.9%–98.8%) and 97.9% (95% CI: 96.8%–98.7%), respectively (p?=?0.52). Among patients with cardiac death or MI, the use of sex-specific vs. overall cut-points correctly reclassified 3 females and incorrectly reclassified 1 male. The sex-specific strategy resulted in 32 patients being incorrectly reclassified as rule-in. This led to an NRI of -1.6% (95% CI: ?4.1% to 1.0%). Conclusion: Use of a sex-specific high sensitivity troponin cut-point strategy resulted in lower efficacy (rule-out rate) without an apparent improvement in safety compared to an overall cut-point strategy.

Cardiology/Cardiovascular Research

Rawlley B, **Gupta K**, Bansal K, Vaishnav P, Ochani RK, Khalid S, Somerville A, Cordova Sanchez A, and Chaudhuri D. Risk of Structural and Hemodynamic changes in Left Atrium in Patients with Heart Failure undergoing Percutaneous Left Atrial Appendage Occlusion: A Retrospective Analysis. *Circ Res* 2024; 135. Full Text

B. Rawlley

Background: Exclusion of left atrial appendage (LAA) in animals reduces compliance and increases left atrial pressure. We hypothesize that percutaneous left atrial appendage occlusion (LAAO) would lead to structural and hemodynamic changes in left atrium and assess the risk using echocardiographic cut-offs used for evaluating left atrial pressure in heart failure patients. Methods: We queried TriNetx database for adult patients with heart failure undergoing percutaneous LAAO. We excluded those who underwent surgical or alternative percutaneous procedures pertaining to LAA, procedures pertaining to mitral valve (MV), mitral valvular pathologies, mechanical circulatory support placement, pacemaker placement, and those with left bundle branch block. We calculated risk of meeting echocardiographic cut-offs used in evaluation of left atrial pressure; MV maximum E-wave velocity >=50cm/s, left atrial end systolic volume index (LAESVI) indexed to body surface area >=34 ml/m2, Tricuspid Regurgitation systolic jet velocity >= 2.8 m/s, Pulmonary vein Systole/Diastole ratio <= 1, mitral valve lateral annulus E/e' >= 13 and Mitral valve E/A ratio >=2. Those meeting the respective cut-off before LAAO were excluded. All diagnoses, procedures, and echocardiographic parameters were identified using International Classification of Diseases, Current Procedural Terminology, and Logical Observation Identifiers Names and Codes. Results: We identified 4,046 patients with heart failure undergoing percutaneous LAAO. Baseline demographics and diagnosis were; mean (SD) age 75.4 (8.1) years, 37% females, 92% hypertension, 67% ischemic heart disease, 42% diabetes mellitus, 41% chronic kidney disease, and 42% were overweight or obese. Risk of meeting echocardiographic cut-offs used in evaluating left atrial pressure was low with 0.24% (10) patients having LAESVI indexed to body surface area >=34 ml/m2, Tricuspid Regurgitation systolic jet velocity >= 2.8 m/s, Pulmonary vein Systole/Diastole ratio <= 1, and Mitral valve E/A ratio >= 2. Risk of having MV maximum E-wave velocity >=50cm/s was 0.58% and no patients had mitral valve lateral annulus E/e' >= 13. (Figure 1) Conclusion: Risk of meeting echocardiographic cut-offs used in evaluation of left atrial pressure in patients with heart failure undergoing percutaneous LAAO is low.

Cardiology/Cardiovascular Research

Sabbah HN, **Gupta RC**, **Zhang K**, and **Lanfear DE**. Abnormalities Of Mitochondrial Function In Renal Epithelial Cells Of Dogs With Chronic Heart Failure And Dogs With Cardiorenal Syndrome. *J Card Fail* 2025; 31(1):245. Full Text

Background: Chronic heart failure (HF) is often accompanied by abnormalities of kidney function that contribute to progressive worsening of the HF state. Cardiorenal syndrome (CRS) in humans with HF is sometimes attributed to kidney underperfusion secondary to low cardiac output and/or low renal perfusion pressure, but the cellular mechanism(s) is not fully understood. We previously showed that mitochondrial (MITO) function is abnormal in cardiomyocytes of the failing heart, and it is possible that similar energetic dysfunction in the kidneys contributes to renal dysfunction in HF. In the present study, we tested the

hypothesis that MITO function is abnormal in kidneys of dogs with chronic HF and dogs with CRS compared to normal (NL) dogs. Methods: MITO functional studies were performed in fresh renal epithelial cells isolated from the left kidney of 6 NL dogs, 6 HF dogs (LV ejection fraction 34±1 %) and 6 CRS dogs (LV ejection fraction 33±2%), for a total n=18 animals. HF was produced using coronary microembolizations. CRS was produced in HF dogs by unilateral nephrectomy of the right kidney and creation of a stenosis of the left renal vein sufficient to result in renal venous congestion (increasing venous pressure by 20-30 mmHg). MITO function was assessed as follows: 1) Mitochondrial ADP-stimulated state-3 respiration (ADPresp) was measured using a Strathkelvin respirometer, 2) mitochondrial complex-IV (COX-IV) activity was measured polarographically, 3) mitochondrial membrane potential (Δψm) was measured using the fluorescent cationic JC-1 dye, and 4) mitochondrial maximum rate of ATP synthesis (ATPsyn) was measured using the bioluminescent ApoSENSOR assay kit. Results: The table summarizes all MITO function measurements. ADPresp, COV-IV activity, Δψm, and ATPsyn were significantly lower in renal epithelial cells from HF dogs compared to NL dogs. Moreover, all MITO parameters were significantly lower in cells from CRS dogs when compared to NL dogs as well as to HF dogs. Conclusions: MITO function of renal epithelial cells is abnormal in HF dogs and markedly compromised in CRS dogs. MITO abnormalities likely contribute to renal dysfunction that accompanies HF. Additional investigations are needed to test if interventions that improve MITO function in the setting of HF can protect renal function or treat CRS.

Cardiology/Cardiovascular Research

Venkateswaran VR, **She R**, **Cabral WC**, **Williams LK**, **Gui H**, and **Lanfear DE**. Proteomic Response Predictor (PRP) For Beta Blocker Survival Benefit In Heart Failure Patients With Reduced Ejection Fraction. *J Card Fail* 2025; 31(1):265. Full Text

Background: To improve prediction of individual responses to beta-blocker (BB) therapy in Heart failure with reduced ejection fraction (HFrEF) patients, various novel approaches such as proteomics are being used. Aim: Our goal was to derive and validate a proteomic response predictor (PRP) for BB survival benefit in HFrEF patients. Methods: A total of 930 patients with Heart Failure (HF) and low ejection fraction (EF<50%) from the Heart Failure Pharmacogenomic Registry (HFPGR) were studied. Plasma was profiled using SOMAscan v4 (approximately 5k proteins). The cohort was randomly divided into a derivation subset of 623 patients and a validation set in the remaining n=307. The component proteins of PRP were selected using Lasso-penalized Cox regression of all-cause mortality focusing on protein-by-BB interaction, and adjusted for MAGGIC score, BB propensity score, and race. The PRP score was generated using the coefficients from the Cox model results. The PRP was then tested in the validation group as both a continuous variable and a dichotomized variable. Results: Ten proteins (Table 1) were selected for the optimal PRP in the derivation subset. In validation testing, the interaction of BB with PRP on mortality was significant (P=0.000635). To dichotomize the PRP, various cutoffs were compared across deciles within the derivation group. When PRP is dichotomized at the median, the HR associated with BB treatment in the in favorable response PRP group was 0.41 while in the PRP non-responder group and was 1.78 (95%CI = 1.08-2.93) which was statistically significant (Pinteraction=0.016). Conclusions: Using proteomic profiling of plasma, a 10 protein predictor of BB response in HFrEF was created and validated.

Clinical Quality and Safety

Fagan T, **Joseph J**, **Faraone H**, **Miller J**, and **Manteuffel J**. 90 Increasing naloxone prescriptions through electronic medical record best practice advisory alerts. *Acad Emerg Med* 2024; 31(S1):49. Full Text

Background and Objectives: Deaths from opiate overdose remain a persistent public health crisis. Naloxone can rapidly reverse a fatal overdose and evidence shows reduced mortality when naloxone is available in the community. Though clinicians are generally willing to prescribe naloxone or order naloxone take home kits for high-risk patients, prescriptions and kit distribution remain inconsistent. We hypothesize that the implementation of a Best Practice Advisory (BPA) alert within the electronic medical record (EMR) can increase the number of naloxone take home kits and prescriptions given to high-risk patients in the ED. Methods: In this retrospective chart review, we identified cases using opioid use disorder (OUD) or opioid overdose ICD-10 codes over an 11-month period from November 2022 through

September 2023. The chart review was inclusive of 10 EDs across a regional health system. After identification of cases with appropriate ICD-10 codes, charts were abstracted to determine whether naloxone was ordered as a take home kit or prescribed. In October 2023 an EMR BPA was implemented triggered by OUD and opioid overdose diagnosis ICD-10 codes with a disposition of discharge home. We reviewed cases from November 2023 to determine the number of BPA fires that prompted a clinician to order a naloxone take home kit or prescribe naloxone. Analysis included Fisher exact testing. Results: From November 2022 through September 2023 there were 869 cases identified meeting ICD-10 code criteria, in which 362 patients received either a naloxone take home kit or a prescription for naloxone at a rate of 41.7%. Chart review from November 2023 yielded 23 cases meeting ICD-10 codes and a discharge home disposition triggering the BPA to fire with 22 of those patients receiving a naloxone take home kit or a naloxone prescription at a rate of 95.7%. Of those that received naloxone, 19/22 (86.4%) received naloxone take home kit. The BPA was associated with a 6.6 times higher odds of receiving a naloxone kit or prescription (95% confidence interval: 2.2–19.7). Conclusion: Increasing naloxone availability should be considered an important part of a multi-pronged approach to combating the opioid epidemic. BPAs within the EMR could be a low-cost, effective intervention to increase naloxone availability for patients at-risk of opioid overdose in the ED. Further investigation is needed to explore patient centered outcomes related to ED naloxone and OUD.

Emergency Medicine

Beyer M, Mowbray FI, **Wanis N**, Berger DA, Brent CM, Dunne R, Shields TA, **Ball MT**, **Miller J**, and **Klausner HA**. 39 Comparing outcomes of mechanical and manual cardiopulmonary resuscitation in out-of-hospital cardiac arrest: A retrospective cohort study. *Acad Emerg Med* 2024; 31(S1):8-401. Full Text

Background and Objectives: Out-of-hospital cardiac arrest (OHCA) is a leading cause of death in the United States, with over 350,000 per year. Despite improvements in care, OHCA outcomes remain low. Chest compressions can be administered manually or via an automated mechanical device. Mechanical CPR (mCPR) devices are designed to achieve return of spontaneous circulation (ROSC) by delivering consistent compression depth and rate. This retrospective cohort of the Michigan Cardiac Arrest Registry to Enhance Survival (CARES) compared survival to hospital discharge with good neurological status (CPC 1 or 2) between manual and mechanical CPR. Methods: The CDC collaborated with Emory University in 2004 to develop a national registry of OHCA data. CARES uses Utstein-style reporting guidelines, which provide a standard, structured framework to collect and report data of cardiac arrest. From the Michigan CARES registry, a retrospective cohort of 65,641 OHCA from 2013 to 2022 were reviewed. After excluding pediatric arrests (N?=?1454), cases where ROSC was achieved before EMS arrival (N?=?519), and missing data on CPR modality (N?=?12,650) were left with 51,018 for analysis. Multivariable logistic regression was used to conduct 1:1 nearest neighbor propensity score matching and to estimate the adjusted average marginal effect of mCPR used on hospital discharge with good neurological status, defined as CPC of 1 or 2. Results: Patient population was described as subgroups of mCPR and manual CPR. Average age was (67.0, 64.2)?years with (62.5%, 59.7%) being male. (17%, 16.4%) of our sample had shockable cardiac rhythm. After statistically adjusting for age, sex, arrest location, witnessed arrest, AED application, etiology of arrest (cardiac vs. noncardiac), shockable cardiac rhythm, and epinephrine use, no difference in risk of surviving to hospital discharge with good neurological status between those who received manual and mCPR was found (Risk Difference?=??0.001; SE?=?0.002; 95%CI?=??0.0005 to 0.04; p?=?0.81). Conclusion: Previous analysis from 2015 indicated worse neurological outcome for mCPR, our propensity matched analysis has demonstrated no difference in risk of survival to hospital discharge with good neurological status between those who received manual and mCPR. This study contributes valuable insights to the discussion surrounding OHCA management. There may be future benefit to identify subgroups most likely to benefit from mCPR.

Emergency Medicine

Bunch CM, Weiping L, Zachariya S, **Nehme J**, **Condon S**, **Chien C**, **Tuttle JE**, **Haidar S**, Lin K, Walsh M, **Cook B**, **Lopez-Plaza I**, **Hayward J**, Kwaan H, **Miller J**, Walsh M, Hall T, Stegemann J, and Deng C. 29 Resonant acoustic rheometry predicts transfusion requirements and correlates to clauss fibrinogen and thromboelastography results. *Acad Emerg Med* 2024; 31(S1):21. Full Text

Background and Objectives: Disordered hemostasis associated with life-threatening hemorrhage commonly afflicts patients in the emergency room, critical care unit, and perioperative settings. Clinicians in these arenas are seeking a point-of-care global hemostasis test to rapidly diagnose coagulopathies and guide blood components and hemostatic adjuncts to reverse aberrant coagulofibrinolysis. Resonant acoustic rheometry (RAR) is an ultrasound-based viscoelastic biomaterial characterization technique which offers key advantages over current shear rheometric assays in terms of speed, throughput, reduced sample volume, and increased information content. Methods: Here, a convenience sample of pathologic plasma samples from 38 patients were tested under nine unique reagent conditions with RAR to compare with concomitant clinical Clauss fibrinogen, conventional coagulation assays, whole blood TEG® 6s results, patient demographics, and transfusion requirements. About half of the patients were admitted for major surgery, the most common cases being cardiac surgery (n?=?5, 13.2%), general surgery (n?=?5, 13.2%), and organ transplantation (n?=?7, 18.4%). Other reasons for hospitalization included traumatic injury (n?=?5, 13.2%), decompensated cirrhosis (n?=?10, 26.3%), septic shock (n?=?1, 2.6%), post-cardiac arrest syndrome (n?=?1, 2.6%), cardiogenic shock requiring peripheral venoarterial extracorporeal membrane oxygenation (n?=?2, 5.3%), and non-cirrhotic gastrointestinal bleeding (n?=?2, 5.3%). Results: The RAR parameter Final Resonant Frequency (FRF) demonstrated agreement with the Clauss fibrinogen and TEG functional fibrinogen. RAR parameters Start Time and Duration demonstrated agreement with the TEG reaction time. Significantly, RAR FRF correlated to the clinical need for cryoprecipitate across all nine RAR reagent conditions. Additionally, plasma administration correlated to the RAR parameters when kaolin and Tissue Factor were used as coagulation activators. Conclusion: These results lay the foundation for future study with whole blood to further elucidate RAR's bedside potential for sensitivity to fibrinogen content and fibrinolysis in bleeding patients.

Emergency Medicine

Fagan T, **Joseph J**, **Faraone H**, **Miller J**, and **Manteuffel J**. 90 Increasing naloxone prescriptions through electronic medical record best practice advisory alerts. *Acad Emerg Med* 2024; 31(S1):49. Full Text

Background and Objectives: Deaths from opiate overdose remain a persistent public health crisis. Naloxone can rapidly reverse a fatal overdose and evidence shows reduced mortality when naloxone is available in the community. Though clinicians are generally willing to prescribe naloxone or order naloxone take home kits for high-risk patients, prescriptions and kit distribution remain inconsistent. We hypothesize that the implementation of a Best Practice Advisory (BPA) alert within the electronic medical record (EMR) can increase the number of naloxone take home kits and prescriptions given to high-risk patients in the ED. Methods: In this retrospective chart review, we identified cases using opioid use disorder (OUD) or opioid overdose ICD-10 codes over an 11-month period from November 2022 through September 2023. The chart review was inclusive of 10 EDs across a regional health system. After identification of cases with appropriate ICD-10 codes, charts were abstracted to determine whether naloxone was ordered as a take home kit or prescribed. In October 2023 an EMR BPA was implemented triggered by OUD and opioid overdose diagnosis ICD-10 codes with a disposition of discharge home. We reviewed cases from November 2023 to determine the number of BPA fires that prompted a clinician to order a naloxone take home kit or prescribe naloxone. Analysis included Fisher exact testing. Results: From November 2022 through September 2023 there were 869 cases identified meeting ICD-10 code criteria, in which 362 patients received either a naloxone take home kit or a prescription for naloxone at a rate of 41.7%. Chart review from November 2023 yielded 23 cases meeting ICD-10 codes and a discharge home disposition triggering the BPA to fire with 22 of those patients receiving a naloxone take home kit or a naloxone prescription at a rate of 95.7%. Of those that received naloxone, 19/22 (86.4%) received naloxone take home kit. The BPA was associated with a 6.6 times higher odds of receiving a naloxone kit or prescription (95% confidence interval: 2.2–19.7). Conclusion: Increasing naloxone availability should be considered an important part of a multi-pronged approach to combating the opioid epidemic. BPAs within the EMR could be a low-cost, effective intervention to increase naloxone availability for patients at-risk of opioid overdose in the ED. Further investigation is needed to explore patient centered outcomes related to ED naloxone and OUD.

Emergency Medicine

Glotfelty J, Ji Y, Stritzel H, Huibregtse ME, House SLL, Beaudoin FL, Haran JPP, Storrow ABB, **Lewandowski C**, Musey PI, Hendry PL, Jones CWW, and McLean SA. 530 Standardized evaluation of duration of loss of consciousness may aid in risk stratification for traumatic brain injury. *Acad Emerg Med* 2024; 31(S1):250. Full Text

Background and Objectives: Emergency physicians risk stratify millions of patients each year for traumatic brain injury (TBI). Patient report of loss of consciousness (LOC) is commonly used to identify individuals at increased TBI risk (e.g., for CT scanning). Many patients who report LOC report a relatively brief duration of LOC. Whether such reports of a relatively brief duration of LOC are associated with increased risk of TBI is not known. Methods: Trauma survivors (n?=?2721, mean age 35.1, 60.5% female, 75.3% MVC) presenting to 28 US emergency departments (EDs) were enrolled into a large-scale longitudinal Study. Enrolled patients were evaluated for head strike and LOC and had plasma samples obtained in the ED. GFAP levels were analyzed using the Quanterix Simoa Discovery Platform. Associations between LOC duration (few seconds (fewsec), <1?min (<1?min), and ?1?min (?1?min)), GFAP levels, and patient characteristics were assessed. Results: Among individuals who reported hitting their head (1287/2496, 52%), 314/1200 (26%) reported LOC. Among individuals reporting LOC, 105/270 (39%) reported LOC for a fewsec, 41/270 (15%) reported LOC for <1?min, and 124/270 (46%) reported LOC ?1?min, respectively. Mean GFAP levels differed between these 3 groups: 220?pg/mL (fewsec), 643?pg/mL (<1?min), and 841?pg/mL ?1?min), F?=?7.857, p?<?0.001. GFAP levels of those reporting LOC for a few seconds only were within the range of previously published data for healthy normals. Individuals reporting a more brief duration of LOC reported a greater sense of life threat at the time of injury (p?<?0.029) and higher levels of pre-trauma stress (p?<?0.044). Conclusion: Standardized evaluation of LOC duration may improve TBI risk stratification. Evaluation of risk stratification tools that incorporate LOC duration or needed. Major funding provided by U.S. Army Medical Research and Development Command Grant W81XWH22C0122 and NIMH Grant U01MH110925.

Emergency Medicine

Goubert R, **Patel M**, **Vajda P**, **Betham BA**, **Wanis N**, and **Klausner HA**. 486 Comparing emergency department patient care hours in pre-COVID-19 and post-COVID-19 eras. *Acad Emerg Med* 2024; 31(S1):229-230. Full Text

Background and Objectives: Previous research shows the development of significant emergency department (ED) boarding during and after the COVID-19 pandemic and an increase in length of stay (LOS) time. Labor productivity benchmarks used in staffing ED's are commonly based on units of service (e.g., annual patient volume) without consideration of boarding or ED length of stay (LOS). These metrics may argue for fewer staff to cover the ED even when due to the increased LOS, more patients are present in the ED and receiving care. This retrospective data abstraction compared the ED annual volume, patient care hours delivered, and ED LOS in 2019 and 2022 to hypothesize that by increasing LOS time, providing longer care for fewer patients annually may require additional staffing, not less. Methods: Data was retrospectively abstracted from the electronic medical record for 2019 and 2022. The median census of patients receiving treatment (excluding the waiting room census) in the ED during that calendar year was plotted by hour of the day. The area under the curve was calculated to get the median patient care hours per day. We compared the total number of ED visits, median daily patient care hours delivered, and the median ED LOS. This study was evaluated by our hospital's IRB and deemed exempt and not human subject research. Results: Annual patient visits to the ED in 2019 and 2022 were 99,431 and 78,924, respectively. Median patient care hours per day in 2019 and 2022 were 1740 and 1909 respectively. Median ED LOS for all patients was 332?min in 2019 and 474 in 2022. Annual patient care hours delivered in 2019 were 635,100?h compared to 696,785?h in 2022. Despite a 20.6% reduction in annual patient visits, ED LOS increased by 42.8% during this period leading to an overall 9.7% increase in patient care hours delivered in 2022. Conclusion: In 2022, increased ED LOS resulted in more patient-hours of care provided per day despite fewer annual visits to the ED. This data suggests that ED staff are providing more patient care now than before the pandemic, despite fewer visits and that increased staffing may be required. When used for staffing decisions, labor productivity benchmarks relying crudely on annual visits may benefit from adjusting for increases in LOS times to gauge more adequately the personnel required.

Emergency Medicine

Gunaga S, **Al-Hage A**, **Welchans M**, **Buchheister A**, **Corcoran J**, Awada M, Smiles B, **Weber J**, **Lakshmish Kumar B**, Swan K, Etu E, and **Miller J**. 695 Quantifying emergency medical services encounters in patients receiving hospice and palliative medicine consults (Palliative Medicine Interest Group). *Acad Emerg Med* 2024; 31(S1):306-307. Full Text

Background and Objectives: Recent literature as well as a formal position statement by Emergency Medical Services (EMS) and Hospice and Palliative Medicine (HPM) leaders have placed a spotlight on the intersection between EMS and patients at the end of life. This study aims to quantitatively evaluate EMS prevalence and utilization patterns among adult patients requiring HPM consultations. Methods: We conducted a retrospective cohort study of electronic health records from five hospitals and nine emergency departments (ED) within a large metropolitan health system. The study period spanned from 1/1/2018 to 12/31/2022 and included data from all patients >18?years old who had HPM consults ordered during ED or inpatient encounters. Patient-specific data were collected including number and timing of EMS transports as well as final hospital disposition outcomes. The yearly and cumulative numbers of ED visits, EMS arrivals, and inpatient admissions were obtained to calculate prevalence statistics. Data analysis included summary counts and descriptive statistics. Results: Over the 5-year study period, a total of 33,262 HPM encounters were identified for 27,598 unique patients, with 5099 (15.3%) encounters resulting in in-hospital death. Of these HPM encounters, 55.2% (18,368) used EMS as their mode of initial hospital arrival, 4.7% (1549) for interfacility transport, and 44.2% (14,713) utilized EMS at hospital discharge. Notably, of discharged HPM EMS encounters (14,713), 53.7% (7906) were dispositioned to hospice facilities, 36.4% (5357) to skilled nursing facilities, 4.4% (651) to long-term care facilities, 2.7% (393) to rehabilitation facilities, and 1.8% (269) to short term hospitals. Overall HPM EMS utilization patterns demonstrated that 74.5% (24,766) of these encounters had at least one EMS interaction. More precisely 25.5% (8496) of HPM encounters had no EMS involvement, 44.1% (14,652) had one EMS interaction, 29.7% (9889) had two EMS interactions, and 0.7% (225) had three EMS interactions. Conclusion: Approximately 75% of hospitalized patients requiring HPM consultations will encounter EMS at least once, emphasizing a key space for primary palliative care. To optimize the quality of end of life care in this prehospital and interhospital window, ongoing efforts in prehospital primary palliative care education and HPM-specific EMS protocol development are essential.

Emergency Medicine

Hagerman TK, **Hawatian K**, **Rodriguez A**, **Chu T**, **Almri Y**, **Drake S**, **Ball MT**, **Gunaga S**, and **Miller J**. 680 Impacts of a mobile paramedicine home visit program after emergency department evaluation for hypertensive crisis. *Acad Emerg Med* 2024; 31(S1):8-401. Full Text

Background and Objectives: Most patients evaluated in the emergency department for hypertensive crisis continue to have uncontrolled hypertension months after the index encounter. Linkage to primary care and medication adherence are some of many barriers to hypertension control. Mobile paramedicine home visit programs can serve as a bridge between the ED and primary care follow up. Our objective in this study was to evaluate the association of a mobile integrated health (MIH) visit after ED encounters for hypertensive crisis with repeat ED encounters. Methods: This is a retrospective cohort study of adults ?18?years who were evaluated in the emergency department for hypertensive crisis, defined as a blood pressure (BP) >180/110?mm?Hg between March 2022 and October 2023. We excluded patients that required an inpatient admission or died in the ED. Clinicians could order an MIH home visit at their discretion to occur within 3?days after discharge, and each visit included evaluation by a paramedic tied to primary care virtual management as needed. We compared patients with a MIH visit to those receiving usual care alone. The primary outcome was ED revisits within 30?days. Analysis included multivariable logistic regression (adjusting for sex, age, and comorbid heart failure) to assess the relationship between an MIH intervention and return ED visits within 30?days. Results: A total of 552 patients were included, 69 who had an MIH visit and 483 patients without a MIH visit. Patients in the study were 69.9% Black, 54.7% female, had a mean age of 64.2?±?15.4?years, and a mean systolic BP (SBP) of 190?±?23?mm?Hg. Comorbid conditions were common, including chronic kidney disease (40.8%), diabetes mellitus (44.4%), and heart failure (55%). There were 40 (7.2%) patients with repeat ED encounters within 30-days, 7 (10.1%) in the MIH cohort and 33 (6.8%) in the usual care cohort. These

encounters had a mean SBP of 161?±?31?mm?Hg in the MIH cohort and 166?±?28?mm?Hg in the usual care cohort. In adjusted analysis, those in the MIH cohort did not have a statistically different rate of 30-day ED revisits (OR 1.7, 95% CI 0.72–4.17) or 30-day hospitalizations (OR 0.42, 95% CI 0.05–3.21). Conclusion: An MIH visit was not associated with a decrease in 30-day ED revisits for patients with hypertensive crisis in this analysis. Future analyses with greater statistical power are indicated to test the impact of MIH interventions.

Emergency Medicine
Hagerman TK, **Rammal J**, **Loszewski C**, **Tuttle JE**, **Brar I**, **Payne S**, **Zahul S**, **Miller J**, **Klausner HA**, **Joyce K**, and **Manteuffel J**. 403 Description and impact of an emergency department opt-out HIV screening program. *Acad Emerg Med* 2024; 31(S1):192. Full Text

Background and Objectives: Emergency department (ED) based HIV screening initiatives are effective in new case identification, allow for early detection, and are encouraged by CDC guidelines. Collaboration with Infectious Diseases allows for early linkage to care. We describe our ED-based opt-out HIV screening program in an urban ED. Methods: This is a retrospective analysis of an opt-out HIV screening program in an urban ED from 7/16/2020 to 10/28/2023. A best practice alert (BPA) prompted providers to order an HIV screening test for patients ages 18–65 that were not known to have HIV for whom a complete blood count was already being ordered. Patients were informed of the ordered test and could opt-out. The division of infectious disease managed patient notification and follow up. Results: During the study period, a total of 36,905 fourth generation HIV screening tests were performed, of which 494 tests were reactive (1.34% of tests performed). Of the reactive tests, 86 patients (0.23% of all tests) were found to have a new diagnosis of HIV (38% with CD4?<?200), 331 (0.90%) had a pre-existing diagnosis of HIV (of which 36% were not actively in care), 54 (0.15%) were false positives, and 23 tests had unknown status. Patients with a new diagnosis had a median age of 34 (26–49 IQR), 71% were male, 88% were black, 29% were men who have sex with men, and 5% were identified to have current or prior intravenous drug use. At the time of the ED visit, 39% of new cases had no primary care physician. Of the 86 new cases, 71 (83%) were confirmed to be connected to care. The median time from positive result to first scheduled appointment was 10.5?days and first attended appointment was 13?days (includes the 31 patients admitted from the ED). The median time from screening test result to initiation of antiviral therapy was 10?days. Of patients linked to care with available data (n?=?50), 68% had a non-detectable viral load within 6?months after starting treatment (74% within 1?year). Conclusion: Our ED-based opt-out HIV screening program has been highly successful in identifying new cases and connecting patients to care. We also identified a substantial number of patients with known HIV who were not actively in care, highlighting the importance of close partnerships with infectious disease. Sustainability for HIV screening programs in the ED will rely on increased support from payers for testing costs and care coordination required to effectively engage patients in care.

Emergency Medicine
Haidar S, **Lewandowski D**, **Cahill M**, **Francis O**, **Spencer RM**, **Kokochak JO**, and **Jayaprakash N**. 546 Implementing an effective code sepsis process to save lives for septic shock. *Acad Emerg Med* 2024; 31(S1):257. Full Text

Background and Objectives: Sepsis afflicts 1.7?million Americans annually. Implementation of sepsis bundles across health care systems is complex and challenging. The aim was to leverage the consolidated framework for implementation research (CFIR) for effective implementation of a code sepsis response team for patients identified at risk of having severe sepsis or septic shock, across a health system of mixed academic and community practices. Methods: Henry Ford Health (HFH) includes 5 hospitals (Level I, II, and III trauma centers). The volume of severe sepsis and septic shock patients ranges between 28 and 62 per month. Description: The HFH sepsis program identified gaps and explored barriers and facilitators of compliance to an existing code sepsis policy. This informed a 2022 codes sepsis re-design project which included revision of the policy, enhancement to the electronic sepsis narrator tool, and an implementation strategy focused on leadership engagement, resources, access to knowledge and information, implementation checklists and tools (flyers, visual aids, educational videos and modules etc.). Each hospital received guidance on adaptation for local needs. Implementation occurred in the final quarter of 2022. Evaluation: Quasi-experimental pre- and post-implementation

analysis of adult patients >18?years of age, presenting to HFH EDs with diagnoses of severe sepsis and septic shock, excluding those with diagnosis of COVID-19, transfers in, and patients discharged to hospice. Pre-implementation phase: Jan. – Sep. 2022 and post implementation phase: Jan. – Sep. 2023. Primary outcome is septic shock mortality and secondary outcome is proxy 3-h bundle compliance. Descriptive stats were calculated with a series of mortality samples and a two sample t test was performed to compare the two populations. Utilized SPC for excel. Results: Septic shock mortality in the pre-implementation phase was 27.0% and post implementation phase 21.7% (difference of 5.36%, p?=?0.004). Proxy 3-h bundle compliance improved from 71.2% to 74.0% (difference –2.80%, p?=?0.05). Conclusion: Delivery of sepsis bundles is complicated, especially across large health care systems with hospitals of varying practice models. Implementation strategies can be designed to achieve system goals while incorporating the needs and resource considerations of local hospitals to reduce sepsis mortality.

Emergency Medicine

Husain A, **Hawatian K**, **Emakhu JO**, **Morton TJ**, **Cook B**, **Klausner N**, **Schwab E**, **Nassereddine H**, **Tuttle JE**, **Wanis N**, **Almri Y**, **Klausner HA**, **Gunaga S**, **Krupp SS**, **McCord J**, and **Miller J**. 280 Exploring the value of nonspecific electrocardiogram findings in the setting of low high-sensitivity troponin levels. *Acad Emerg Med* 2024; 31(S1):136. Full Text

Background and Objectives: The value of non-specific electrocardiogram (ns-ECG) findings to modify the risk for myocardial infarction (MI) in the context of low high-sensitivity cardiac troponin I (hs-cTnI) is uncertain. Our objective was to assess the relationship between ns-ECG findings and the occurrence of 30-day major adverse cardiac events (MACE) among patients with low hs-cTnI values. Methods: We conducted a secondary analysis of the RACE-IT trial, a cluster randomized trial performed across 9 EDs from July 2020 through March 2021. The trial included all patients being evaluated for MI and tested the safety and effectiveness of a 0/1-h accelerated protocol using hs-cTnI compared to conventional troponin testing using a 0/3-h protocol. The trial excluded patients with ST-elevation MI and hs-cTnI values >?99th percentile. For this analysis, we included patients that ruled-out in 0/1-h (all hs-cTnI values <8?ng/L). We defined ns-ECG findings as left bundle branch block (LBBB), ST-segment depression or elevation less than 1?mm, or T-wave inversions (TWI). Adjudicators determined 30-day MACE (death or MI). Analysis included descriptive statistics and multivariable logistic regression. Results: We included 16,606 patients who ruled-out for MI within 1-h in this analysis. The mean age was 53.4?years (SD 17.8), 9820 (59.3%) were female, and 5367 (32.3%) Black. There were 3345 (20.1%) patients with ns-ECG findings, of which 2145 (12.9%) had ST-segment changes and 1317 (8.4%) had TWI. Thirty-day MACE occurred in 66 (0.40%) patients, including 47 (0.29%) deaths (38 adjudicated as non-cardiac) and 19 (0.11%) MIs (16 adjudicated as Type II AMI). There was no significant difference in MACE events based on the presence of ns-ECG findings overall (OR 1.38, 95% CI 0.79–2.39, p?=?0.257). The presence of ST-segment changes, however, had a trend towards greater odds of MACE (OR 2.53, 95% CI 0.92–6.99, p?=?0.076). Conclusion: Non-specific ECG findings in the setting of low hs-TnI were not associated with greater MACE events in this large trial with a low overall prevalence of MACE.

Emergency Medicine

Jaehne AK, Naiman MI, **Cook B**, **Wilson I**, **Versyer D**, **Kelly WG**, **Ghosh S**, and **Rivers EP**. 82 Emergency department bacteremia incidence by age and monocyte distribution width value. *Acad Emerg Med* 2024; 31(S1):45. Full Text

Background and Objectives: Bacteremia is the presence of viable bacteria in the bloodstream recognized by diagnostic blood cultures. Monocyte Distribution Width (MDW) is a pathogen-agnostic marker of immune response and dysregulation, reported as part of a Complete Blood Count (CBC) with differential. MDW is derived from the distribution of peripheral blood monocyte volumes and aids in the identification of severe infections and sepsis in adult Emergency Department (ED) patients. Previous clinical trials found no association between age and MDW value. However, patients without suspected infection were included in these studies. This analysis evaluated the relationship between MDW values and age in a real-world population of patients with suspected infection. Methods: This was a prospective, observational cohort study. All patients aged 18 and older who presented to the ED and received orders for a CBC with differential and blood cultures were included. MDW values were not reported to those involved in direct patient care. We evaluated the incidence of bacteremia by age (in decades) and the associated MDW

values as median with minimum and maximum values using SPSS Version25. Results: A total of 5310 ED blood culture and MDW results were matched for this interim analysis. The overall blood culture positivity rate was 14.5%. The blood culture positivity rate increased by decade from 11.2% in patients 18–30?years to 19.3% in patients 80–90?years old. There was a significant difference in median MDW values in patients with bacteremia (25.2, range 14.1–82.8) compared with patients without bacteremia (20.65, range 12.8–102.1). There was no significant difference in MDW values within bacteremia status across age groups. Conclusion: There is an incremental increase in bacteremia by age in decades. This analysis reproduced previous observations that MDW elevation is consistent among adults. It is unlikely that MDW value interpretation will require age adjustment, but further research is needed to integrate MDW assessments into ED diagnostic workups.

Emergency Medicine

Hawatian K, Danagoulian S, Nassereddine H, **Morton TJ**, **Cook B**, **Klausner HA**, **Gunaga S**, Levy P, Mahler SA, **Krupp SS**, **McCord J**, and **Miller J**. 88 Economic evaluation of a cluster randomized trial for an accelerated, high-sensitivity cardiac troponin protocol. *Acad Emerg Med* 2024; 31(S1):48. Full Text

Background and Objectives: Accelerated protocols (AP) using high-sensitivity cardiac troponin (hs-cTn) to evaluate for myocardial infarction (MI) are becoming increasingly common in the United States (US), but their cost effectiveness remains unknown in the US. Added sensitivity within such protocols could drive costs higher. We aimed to measure the implementation of a hs-cTn AP compared to a conventional protocol on overall treatment cost and length of stay. Methods: We performed a planned secondary economic analysis of a large, cluster randomized trial across 9 emergency departments (EDs) from July 2020 to April 2021. Patients 18?years or older with clinical suspicion for MI were included and we excluded those with ST-segment MI or traumatic chest pain. According to the AP, patients could be discharged without further testing at 0?h if they had a hs-cTnI?<?4?ng/L and at 1?h if the initial value was 4?ng/L and the 1-h value ?7?ng/L. The conventional protocol required cTn testing at 0 and 3?h for all patients and did not report cTn values <99th percentile to clinicians. The primary outcome was the total cost of treatment, obtained through patient-level billing data, and the secondary outcome was ED length of stay. Analysis included adjustments for patient and study design factors. We report adjusted cost differences with 95% confidence intervals (CI). Results: There were 32,450 included patients in the trial, of whom 57.4% were female and the mean age was 58.0?years. The average unadjusted cost for each encounter was $3118. The AP had no significant differences in adjusted total cost (+$89, 95% CI: ?$714 to $893). There was also no significant adjusted difference in hospital revenue (+$362, 95% CI: ?$414 to $1138) nor patient payment cost (?$7, 95% CI: ?$42 to $28) under the AP compared to the conventional protocol. The overall ED length of stay in the AP cohort was not significantly different (+46, 95% CI: ?28 to 120?min) compared to the conventional protocol. In lower acuity, free-standing EDs, patients treated using the AP experienced shorter length of stay (-37?min, 95% CI: ?62 to ?12?min) and incurred less health system cost (?$112, 95% CI: ?$250 to $25). Conclusion: Overall, an AP using hs-cTn testing did not increase cost and may reduce length of stay in certain settings as compared to conventional protocols to rule-out MI.

Emergency Medicine

Khairy M, Hawatian K, Bradley T, Rao A, Booher TR, Haupfear I, **Dercon S**, **Zetuna S**, **Attisha T**, **Mcclain-Gierach S**, Khalil F, **Page B**, **Gunaga S**, **Miller J**, and **Karmo B**. 766 Hematoma expansion in patients with spontaneous intracranial hemorrhage: Role of emergency department transfer. *Acad Emerg Med* 2024; 31(S1):339. Full Text

Background and Objectives: Patients with spontaneous intracranial hemorrhage (sICH) have high mortality and frequently require transfer to a Comprehensive Stroke Center (CSC). The transfer process can delay critical aspects of guideline-based care. Our objective was to measure the association of ED transfer with hematoma expansion in patients with sICH. Methods: This was an observational study analysing the Get with the Guidelines Stroke Registry from large CSC receiving transfers across southeast Michigan. We analysed data from 2019 to 2023 of all sICH adults admitted to the CSC, excluding those with traumatic etiology. Transfer patients were defined as those sent to the CSC from a separate ED. Investigators calculated hematoma volume for presenting and 24-h CT images using the ABC/2 formula. The registry also included validated ICH score data, incorporating age, ICH volume,

intraventricular extension, and anatomical location. The primary outcome was hematoma expansion, defined by any increase in hematoma volume from baseline. Analysis included descriptive statistics and multivariable logistic regression. Results: We included 333 patients with spontaneous ICH. The mean age was 62.1?±?15.2?years, 179 (53.8%) presenting directly to a CSC and 154 (46.3%) requiring transport to the CSC. The overall cohort had 161 (48.4%) females, 177 (53.2%) African Americans, and 105 (31.5%) Caucasians. There were 52 (34.0%) patients on anticoagulation: 27 (51.9%) in the non-transfer cohort and 25 (48.1%) in the transfer cohort. Among the 52 patients on anticoagulation, 33 (63.5%) were on direct oral anticoagulants (DOAC). Mortality was similar in both groups: 31 (17.3%) patients in the non-transfer cohort and 25 (16.2%) in the transfer cohort (p?=?0.79). Hematoma expansion was present in 51 (15.4%) patients: 11 (6.1%) in the non-transfer cohort and 40 (25.9%) in the transfer cohort. Adjusting for baseline ICH score and use of a DOAC, transfer patients had significantly higher odds of hematoma expansion compared to non-transfer patients (odds ratio 5.1, 95% CI 2.5–10.3, p?<?0.001). Conclusion: Among all patients with sICH presenting to a CSC, patients requiring transfer had significantly greater odds of hematoma expansion compared to those not requiring transfer. Further data is needed to determine if delays in guideline-based care explain this finding.

Emergency Medicine

Meltzer AC, Heidish R, Loganathan A, Shahamatdar S, Bolden T, Loganathan T, **Miller J**, **Mohammed H**, Chien C, O'Regan A, Chang L, and Eucker SA. 621 Acute exacerbation of chronic abdominal pain: A multicenter prospective observational study. *Acad Emerg Med* 2024; 31(S1):186. Full Text

Background and Objectives: Abdominal pain is the most frequent chief complaint in US emergency departments (EDs) accounting for over 6?million annual visits. Some ED episodes of recurrent abdominal pain are due to Disorders of Gut-Brain Interaction (DGBI). As part of a multicenter prospective observational study, our objective was to characterize biopsychosocial characteristics of ED patients with DGBI including substance use disorder, mental health, social determinants of health, overall healthcare utilization and 30-day revisits. Methods: The study was conducted at three US university ED's. Adult patients were eligible if they presented to the ED with a chief complaint relating to abdominal pain lasting at least once per week for 8?weeks. Patients were excluded if a structural cause for their symptoms was suspected. Using validated scoring systems, patient reported outcomes were measured for anxiety, depression, fatigue, and pain interference. Substance use disorder risks were measured using the WHO ASSIST Instrument, and social needs were recorded using the AHC-HRSN Instrument. At 30?days after index visit, structured chart reviews were conducted to assess ED revisits. Results: Seventy-two patients were enrolled in the study between February and November 2023 with a mean age of 39.0, 62.0% female and 64.8% Black. PROMIS scores more than one standard deviation above the mean were observed in categories of pain interference (n?=?40, 55.6%), fatigue (n?=?33, 45.8%), depression (n?=?19, 26.4%), and anxiety (n?=?28, 38.9%). Forty-six (63.9%) patients reported that abdominal pain interfered with day-to-day activities “very much” or “quite a bit” in the past 7?days. High social risks were also reported in physical activity (n?=?46, 63.9%), financial strain (n?=?28, 38.9%), and food insecurity (n?=?27, 37.5%). High or moderate risk substance abuse was detected in 40 participants (55.6%). Nine participants (12.5%) received opioids as a prescription at the index visit and nine (12.5%) returned to the ED within 30?days. Conclusion: This study enhances understanding of biopsychosocial factors associated with ED visits in patients with DGBI, with notable findings of a high rate of women, comorbid anxiety/depression, and several prevalent needs. Given the observed rates of ED revisits and opioid prescriptions within 30-day review, further studies should seek to better classify this patient population and develop potential treatment plans.

Emergency Medicine

Mohammed A, **Patel M**, **Loszewski C**, **Tuttle JE**, **Chien C**, **Condon S**, **Rammal J**, **Almri Y**, **Miller J**, and **Manteuffel J**. 141 Rates of filled buprenorphine prescriptions after initiation in the emergency department. *Acad Emerg Med* 2024; 31(S1):73. Full Text

Background and Objectives: Opioid use is prevalent in the United States and with the emergence of fentanyl, overdose-related deaths are rising exponentially. The emergency department (ED) is often the only source of care for patients with opioid use disorder (OUD) and there is opportunity to initiate medications for opioid use disorder (MOUD). However, there is insufficient data regarding efficacy of

initiation of MOUD due to limited to follow up. Our objective was to evaluate the rate of filled buprenorphine prescriptions after initiation of MOUD in the ED. We hypothesized that ED-initiated buprenorphine would continue at high rates in the months after the initial intervention. Methods: We performed a retrospective analysis of 47 patients who presented to the ED from June to December 2021. Patients were included if they were in opioid withdrawal, had not been prescribed MOUD in the 14?days prior to ED presentation, and were provided with buprenorphine and referral to treatment. We utilized PMPAWARXE-MAPS to determine whether patients had filled at least one prescription for buprenorphine at 3 intervals: 3?months to 2?weeks prior to ED induction, 0–6 and 6–12?months after ED induction. Analysis included chi-square or Fisher exact testing with reported odds ratios (OR) and 95% confidence intervals (CI). Results: In the 3?months to 2?weeks prior to ED induction, 11/47 (23.4%) patients had filled a prescription for buprenorphine. In 0–6?months post-induction, a prescription was filled by 26/47 (55.3%) patients, and by 13/47 (26.7%) patients at 6–12?months post-induction. There were 33 (70.2%) patients referred to outpatient addiction treatment (OAT) and 14 (29.2%) patients referred to inpatient addiction treatment (IAT). Patients referred to OAT had higher rates of filled prescriptions than IAT patients at both 0–6?months (57.6% vs. 50%, OR 1.36, 95% CI 0.39–4.76) and 6–12?months (33% vs. 7.1%, OR 6.50, 95% CI 0.75–56.30). Conclusion: In this small study, we demonstrate an increase in rates of filled buprenorphine prescriptions after induction in the ED. This effect is higher in the initial period after induction and in those referred to OAT. Patients may still be engaged in addiction treatment despite not filling buprenorphine prescriptions, particularly if they are prescribed long-acting injectable buprenorphine or non-opioid medications. Data regarding MOUD use after ED initiation is scarce and further study is needed.

Emergency Medicine

Morton TJ, **Manteuffel J**, **Miller J**, MacDonald NC, and **Makowski C**. 238 Reduction in opiate administration in emergency department patients following implementation of alternatives to opiates program. *Acad Emerg Med* 2024; 31(S1):116. Full Text

Background and Objectives: The opioid overdose epidemic has worsened causing 80,000 deaths per year in the US. Alternatives to Opiates (ALTO) programs are pain management algorithms that support emergency department (ED) clinicians to treat pain using non-opiate medications, decreasing patient exposure to opiates. We developed an ALTO program to reduce administration of opiate medications within 9 EDs of a regional health system. We targeted a 30% reduction in morphine milliequivalents (MME) administered in the ED per hour of length of stay (LOS). Methods: A multi-disciplinary group developed an ALTO program using existing practice patterns and available literature and implemented a “Quicklist” in the electronic medical record to organize orders for non-opiate analgesics, allowing for greater ease of ordering. The ALTO program was implemented with preceding education, in the form of text resources and in-person forums, provided to ED clinicians and nursing staff. The program was implemented in November 2019. Feedback regarding the program was communicated at 4-month intervals via email. All 9 EDs participated in implementation and maintenance of the ALTO program and have an annual volume of nearly 450,000 patient visits. We calculated the total number of MMEs per encounter using standard conversion factors as well as the total number of ED LOS hours during the study period. These were used to calculate the MME per hour of ED LOS, which was then compared between the 36-month baseline period and the 47-month post-implementation period. Results: In the 36-month period prior to ALTO implementation there were 4,937,743?MME administered system-wide to patients across 7,890,174 total ED LOS hours for an average of 0.63?MME administered per hour of ED LOS. In the 47-month period post-ALTO implementation there were 4,330,151?MME administered over 10,169,620 total ED LOS hours for an average of 0.43?MME administered per hour of ED LOS. These results demonstrate a 31.7% decrease in opiates administered as measured in MME per hour of ED LOS. Conclusion: The ALTO program was associated with a decrease in opiate administration across a regional health system with a large annual patient volume. Standardized opiate administration as measured by MME per hour of ED LOS can help account for variables including fluctuations in volume and boarding. Continued program education is needed as is further study on associated patient-centered outcomes.

Emergency Medicine

Rammal J, **Hawatian K**, **Page B**, **Chien C**, **Almri Y**, **Joyce K**, **Morton TJ**, and **Miller J**. 362 Mismatch of empiric treatment and thiamine deficiency in emergency department patients without alcohol dependence. *Acad Emerg Med* 2024; 31(S1):173. Full Text

Background and Objectives: Thiamine (vitamin B1) deficiency is recognized as a treatment consideration in critical illnesses. Clinicians often consider treatment in the emergency department (ED) when patients have alcohol use disorder, but the identification and treatment of patients without alcohol use disorder in the ED is not well studied. Our objective was to determine the association between thiamine treatment and thiamine deficiency in ED patients without a history of alcohol use disorder. Methods: This was a secondary analysis of an observational study assessing thiamine deficiency in adult ED patients. We excluded patients with known alcohol use disorder. Investigators collected whole blood levels on all patients in ED, which measure thiamine-diphosphate. We collected demographic and clinical characteristics that could contribute to nutritional deficiencies. Analysis consisted of descriptive statistics and logistic regression to assess the relationship between thiamine treatment, defined as intravenous administration of thiamine, and deficiency, defined as a whole blood level below the normal reference range. Analysis included adjustments for sex and age. Where applicable, we report odds ratios (OR) with 95% confidence intervals (CI). Results: The study included 343 patients, the average age being 57.0 (SD 17.4)?years, 47.5% were female, and 80.5% were Black. Comorbid conditions were significant (50.7% diabetes mellitus, 22.7% chronic kidney disease, 30.3% cancer), and inpatient mortality occurred in 7.3% patients. Thiamine deficiency occurred in 18.4% patients. Thiamine treatment occurred in 7.0% patients. Matched treatment to thiamine deficiency was present in 4.8%. Among those identified with sepsis 9.1% of those with deficiency were treated and 11.7% of those without deficiency were treated. A mismatch between treatment and normal thiamine occurred in 7.5%. There was no significant unadjusted (OR 0.62, 95% CI 0.18–2.14) or adjusted (OR 0.68, 95% CI 0.19–2.38) association with the decision to treat and the presence of thiamine deficiency. Conclusion: In this study, thiamine deficiency was common in a cohort of ED patients with significant disease burden and no history of alcohol use disorder. Clinicians rarely considered thiamine treatment and were poor at identifying those that were deficient. Further research is needed to improve identification of ED patients likely to benefit from treatment.

Emergency Medicine

Whitfield N, Michelson EA, Steingrub J, Humphries R, **Gill J**, Weissman AJ, Giamarellos-Bourboulis EJ, Wright DW, and Liesenfeld O. 243 Host response severity score for intensive care unit-level care prediction in emergency patients with suspected sepsis. *Acad Emerg Med* 2024; 31(S1):119. Full Text

Background and Objectives: For patients presenting to the ED with acute infections and/or suspected sepsis, accurate risk stratification is challenging. Physician judgment based on clinical exam, clinical scores and limited diagnostics are standard of care. There is a new blood-based host response test (in development) using the SEV-4 classifier to predict 7 day ICU level care. We evaluated the accuracy of the test to predict ICU level care (mechanical ventilation, vasopressors and/or renal replacement therapy) compared to initial physician impression and qSOFA scores. Methods: Adults presenting to 7 EDs with suspected acute infections or sepsis with ?1 abnormal vital sign were enrolled (PILOT, NCT03744741). At enrollment, treating physicians estimated risk of severe outcome (low, low-moderate, moderate-high, or high) and qSOFA scores were collected. The SEV-4 classifier test was performed from a blood RNA tube and results were expressed in 5 discrete interpretation bands (very low, low, moderate, high, very high). Sensitivity, specificity and likelihood ratios (LR) were calculated for dichotomized risk estimations combined with qSOFA 'low risk SoC' (LR-SoC) and 'high risk SoC' (HR-SoC) groups and SEV-4 results vs. ICU-level care. Results: 517 eligible patients had a physician questionnaire, and 41 patients required ICU level care or admission within 7 days. LR of physician risk estimates were (from low to high) 0.56 / 1.79 / 1.62 / 4.77, with a specificity of 0.97 (high) and sensitivity of 0.61 (low). LR of qSOFA were (from 0 to 3) 0.4 / 1.5 / 2.3 / 38.5, with a specificity of 1.00 (qSOFA?=?3) and sensitivity of 0.76 (qSOFA=0). LR of SEV-4 bands for 7-day ICU care prediction were (very low to very high) 0.18 / 1.12 / 2.10 / 3.38 / 7.70, with a specificity of 0.98 (very high) and sensitivity of 0.90 (very low). Of 92 HR-SoC patients, 14 (15%) needed 7-day ICU care, compared to 22 (5.2%) of 425 LR-SoC patients (p?=?0.0006). Among 22 cases with low physician estimation / low qSOFA needing 7-day ICU care, SEV-4 identified 13 (59%) cases with moderate to very high scores that would have been missed. Conclusion: SEV-4 identifies patients with

low physician risk estimates and low qSOFA scores that would progress to ICU level care within 7 days. The test could enable earlier re-examination and treatment in a well-appearing group.

Endocrinology and Metabolism

Manas F, **Veracruz N**, and **Honasoge M**. Primary hyperaldosteronism, secondary hyperparathyroidism, low bone mass and kidney stones - an underappreciated relationship. *J Bone Miner Res* 2024; 39:344. Full Text

F. Manas, Mahalakshmi Honasoge, Henry Ford Health System, United States

Primary hyperaldosteronism (PHA) is increasingly recognized as a cause of hypertension. Given that sodium excretion is linked with calcium excretion, PHA can lead to kidney stones, secondary hyperparathyroidism (SHPT), and reduced bone density (BMD). Here, we present a case of PHA, renal stones, and low bone mass in a patient who additionally experiences muscle weakness associated with episodes of hypokalemia and hypophosphatemia. A 38-year-old male with history of hypertension and renal stones status post lithotripsy sought consultations with a neurologist and nephrologist due to proximal muscle weakness. Key findings from his biochemical assessments were mild hypokalemia, hypophosphatemia (with normal serum calcium) and mild metabolic alkalosis. Vitamin D was normal and parathyroid hormone was elevated. His renin was 2.6 (ref. range 3.1 - 57.1 pg/mL), aldosterone of 35.8 (ref. range <=39.ng/dL), and cortisol levels of 8.8 (ref. range 2.9-19.4 ug/dL). He had two episodes of severe hypokalemia (2.8 mmol/L) and hypophosphatemia (0.7 mg/dL) after surgical procedures. A 24-hour urine aldosterone test showed levels of 29 (ref. range 2.0-20 mcg/24 hours). Abdominal CT scan showed normal adrenals and left-sided hydronephrosis. An isotope renal scan indicated 17.3% function in the left kidney and 82.7% in the right kidney. EMG nerve conduction velocity tests were normal, as was serum carnitine. BMD showed osteopenia. Genetic testing did not identify any mutations related to channelopathies. He was diagnosed with PHA and SHPT by endocrinologists and began treatment with 100mg of eplerenone. Genetic testing for mutations related to PHA and periodic paralysis will be pursued further. Low BMD and kidney stones have been linked with PHA. In PHA, excessive sodium intake can lead to increased calcium excretion. When coupled with low calcium intake, it can trigger SHPT, which subsequently promotes phosphaturia. Sodium restriction is crucial in managing PHA as it not only reduces the renin-aldosterone ratio but also helps conserve calcium. It has been shown that sodium restriction can decrease phosphaturia and enhance bone alkaline phosphatase levels, suggesting potential osteo-anabolic effects. Furthermore, there is a hypothesized bidirectional relationship between aldosterone and parathyroid hormone, where aldosterone may stimulate parathyroid hormone secretion and vice versa. Given that both hyperaldosteronism and secondary hyperparathyroidism are common conditions, it is essential to recognize and manage kidney stones and low bone mass in patients with primary hyperaldosteronism.

Endocrinology and Metabolism

Qiu S, **Bhan A**, **Simon R**, **Aseel Y**, and **Rao SD**. Interactions across parathyroid hormone (PTH), 25-hydroxyvitamin D (25-OHD) and calcium levels in white and black women with primary hyperparathyroidism (PHPT). *J Bone Miner Res* 2024; 39:234. Full Text

S. Qiu, Henry Ford Health, United States

There is a feedback loop between vitamin D, calcium, and PTH levels. Adequate vitamin D nutrition, as assessed by serum 25-OHD, promotes calcium absorption and prevents excessive PTH secretion. Low vitamin D levels can lead to decreased calcium absorption, potentially resulting in elevated PTH levels. However, it is unclear whether the supernormal PTH level in PHPT patients is associated with vitamin D levels and if there is a difference in this relationship between white and black women. This study examined serum PTH, vitamin D (25(OH)D), and calcium (Ca) levels in 250 women with PHPT, 96 black and 154 white women, aged between 50-91 years. Serum PTH levels exceeded the normal range (>65 pg/ mL) in 83% of black and 82% of white women diagnosed with PHPT. No significant differences were observed in serum PTH, Ca, and 25(OH)D levels between black and white women. When compared to healthy women (data not shown), all serum PTH, Ca, and 25(OH)D levels were significantly elevated in both black and white women with PHPT. Moreover, the difference in 25(OH)D levels between black and

white women, observed in healthy women (Qiu et al, Bone Rep 18: 101650, 2023), was absent in women with PHPT. Interestingly, although there was a significant positive correlation between serum Ca and PTH in both black and white women with PHPT, there was no significant correlation between serum 25-OHD and PTH levels. These findings provide a new perspective on the complex regulation of PTH and calcium levels in relation to vitamin D nutrition, different from the effect of vitamin D deficiency on parathyroid adenoma weight (Rao et al. J Steroid Biochem Mol Biol. 2020). highlighting the need for further research to fully understand the underlying mechanisms and their implications for PHPT management. One limitation was lack of data on vitamin D supplements for some patients. However, the higher levels of both vitamin D and PTH and the lack of a significant correlation between them suggest that vitamin D levels may not be closely related to PTH production in PHPT patients regardless of ethnicity.

Family Medicine

Mohammed A, **Patel M**, **Loszewski C**, **Tuttle JE**, **Chien C**, **Condon S**, **Rammal J**, **Almri Y**, **Miller J**, and **Manteuffel J**. 141 Rates of filled buprenorphine prescriptions after initiation in the emergency department. *Acad Emerg Med* 2024; 31(S1):73. Full Text

Background and Objectives: Opioid use is prevalent in the United States and with the emergence of fentanyl, overdose-related deaths are rising exponentially. The emergency department (ED) is often the only source of care for patients with opioid use disorder (OUD) and there is opportunity to initiate medications for opioid use disorder (MOUD). However, there is insufficient data regarding efficacy of initiation of MOUD due to limited to follow up. Our objective was to evaluate the rate of filled buprenorphine prescriptions after initiation of MOUD in the ED. We hypothesized that ED-initiated buprenorphine would continue at high rates in the months after the initial intervention. Methods: We performed a retrospective analysis of 47 patients who presented to the ED from June to December 2021. Patients were included if they were in opioid withdrawal, had not been prescribed MOUD in the 14?days prior to ED presentation, and were provided with buprenorphine and referral to treatment. We utilized PMPAWARXE-MAPS to determine whether patients had filled at least one prescription for buprenorphine at 3 intervals: 3?months to 2?weeks prior to ED induction, 0–6 and 6–12?months after ED induction. Analysis included chi-square or Fisher exact testing with reported odds ratios (OR) and 95% confidence intervals (CI). Results: In the 3?months to 2?weeks prior to ED induction, 11/47 (23.4%) patients had filled a prescription for buprenorphine. In 0–6?months post-induction, a prescription was filled by 26/47 (55.3%) patients, and by 13/47 (26.7%) patients at 6–12?months post-induction. There were 33 (70.2%) patients referred to outpatient addiction treatment (OAT) and 14 (29.2%) patients referred to inpatient addiction treatment (IAT). Patients referred to OAT had higher rates of filled prescriptions than IAT patients at both 0–6?months (57.6% vs. 50%, OR 1.36, 95% CI 0.39–4.76) and 6–12?months (33% vs. 7.1%, OR 6.50, 95% CI 0.75–56.30). Conclusion: In this small study, we demonstrate an increase in rates of filled buprenorphine prescriptions after induction in the ED. This effect is higher in the initial period after induction and in those referred to OAT. Patients may still be engaged in addiction treatment despite not filling buprenorphine prescriptions, particularly if they are prescribed long-acting injectable buprenorphine or non-opioid medications. Data regarding MOUD use after ED initiation is scarce and further study is needed.

Hematology-Oncology

Feldman T, Marchi E, Smith SD, Olszewski AJ, Huen AO, Epstein-Peterson ZD, Stevens DA, Starodub AN, Feldman EJ, Rodriguez CP, Reneau JC, Brammer JE, **Mattour AH**, Pinter-Brown LC, Perea R, Henrick P, Dey J, Fasciano A, Karnik R, Agarwal S, Gollerkeri A, Gollob J, Shastri A, and Barta SK. Safety, Pharmacokinetics, Pharmacodynamics and Clinical Activity of KT-333, a Targeted Protein Degrader of STAT3, in Patients with Relapsed or Refractory Lymphomas, Leukemia, and Solid Tumors. *Blood* 2024; 144(Supplement 1):4433-4433. Full Text

KT-333is a first-in-class, potent, highly selective, heterobifunctional degrader of the signal transducer and activator of transcription 3 (STAT3) protein. Aberrant activation of STAT3 due to genetic aberrations or deregulated cytokine signaling underlies various hematological malignancies, notably, different subtypes of T-cell lymphomas and classic Hodgkin lymphoma (cHL). Characteristically for cHL, in addition to PD-L1/PD-L2 copy number amplifications, chromosome 9p24.1 alterations also underlie Janus kinase 2 (JAK2) overexpression resulting in constitutive STAT3 signaling in tumor cells as well as within the

immunosuppressive microenvironment. Therefore, as a master regulator of tumor cell intrinsic and extrinsic mechanisms including expression of PD-1 ligands, STAT3 is central to cHL pathogenesis. Among treatment options, while PD-1 blockade is highly efficacious in (relapsed/refractory) R/R cHL patients, in those who fail to respond or eventually develop resistance, blocking JAK/STAT signaling has been shown to reinvigorate responses to anti-PD1 therapy [Zak et al., Science, 2024].This is an ongoing open-label, Phase 1a/1b study (NCT05225584) evaluating the safety, tolerability, pharmacokinetics (PK), pharmacodynamics (PD) and clinical activity of KT-333 administered intravenously (IV) on Days 1, 8, 15 and 22 (28-day Cycle [C]) in patients (pts) with R/R B- and T-cell lymphomas, cHL, solid tumors (ST) and large granular lymphocytic-leukemia (LGL-L)/T-cell prolymphocytic leukemia (T-PLL). Blood samples are collected to assess KT-333 plasma concentrations and measure changes in STAT3 protein expression in peripheral blood mononuclear cells (PBMCs). STAT3 degradation and related biomarker changes in tumor are assessed in pts who consent to biopsies.As of 22 July 2024, 51 pts were treated across seven dose levels (DL) in Phase 1a with a mean number of 9.4 doses. Pts included cutaneous T-cell lymphoma (CTCL) (n=11: DL1, 2, 4, 5, 6), cHL (n=7: DL4, 6, 7), LGL-L (n=5: DL3, 4, 5), peripheral T-cell lymphoma (PTCL) (n=3: DL2, 4, 7), T-PLL (n=2, DL3, 4), B-cell non-Hodgkin's lymphoma (n=1: DL5), natural killer (NK)-cell lymphoma (n=1, DL7), and ST (n=21: DL1-5, 7) with median age of 65 years (range 24,81) and ECOG performance status of 0 (n=20), 1 (n=30) or 2 (n=1). Pts race included (%): white (58.8), Black/African American (23.5), Asian (7.8), other (5.9), American Indian/Alaska Native (2.0), not reported (2.0). Non-Hispanic/Latino ethnicity was reported in 88.2% of pts and 58.8% of pts were male. The most common AEs were stomatitis, fatigue, nausea and constipation and DLTs included: Grade (G) 3 stomatitis and G3 arthralgia in two LGL-L pts in DL5 and G3 fatigue in a pt with NK-cell lymphoma in DL7. KT-333 related SAEs included G3 hematuria, G2 pyrexia and G3 stomatitis. Best responses in evaluable patients included two complete responses (CRs) in cHL pts in DL4; one CR in a NK-cell lymphoma pt with STAT3 mutation in DL7; four partial responses (PRs) in CTCL pts at DL2, 4, 5, 6; and stable disease in one CTCL pt at DL4, two cHL pts at DL6, two LGL-L pts at DL3 and four ST pts at DL3, 4. KT-333 showed mean maximum (max) degradation in C1 of STAT3 in PBMCs increasing from 70% to 95% between DL1 and DL7, with up to 97.5% max degradation. Notably, in CTCL tumor biopsies, KT-333 resulted in robust reduction of STAT3 (DL4: 69%, DL6: 91%), and pSTAT3 (DL4: 87%, DL6: 99%) consistent with STAT3 degradation in peripheral blood. Downregulation of STAT3 canonical target SOCS3 in whole blood and tumor further confirmed JAK/STAT pathway engagement. Moreover, induction of an IFNγ stimulated gene signature predictive of sensitivity to anti-PD1 was seen in both CTCL tumor biopsies, suggestive of favorable immunomodulatory responses in the tumor microenvironment following KT-333. Dose dependent increases in KT-333 plasma exposure were observed with levels approaching those predicted to be efficacious.KT-333 is a potent and selective STAT3 degrader that has demonstrated clinically significant responses including CRs and PRs in heavily pr treated cHL, CTCL and NK-cell lymphoma patients at tolerated doses with substantial target knockdown and pathway modulation. These results highlight the potential of heterobifunctional degraders to successfully target previously undrugged transcription factors implicated in cancer. Accrual is ongoing, and further analyses will be presented at the meeting.

Hematology-Oncology

Gupta AO, Sharma A, Frangoul H, Dalal J, Kanter J, **Alavi A**, DiPersio J, Eapen M, Jaroscak JJ, Ayala E, Ziga ED, Rifkin-Zenenberg S, Minella AC, Chen G, Chen Y, Chockalingam PS, Lin L, Joseney-Antoine M, Ianniello L, Gardner B, Hartigan AJ, Ciaramella G, Goyal S, Simon A, Thompson A, and Heeney MM. Initial Results from the BEACON Clinical Study: A Phase 1/2 Study Evaluating the Safety and Efficacy of a Single Dose of Autologous CD34+ Base Edited Hematopoietic Stem Cells (BEAM-101) in Patients with Sickle Cell Disease with Severe Vaso-Occlusive Crises. *Blood* 2024; 144(Supplement 1):513-513. Full Text

Fetal hemoglobin (HbF) is anti-sickling and elevated HbF ameliorates sickle cell disease (SCD) manifestations. BEAM-101 is an investigational cell therapy comprised of autologous CD34+ hematopoietic stem and progenitor cells (HSPCs) that are base edited ex vivo to introduce naturally occurring A-to-G substitutions into the promoters of the HBG1/2 genes that encode γ-globin to disrupt BCL11A transcriptional repressor binding sites, leading to increased HbF production. We previously demonstrated in pre-clinical studies that base editing potently induced HbF (>60%) and proportionately reduced sickle hemoglobin (HbS) (<40%) without relying on double-stranded DNA breaks. We present

initial data from BEACON (NCT05456880), a Phase 1/2, single-arm, open-label study evaluating the safety and efficacy of a single dose of BEAM-101 in patients with SCD with severe vaso-occlusive crises (VOCs).Patients 18-35 years diagnosed with SCD and ≥4 severe VOCs in the 2-year period prior to screening per trial criteria were eligible. After plerixafor mobilization, autologous CD34+ HSPCs were collected by leukapheresis/isolation and genetically modified with an adenine base editor. After myeloablative conditioning with pharmacokinetically adjusted busulfan, patients received a single infusion of BEAM-101 (≥3.0 × 106 viable CD34+ cells/kg) and are monitored for neutrophil and platelet engraftment, adverse events (AEs), total hemoglobin (Hb), Hb fractions, % F-cells, hemolysis markers, peripheral blood editing, and VOCs for 24 months.As of July 2, 2024, >20 patients are enrolled and BEAM-101 has been manufactured for 8 patients, of whom 6 patients have been dosed. One patient not included in this analysis discontinued during the mobilization/collection period prior to BEAM-101 treatment for non-medical reasons. Baseline demographics were as follows: 5/6 patients βS/βS, 1/6 patients βS/β0, all self-reported Black/African American, 50% female, aged 19-27 years. Of the 6 patients, half (n=3) required only a single mobilization cycle and the other half required 2. Patients received a mean BEAM-101 dose of 11.9 × 106 (5.2-23.4) viable CD34+ cells/kg.Excepting safety data that include all patients dosed (n=6), the following data are from patients dosed with ≥1 month of follow up (n=4; 6, 5, 2, and 1 month[s] post-treatment, each). All 4 patients with ≥1 month of follow up achieved neutrophil and platelet engraftment at a median of 17 (15-19) and 20 (11-34) days, respectively. One patient died due to respiratory failure, likely related to busulfan conditioning, 4 months after infusion. In all patients dosed (n=6), there have been no ≥Grade 3 AEs or serious AEs related to BEAM-101.Using the central laboratory data, patients' total Hb increased from baseline (mean 9.3 [7.9-10.9] g/dL) to 17.9, 18.2, 11.0, and 11.8 g/dL at last time point (LTP) available for P1, P2, P3, and P4, respectively. No signs/symptoms or interventions were undertaken for high total Hb. All patients achieved >60% HbF of non-transfused Hb (total Hb − HbA) at Month (M) 1 and sustained this elevation to the LTP available. By M1, HbS% in non-transfused blood dropped to ≤36% in all 4 patients and was sustained through LTP. In total blood, % F-cells were 99.6% in P1 at M6, 94.4% in P2 at M4, 52.0% in P3 at M2, and 13.3% in P4 at M1 with all patients having >19 pg HbF/F-cell at LTP available. Peripheral blood editing in nucleated cells, measured in P1 (at M6) and P2 (at M3), was 69.9% and 76.1%, respectively. Markers of hemolysis (lactate dehydrogenase, indirect bilirubin, haptoglobin, and reticulocyte counts) have normalized or improved for all patients. No VOCs have been reported by investigators following BEAM-101 treatment.These initial data show a safety profile for BEAM-101 consistent with busulfan conditioning and autologous HSCT. Treatment with BEAM-101 resulted in rapid engraftment, improvement in hemolysis markers, and marked improvement of anemia in all 4 dosed patients. We observed rapid and robust HbF induction consistent with pre-clinica data by M1 (>60%) and corresponding HbS reduction (≤36%) in non-transfused blood in all post-treatment assessments. No VOCs were reported by investigators post-treatment. These initial data support base editing of the HBG1/2 promoters as an effective therapeutic modality for the treatment of SCD and will continue to be investigated in the ongoing BEACON study. Updated data to be presented.

Hematology-Oncology

Horvat NK, Greene E, Krasinskas A, **Diab M**, Maithel S, Sarmiento J, Alese O, and Lesinski GB. SPATIAL LOCALIZATION OF MACROPHAGES AND CANCER-ASSOCIATED FIBROBLASTS IN PANCREATIC CANCER: IMPLICATIONS FOR MYELOID TARGETING STRATEGIES. *J ImmunoTher Cancer* 2024; 12:A1005. Full Text

N.K. Horvat, Winship Cancer Institute, Emory University, Atlanta, GA, United States

Background The tumor microenvironment (TME) of pancreatic ductal adenocarcinoma (PDAC) plays a pivotal role in cancer progression and treatment resistance. Comprised of various stromal components, notably cancer-associated fibroblasts (CAFs) and immune cells such as tumor associated macrophages (TAMs), the PDAC TME fosters a suppressive milieu that hinders the efficacy of immunotherapy. This study examines the spatial distribution and interactions of TME constituents in PDAC and liver metastatic PDAC, offering insights for myeloid-targeted cancer therapies. Methods Multiplex immunofluorescent staining was performed on human primary (n=10) and metastatic liver (n=9) PDAC formalin- fixed paraffin-embedded tissue sections with a 6-color panel including CD68, aSMA, CD3, CD19, CK19 and IL6 antibodies. Whole tissue images were acquired using the Vectra Polaris multispectral imaging system.

Cell phenotypes were characterized using QuPath software, followed by spatial computational analysis using SPIAT, SpatialExperiment and spaSim software. By assessing the spatial localization of TAMs (CD68+), CAFs (aSMA+), T cells (CD3+), B cells (CD19+), and cancer cells (CK19+), we mapped tumor structures and the proximity and potential interactions of characterized cells within the TME. Results Differential infiltration patterns emerged between primary and metastatic PDAC tumors. In metastatic PDAC tissues, TAMs were found to localize closest to cancer cells (average median distance 56 µm ± 21 µm (met) vs 105 µm ± 60 µm (pri)) and CAFs (average median distance 61 µm ± 32 µm (met) vs 120 µm ± 75 µm (pri), a pattern that was distinct from their localization in primary tumor tissue. Metastatic tumors exhibited increased infiltration of CD68+ and CD68+ IL6+ TAMs within tumor structures (7.6% ± 3.7% (met) vs 0.08% ± 0.04 (pri)), but had reduced numbers of CAFs (0.4% ± 0.2 (met) vs 0.9% ± 0.6% (pri)) and T cells (1.5% ± 1.4 (met) vs 9.9% ± 4.3% (pri)) compared to primary tumors. Conclusions The spatial dynamics between TAMs, CAFs, and T cells within the TME suggest possible intricate intercellular communication, with TAMs displaying variable spatial associations with immune cells in metastatic as opposed to primary tumors. These results indicate a complex role for TAMs in immune modulation between primary and metastatic sites. Moreover, the distinct relationships between TAMs-CAFs and CAFs-lymphocytes lay the groundwork for future studies to dissect the identities of TAMs and CAFs through the use of single cell spatial transcriptomics, setting the stage for more precise and effective treatments for formidable cancers like PDAC. .

Hematology-Oncology

Meranda M, **Drallmeier M**, **Kavuri S**, **Abad J**, **Mittal A**, **Farook R**, **Hossain M**, **Rose C**, **Wilson C**, **Shahid M**, **Kuriakose P**, and **Mattour AH**. The Mediating Effects of Racial and Social Health Disparities on Cancer Urgent Care Outcomes: An Urban Cancer Center Experience. *Blood* 2024; 144(Supplement 1):2266-2266. Full Text

BackgroundTherapy and disease related complications are common among patients with cancer, leading to increased acute care resource use during the treatment period. Previously, we published an analysis supporting the efficacy of Henry Ford Cancer Institute's (HFCI) cancer urgent care clinic in reducing excess emergency department (ED) visits in patients with hematologic malignancies. Keeping in mind our diverse patient population, we sought to assess whether racial and socioeconomic variables impacted this observed benefit.MethodsWe conducted a retrospective review of patients with active hematologic malignancies seen at HFCI's cancer urgent care clinic between January 1, 2021, to December 31, 2022. As in our prior analysis, determination of whether cancer urgent care interventions prevented a subsequent ED visit, denoted at the end of each visit note by the performing provider, was collected. Patient demographics, malignancy, treatment characteristics, performance status (ECOG), Charlson Comorbidity Index (CCI), reason for urgent care visit, and interventions performed therein were collected for each patient along with Area Deprivation Index (ADI), insurance status, and race. A multivariable regression analysis was conducted to assess the impact of these variables in whether ED disposition was prevented by urgent care interventions.ResultsBoth initial patient visits (n=141) and repeat presentations (n=269) to cancer urgent care during the study period were analyzed; 51.8% of patients were male and 48.2% were female. 51.8% of patients identified as black, 29.8% as white, and 18.4% as other/non-white. 35% of patients had private insurance while 54.3% and 10.7% had Medicare and Medicaid respectively. 21.3% of patients were ECOG 0, while 48.9%, 22.0%, and 7.8% were ECOG 1, 2, and 3 respectively. Mean CCI was 4.1 (SD 2.24), mean state ADI was 6.2 (SD 3.21), and mean national ADI was 70.1 (SD 26.7).86.5% of patients were on active treatment at the time of visit, 96.6% of whom were on standard of care regimens with the remainder on clinical trials. Of patients on any treatment, 41.5% presented to urgent care within the first two cycles of therapy while 58.5% presented after the first two cycles. The most represented malignancies were multiple myeloma and high-grade lymphoma at 33.3% and 19.1% of cases respectively.Of the 138 initial cancer urgent care visits in which complete data were available, a subsequent ED visit was prevented in 103 cases. In multivariable regression analysis, no difference was seen in the odds of preventing an ED visit when accounting for patients' race, ADI, or insurance status while controlling for all other variables; however, ECOG score and patient presentation during the first two cycles of therapy were statistically significant mediators of this outcome. The odds of preventing an ED visit were decreased by 86% (95% CI [0.03-0.67]) for patients ECOG 2 compared to ECOG 0 and 94% (95% CI [0.01-0.60]) for patients ECOG 3 compared to ECOG 0 (p=0.018). A visit to urgent care was 3.21 times (95% CI [1.01-10.24]) more likely to prevent a subsequent ED visit for patients presenting after their

first two cycles of therapy compared to those presenting during their first two cycles while controlling for all other variables (p=0.008). These findings were re-demonstrated when analyzing repeat patient presentations to cancer urgent care during the study period (n=269).DiscussionSignificant morbidity is imposed on patients undergoing treatment for hematologic malignancies. Our data align with existing literature demonstrating that dedicated cancer urgent care centers can reduce ED resource use while ameliorating disease related complications. In our analysis, indices of patient morbidity such as ECOG and proximity to initiation of therapy predictably affected the efficacy of cancer urgent care preventing ED disposition. That CCI was not seen as a significant mediator of this outcome is likely due to the low CCI of our patient population with narrow standard deviation.The benefit of cancer urgent care in preven ing ED disposition was otherwise seen equally across our patient population, regardless of ADI, race, or insurance status. These findings suggest that dedicated cancer urgent care centers are socially equitable resources to offload the burden of acute care in diverse patient populations with hematologic malignancy.

Hematology-Oncology

Pitliya A, Vasudevan SS, Batra V, Karmani V, Shah A, **Gor D**, and Pitliya A. Unfractionated Heparin Vs Enoxaparin Thromboprophylaxis in Medical-Surgical Patients: A Systematic Review and Meta-Analysis. *Blood* 2024; 144(Supplement 1):5573-5573. Full Text

Background:In critically ill patients, thromboprophylaxis is vital for preventing venous thromboembolism. Unfractionated heparin (UH) and enoxaparin (EP) can differ in the prognostic outcomes of the patients. This meta-analysis aims to compare the efficacy and safety of UH versus EP in terms of mortality, incidence of deep vein thrombosis (DVT), pulmonary embolism (PE), overall Venous Thromboembolism (VTE), and post-treatment bleeding.Methods:We conducted a systematic review and meta-analysis following PRISMA guidelines. A comprehensive literature search was performed across PubMed, Embase, and Cochrane Library databases up to July 2024 for studies comparing outcomes between unfractionated heparin and enoxaparin. The analysis included 13 studies including 5 retrospective cohort studies, 1 prospective cohort study, and 7 randomized clinical trials. Inclusion criteria were adults (≥18 years old) and studies published in English, randomized controlled trials (RCTs), cohort studies, case-control studies, and cross-sectional studies. Exclusion criteria included patients (<18 years old), patients on warfarin therapy, hospital stays of ≤2 days, studies not involving UFH or LMWH for VTE prophylaxis, and non-original studies. The quality assessment was conducted independently by two reviewers using the New-castle Ottawa scale and Cochrane RoB2. The outcomes included bleeding complications, mortality, VTE, PE, and DVT. A random-effects meta-analysis assessed odds ratio (ORs) and 95% confidence intervals to compare all the outcomes between these two groups.Results:Out of the 13 included studies, 65331 participants were included with a female predominance of 51.68%. The mean age of the population is 65.16 (12.85) years. The total number of patients on UFH is 29858 and the total number of patients on enoxaparin is 36180. Our meta-analysis yielded the following results: There was comparable mortality between UH and EP [OR =1.19, 95% CI: 0.91 - 1.55, p = 0.20]. Similar incidence rates were reported for Deep Vein Thrombosis (DVT) [OR = 1.81, 95% CI: 0.87 - 3.78, p = 0.11] and Pulmonary Embolism (PE) [OR = 1.62, 95% CI: 0.62 - 4.21, p = 0.32], suggesting no significant difference between the two groups. There were comparable incidence rates for venous thromboembolism (VTE) [OR = 2.19, 95% CI: 0.88 - 5.45, p = 0.09], between UH and EP. Post-treatment bleeding had an OR of 1.08 [95% CI: 0.82 - 1.44, p = 0.58], showing no significant difference in post-treatment bleeding between the two treatments. However, sensitivity analysis by one study removal method showed increased odds of DVT [OR = 1.24, 95% CI, 1.03 - 1.49, p = 0.02] and VTE [OR = 1.30, 95% CI: 1.08 - 1.56, p = 0.01] rates for UH.Conclusion:Our meta-analysis showed no statistically significant differences between unfractionated heparin and enoxaparin for mortality, DVT, PE, VTE, and post-treatment bleeding. Although sensitivity analysis with one-study removal shows higher rates of DVT and VTE for UH, the results showed that one study should be carefully interpreted, considering one study as a confounder. Clinicians should consider these findings with caution and evaluate patient-specific factors when choosing between UH and EP for thromboprophylaxis in critically ill patients.

Hematology-Oncology

Rives S, Ottaviano G, Martínez-Cibrián N, **Farhan SY**, Vuyyala S, Galimard J-E, Michel E, Imran F, Sánchez-Sierra N, Mitchell R, Mielke S, Attarbaschi A, Petersen SL, Ryhanen S, Sr., Bethge WA, Beauvais D, Zuckerman T, Pérez-Martínez A, Kalwak K, Ciceri F, Ruggeri A, Delgado J, Giebel S,

Balduzzi A, Alonso-Saladrigues A, and Ortiz-Maldonado V. Second Infusion of CAR T-Cells in Patients with Relapsed /Refractory B-Cell Acute Lymphoblastic Leukemia: Results from a Gocart Coalition Analysis on Behalf of the PDWP, ALWP, and Ctiwp of the EBMT. *Blood* 2024; 144(Supplement 1):965-965. Full Text

Background:The prognosis of patients (pts) with relapsed or refractory B ALL (r/r B-ALL) treated with CAR T-cells and receive a 2nd CART infusion is unknown. Few reports with limited numbers of patients suggest that 2nd CART infusion is feasible with questionable efficacy. This GoCART coalition registry study aimed at compiling data to investigate the indications, efficacy, and toxicity of CART2 infusion in pts with r/r B-ALL.Methods:This is a multicenter, retrospective registry study that included pediatric and adult patients with r/r B-ALL who received autologous CD19-targeted CAR T-cell therapy (CART1) and subsequently were treated with a second administration of CD19 and/or CD22-targeted CAR-T cell therapy (CART2) from 2017 to 2023. Baseline features, prior stem cell transplant (SCT), indications for CART2 and outcomes were collected. Relapse incidence (RI) was defined as overt recurrence, non-relapse mortality (NRM) as death without relapse occurrence, leukemia free survival (LFS) as being alive without occurrence of relapse and overall survival (OS) as being alive. RI and NRM were estimated using cumulative incidence function and OS and LFS Kaplan-Meier estimation.Results:Out of 345 pts who received CART1, 39 (2y cumulative incidence of second CART: 12.4% (95%CI: 8.8-16.6)) received CART2. Reasons for CART2 were overt relapse (n= 26; 66.7%), molecular relapse by measurable residual disease (MRD+) (n=5; 12.8%), and B-cell recovery (BCR) in the absence of relapse (n=8; 20.5%). Seventeen pts (43.6%) were female and median age at CART2 infusion was 19 yrs (range: 6.9-67.1), including 19 children and 20 adults. 74.4% of the pts had received a prior SCT, 25 pts (64%) before CART1, 2 (5.1%) only between CART1 and CART2, and 2 (5.1%) before CART1 and between CART1 and CART2. Among the 31 pts who received CART2 for relapse, this was CD19+ in 24 (92.3%), CD19- in 2 (7.7%), and unknown in 5. CART1 products were varnimcabtagene autoleucel (ARI-0001) (23), tisagenlecleucel (13), brexucabtagene autoleucel (1), and other experimental (2). All CART2 products targeted CD19 except 2 (1 CD22 and 1 dual CD19-CD22).Median time between CART1 and CART2 was 11.0 months. For patients who received CART2 for BCR, median time between CART1 and CART2 was shorter than for those who received it for relapse: 2.4 (IQR: 2.3-3.3) months vs. 12.4 (IQR:6.4-19.3) months. Regarding leukemic burden at the time of CART2 infusion, 19 pts (48.8%) were in overt relapse (14/19 with extramedullary disease, including 7 in CNS), 12 (30.1%) were in complete remission (CR) MRD+ and 8 (20.5%) CR MRD-.With a median follow-up time of 2.3 yrs [95% CI: 1.2-3.4], the 2-yr OS and LFS after CART2 were 47.1% [95% CI: 27.8-64.3] and 39.9% [95% CI: 24-55.3], respectively. 2-yr RI was 54.5% (95% CI: 36.5-69.4) and NRM was 5.6% (95% CI 1-16.8). 2-yr OS, LFS and RI for pts in CR at CART2 infusion irrespective to MRD were 76.1%, 63.3% and 25.6% while for those not in CR these outcomes were 17.7%, 15% and 85%, respectively (p= 0.007, 0.006 and 0.002). 2-yr LFS (71.4% [95% CI 25.8-92]) and RI (0%) was significantly better for pts receiving CART2 for BCR than in those who received it for relapse (31.6% [15.6-48.9] and 68.4% [46.7-82.8]; p= 0.036, p=0.002).Conclusion:This is a large registry study describing indications and outcome of CART2 in patients with r/r B-ALL. At 2-yrs after CART2, the LFS was of 39.9% and for patients receiving CART2 due to B-cell recovery was of 71.4%. These results show that CART2 is associated with low NRM and might be a bridge to SCT or other additional therapies. Updated results with data about subsequent therapies after CART2 will be presented at ASH meeting.

Hematology-Oncology

Sweidan A, **Brancamp RL**, **Lopez-Plaza I**, **Jacobsen G**, and **Kuriakose P**. Real World Data on the Utility of P-Selectin Expression Assay; Correlation of Test Results and Disease Expression. *Blood* 2024; 144(Supplement 1):1244-1244. Full Text

Background:Serotonin Release Assay (SRA); the gold standard confirmatory test for Heparin Induced Thrombocytopenia (HIT), is usually a reflex test done after the initial screening test detecting platelet factor 4 (PF4) antibodies using enzyme-linked immunosorbent assay (ELISA). SRA testing uses radioactive labeled serotonin, is time and labor consuming, and is only done in a limited number of laboratories around the United States. Given the difficulty in performing this confirmatory test, there has been a growing need for innovative testing methods.P Selectin Expression Assay (PEA) is a relatively simple method for detecting platelet-activating HIT antibodies based on the expression of p-

selectin/CD62p by normal platelets mixed with patient serum and exogenous PF4 in the absence of heparin. It is based on a non-radioactive, less labor-intensive, readily available technology (flow cytometry), with a shorter turnaround time.A PEA test is considered positive only if the following 2 conditions are met: 1) P Selectin expression is greater than 35% when the patient's serum is mixed with 30mcg of PF4, AND 2) P-Selectin expression is suppressed greater than 50% after mixing with 100 units of heparin. We noticed that some patients with high clinical suspicion for HIT had initial P Selectin expression of less than 35% but had more than 50% suppression after mixing with 100U heparin.We incorporated PEA testing as the primary reflex test at Henry Ford Hospital (HFH) following any positive anti-PF4 ELISA test (defined as Optical Density (OD) > 0.4) in December of 2021. Only selected cases undergo SRA testing as a secondary confirmatory test when PEA results are negative in the presence of strong clinical suspicion.Methods:A retrospective review was performed on all patients who underwent PEA testing from January 2023 to May 2024. Data included admission diagnosis, previous exposure to heparin, initial platelet count, platelet nadir, interval time until the drop of platelets, thrombotic events, bleeding events, anti-PF4 ELISA OD value, PEA test values and interpretation, type of anticoagulation used, duration of anticoagulation, survival of hospital admission, and etiology of death if occurred. We calculated individual 4Ts scores for all patients. All anti-PF4 ELISA tests were performed at HFH special coagulation labs, and all PEA tests were performed at Versiti diagnostic laboratories (Milwaukee, WI).Results:We had a total of 61 PEA tests, of which 25 (40.9%) were positive and 36 (59%) were negative. Of the negative tests, 24 (66.6%) had P selectin expression less than 35% when serum was mixed with 30mcg of PF4 but had more than 50% suppression in P-Selectin expression after mixing with 100 units of heparin. Of these 24 patients, 5 (20.8%) had 4Ts score > 5, 3 (12.5%) had 4Ts score of 7; 9 (37.5%) had PF4 antibody ELISA OD >1.0, 5 (20.8%) with OD >1.5 (2 of whom had OD values of 3.862 and 2.652); and 9 (37.5%) had a P Selectin expression of 10-20% when serum was mixed with 30mcg of PF4 and >50% suppression when mixed with 100U of heparin. 15/24 (62.5%) were treated as HIT based on clinical suspicion, 4Ts scores, and OD values despite negative PEA results, most commonly with Bivalirudin followed by Warfarin or direct oral anticoagulants (DOACs).Conclusion:Though limited by small sample size, our study suggests that a finite number of patients with high clinical suspicion for HIT had negative PEA results. We found that these patients had a P Selectin expression of 10-20% (<35%) when mixed with 30mcg of PF4 but more than 50% suppression when mixed with 100U of heparin. These results emphasize the importance of continuously reassessing binary tests. We propose reviewing larger data sets to assess if a separate intermediate PEA risk group might need to be defined while incorporating clinical parameters to finalize the diagnosis and help guide appropriate management.

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Yap TA, Sweis R, Vaishampayan UN, Kilari D, Tarhini AA, Gainor JF, Barve M, Sonpavde GP, Park D, Babu S, McKay R, **Hwang C**, Sher A, Nangia C, Kim M, Choi J, Ju Y, Liu L, Henry S, DeWall S, and Gan L. DRAGON TRIAL: DURABLE REMISSION RATE WITH THE LATENT TGFb1 INHIBITOR LINAVONKIBART (SRK-181) AND PEMBROLIZUMAB IN PATIENTS WITH IMMUNE CHECKPOINT INHIBITOR RESISTANT ADVANCED CANCERS. *J ImmunoTher Cancer* 2024; 12:A917. Full Text

T.A. Yap, University of Texas, MD Anderson Cancer Center, Houston, TX, United States

Background Transforming growth factor-beta 1 isoform (TGFb1) drives tumor immune escape by promoting an immunosuppressive pro-tumor microenvironment. Linavonkibart is a first-in-class fully human IgG4 context-independent anti-latent TGFb1 monoclonal antibody. Methods Linavonkibart+pembrolizumab showed antitumor activity with no dose-limiting toxicity during dose escalation. In expansion cohorts, linavonkibart (1500mg q3w)+Pembroliizumab were administered in melanoma (MEL), urothelial carcinoma (UC), and non-small cell lung cancer (NSCLC) patients, who were non-responders to prior anti-PD1; and in clear cell renal cell carcinoma (ccRCC) and head and neck squamous cell carcinoma (HNSCC) patients, with disease progression on the most recent prior anti-PD1. Biomarker analyses include immunohistochemistry and flow cytometry. Results As of 11 Jun 2024, 78 patients (28.2% females, median age 65 years) were enrolled. Patients had received a median of 3 prior lines of therapies (range 1-9). All patients had a best response of SD or PD on prior anti-PD1 (except 1 HNSCC patient, who had PR). All patients had progressed on their most recent anti-PD1 (except 2 MEL patients). Treatment- related AEs (TRAE, ≥10%) of any grade were rash (33.3%), pruritus (26.9%),

fatigue (21.8%) and diarrhea (15.4%). Rash (12.8%) was the only grade 3 TRAE (≥5%); only one grade 4 TRAE (dermatitis exfoliative generalized) occurred. There was no grade 5 TRAE. Treatment-related SAE (≥2% [2 pt]) was pemphigoid (2.6%). Efficacy results are presented in the table below. Tumor assessments were based on RECIST 1.1 criteria by PI. PFS rate (95% CI) for ccRCC patients at 6 months and 9 months were 44% (25.6, 61) and 28.6% (12.1, 47.5), respectively. (table 1). In ccRCC patients, baseline CD8+ T-cell infiltration status and baseline Treg levels correlated with positive clinical outcome: ORR increased to 33% (4/12) and 57.1% (4/7) for CD8+ infiltrated patients and elevated Treg patients, respectively. Across all cohorts, treatment with linavonkibart+Pemmbrolizumab shifted the microenvironment to more proinflammatory in responding patients. Conclusions Linavonkibart+Pembrolizumab treatment demonstrated promising efficacy in anti-PD1 resistant patients across multiple tumor types with a manageable safety profile. Baseline biomarker data from ccRCC patients showed clinical outcomes correlated with CD8+ infiltration and elevated Treg Levels, suggesting a potential patient selection strategy. These data support further investigation of linavonkibart. .

Hematology-Oncology

Yono SS, **Hannoudi A**, **Chamseddine H**, **Rama S**, **Bensenhaver JM**, **Petersen L**, **Nathanson SD**, **Schwartz TL**, **Evangelista M**, and **Atisha DM**. The Effect of Lymphatic Microsurgical Preventive Healing Approach in Reducing Breast Cancer-Related Arm Lymphedema. *J Am Coll Surg* 2024; 239(5):S58-S59. Full Text

S.S. Yono

Introduction: Current guidelines lack surgical prevention recommendation for breast cancer-related arm lymphedema (BCRaL). The study aims to assess the effectiveness of immediate lymphatic microsurgical preventive healing approach (LyMPHA) during axillary lymph node dissection (ALND) in reducing BCRaL. Methods: A retrospective chart review of breast cancer patients who underwent ALND with or without immediate LyMPHA (2016- 2022) was conducted. The exclusion criteria were stage IV, preoperative lymphedema. BCRaL was defined as persisted swelling and/ or heaviness and need for complete decongestive therapy (CDT) > 12 months postoperatively. Patients' percent functional impairment was also assessed using the Lymphedema Life Impact Score (LLIS). Patient demographics, medical history, and treatment history were compared. Outcomes of interest included postoperative complication, lymphedema incidence, and percent of functional impairment. Univariate and Cox regression analysis were used. Results: A total of 187 patients underwent ALND, 121 of whom also had LYMPHA. Mean follow-up was 35 months (SD ± 21), age was 56.4 y (SD ± 13.6), BMI was 30.4 kg/m2 (SD ± 6.9). 76.5% received neoadjuvant chemotherapy, 88.8% adjuvant chemotherapy, and 85.0% adjuvant radiotherapy. 5.3% had history of radiation. Operative outcomes showed significant differences: LyMPHA group had lower median drain duration (13.0 d vs 15.0 d, p = 0.042), lower median percent functional impairment (4.7% vs 11.6%, p = 0.045), and lower risk of lymphedema which persisted over time (p = 0.003). Cox regression analysis showed that, at any point in time, LyMPHA group were half as likely to experience lymphedema as the ALND alone (hazard ratio = 0.50, p = 0.023); (Figure 1). Conclusion: Offering immediate LyMPHA after ALND presents an opportunity to prevent or mitigate lymphedema progression over time and ultimately reduces morbidity in the breast cancer population. (Figure Presented).

Hematology-Oncology

Zimmer M, **Jacob B**, **Spica M**, **Ghosh S**, and **Dabak VS**. Outcomes of Acute Myeloid Leukemia Treated with a Hypomethylating Agent and Venetoclax: A Single Institution Analysis. *Blood* 2024; 144(Supplement 1):6040-6040. Full Text

Introduction:Acute myeloid leukemia (AML) commonly occurs in older adults where intensive therapy is often not well tolerated or as effective. Azacitidine (AZA) and venetoclax (VEN) showed benefit in VIALE-A compared to AZA alone in untreated patients with AML who were ineligible for intensive therapy, with an overall survival (OS) of 14.7 months. Cytopenia, febrile neutropenia and tumor lysis syndrome (TLS) were among the most reported adverse events (DiNardo, 2020).Methods:This was a retrospective, single institution analysis of patients over 18 years of age with diagnosis of AML treated with hypomethylating agents (azacitidine or decitabine) (HMA) and VEN between January 2017 and January 2024. We investigate the use of HMA and VEN, trends of regimen and prophylactic regimen dosing, the impact on

OS, the use of allo-HSCT and outcomes of relapsed and refractory disease.Results:Thirty patients received VEN and HMA for AML between January 2017 and January 2024. Ten patients were female and 20 were male. The median age was 72 years. Twenty-four patients (80%) were Caucasian, 5 (16.7%) were African American and one patient's race was unidentifiable. Twenty-three patients (76.7%) were diagnosed with AML, 5 (16.7%) treatment related AML (t-AML) and 2 (6.7%) MDS/AML. Risk stratifying patients with molecular data available for review by ELN 2022 criteria, there were 5 (16.7%) favorable, 6 (20%) intermediate and 17 (56.7%) adverse. Within the adverse risk group, 6 had mutated TP53.The median time from diagnostic bone marrow biopsy (BMB) to the start of cycle 1 (C1) was 10.5 days and median time from the start of C1 to the next BMB was 27 days. Patients completed a mean of 5.97 cycles (range, 1-26). Antimicrobial and TLS prophylaxis were used in most patients in C1. VEN duration decreased throughout each cycle (21.60 days in C1, to 15.38 in C2, to 8.62 in C3 and 8.10 in C4). The median number of days between the start of subsequent cycles generally increased (34.5 days from C1 to C2; 39 days from C2 to C3; 42 days from C3 to C4). Twenty-one patients received the treatment in the front-line setting, 7 as salvage therapy and 2 as salvage after allo-HSCT. Three patients proceeded to allo-HSCT a median of 179 days after initial diagnosis.At data collection, 9 patients (30%) were in remission, 20 (66.7%) had active disease and one patient's disease status was unknown. Mean OS was 22.67 months (5.92-39.42, 95% CI, p=0.346). There was a trend towards double OS in patients who were younger than 72 years of age (26.12 months 3.37-48.87, 95% CI versus 12.75, 0-31.55, 95% CI, p=0.68). Caucasians had greater than 6 times OS than African Americans, and this was statistically significant (26.12 months, 10.42-41.82, 95% CI versus 4.44 months, 0-10.85, 95% CI, p=0.015). Frontline use had a clinically significant difference in OS compared to salvage use (22.67 versus 4.53 months, p=0.200).The median OS in patients with favorable risk disease was approximately 3 times greater than the adverse risk group (22.67 versus 8.87 months, p=0.449). While not of statistical significance, TP53 mutated AML was associated with approximately one third the median OS than non-mutated TP53 AML (7.95 months, 2.75-13.16, 95% CI versus 26.12 months, 0-52.28, 95% CI, p=0.947). Patients who achieved complete remission (CR) after C1 had greater PFS (median 51.91 versus 8.87 months, p=0.033) and OS than those who did not (52.83 months versus 12.75 months, p=0.063).Conclusions:We evaluated the use of VEN and HMA in patients with AML treated in an urban setting. Patients received decreasing number of days of VEN each cycle and had increasing number of days between cycles, suggesting treatment reduction and delays due to complications such as neutropenia and infections, however without compromise to OS.OS analysis was not statistically significant but was clinically significant at 22.67 months, with younger patients, Caucasians, favorable risk disease and frontline use having greater OS. Achieving CR by the end of C1 translated to a benefit in PFS and OS. The presence of TP53 mutation remains a high-risk feature with detrimental effects on OS.Future work needs to evaluate the impact of race and regimen variations, including VEN reduction and cycle delays, on CR, PFS and OS.

Hospital Medicine

Schaefer JK, Errickson J, Kong X, Callahan C, Giuliano C, Ali MA, Chipalkatti N, Haymart B, **Kaatz S**, **Krol GD**, **Ryan N**, Sood SL, Froehlich J, and Barnes GD. Treatment Versus Prophylactic Apixaban or Rivaroxaban for Extended Venous Thromboembolic Disease Management. *Blood* 2024; 144(Supplement 1):699-699. Full Text

Introduction:Apixaban and rivaroxaban are the most commonly used direct oral anticoagulants (DOACs) for the management of venous thromboembolism (VTE), which includes deep vein thrombosis (DVT) and pulmonary embolism (PE). For patients at clinical equipoise for continued anticoagulation after six months of standard anticoagulation treatment, prophylactic dose apixaban (2.5 mg twice daily) was associated with a reduced risk of recurrent VTE compared to placebo, achieving similar outcomes to full dose apixaban (5 mg twice daily). Similarly, rivaroxaban (10 mg daily) has been shown to significantly reduce the risk of recurrent VTE compared to aspirin, achieving similar thrombotic outcomes to full dose rivaroxaban (20 mg daily).The 2021 American College of Chest Physician Guidelines suggest reduced-dose apixaban or rivaroxaban for extended-phase VTE management, providing a weak recommendation with very low-certainty evidence. We sought to determine if clinical outcomes differ for patients treated with full compared to prophylactic anticoagulation for extended therapy of VTE.Methods:We conducted a registry-based cohort study of adults on DOAC therapy for VTE followed at four health systems in Michigan between January 2012 to December 2023, recruited through the Michigan Anticoagulation Quality Improvement Initiative (MAQI2). Included patients had to be anticoagulated for DVT and/or PE,

treated with apixaban or rivaroxaban, and have at least 9 months of follow-up. We required 9 months of follow-up to ensure that at least 3 months of follow-up occurred after the initial 6 months of anticoagulation. Patients with mechanical heart valves, on dual antiplatelet therapy, and with cirrhosis were excluded.Two propensity score-matched cohorts of patients were compared based on anticoagulant dose using full matching, allowing one prophylactic dose patient to match to up to six therapeutically treated patients. Patients were matched on factors anticipated to influence anticoagulant treatment. Recurrent VTE was the primary outcome. Secondary outcomes included new episodes of any thrombosis, bleeding, emergency department visits, hospitalizations, and death. Random chart audits were done to confirm data accuracy. Event rates were compared using Poisson regression.Results:A total of 978 patients met the study inclusion criteria, 200 (20.4%) were on prophylactic dose anticoagulation. Unadjusted rates of thrombosis, bleeding, and healthcare utilization were higher among patients on therapeutic dosing. After propensity matching, we compared two groups: 662 patients with therapeutic dosing to 189 patients on prophylactic dosing. Mean (standard deviation [SD]) age was 66.4 years old (15.4), with 47.7% identified as male sex, 51.9% had a body mass index >30 kg/m2, and the average follow-up was 21.1 months (SD 22.0). Of the matched cohort, 18.8% had provoked VTE, 32.4% had cancer, and 7.9% were receiving chemotherapy.After matching, patients on therapeutic dose anticoagulation had a similar rate of recurrent VTE (1.8 versus 0.3 PE/100 patient years, 95% confidence interval [CI] 1.1-2.8 versus 0.0-1.4, p=0.21 for PE; 1.1 versus 0.3 DVTs/100 patient years, 95% CI 0.6-1.9 versus 0.0-1.4, p=0.22 for DVT) and rate of any thrombosis compared to patients on prophylactic dosing (4.1 versus 1.3 events/100 patient years; 95% CI 3.0-5.5 versus 0.4-3.0, p=0.055). Patients on therapeutic anticoagulation had a higher bleeding event rate (45.6 versus 40.0 events/100 patient years; 95% CI 41.7-49.8 versus 34.0-46.8, p=0.039) but a similar major bleeding rate compared to prophylactic anticoagulation (3.6 versus 1.8 events/100 patient years; 95% CI 2.6-4.9 versus 0.7-3.7, p=0.067). Patients on therapeutic anticoagulation had more bleed or thrombosis related emergency department (ED) visits (17.2 versus 9.1 ED visits/100 patient years, 95% CI 14.8-19.8 versus 6.4-12.6, p=0.002) and hospitalizations (9.0 versus 5.1 hospitalizations/100 patient years, 95% CI 7.3-10.9 versus 3.1-7.8, p=0.011). Mortality was similar between groups.Conclusions:Compared to prophylac ic dosing, therapeutic dosing was associated with a similar rate of recurrent VTE, an increased bleeding rate, and a higher rate of healthcare utilization for extended secondary prevention of VTE in a real-world cohort. These findings support current guideline recommendations but should be confirmed in randomized trials.

Hypertension and Vascular Research

Bhat S, **Bryson T**, **Taube D**, and **Harding P**. Overexpression of Prostaglandin E2 EP3 Receptor Subtype Alters Calcium-Handling Proteins in Mouse Hearts. *Circ Res* 2024; 135. Full Text

S. Bhat

Prostaglandin E2 (PGE2) is an autacoid that acts through G-protein coupled receptors (EP1-EP4) in various cell types within the heart, including cardiomyocytes in which EP3 and EP4 predominate. We previously reported that mice with cardiomyocyte-specific overexpression of the EP3 receptor (EP3 TG) demonstrate reduced cardiac function and diminished cardiomyocyte contractility in isolated cardiomyocytes. We therefore hypothesized that PGE2 via the EP3 receptor regulates calcium handling proteins to reduce contractility. To test our hypothesis, we performed RNA sequencing (RNA seq) on the left ventricle of fifteen-week-old male EP3 TG mice along with their WT controls. Western blots were used to confirm changes in the expression of calcium-handling proteins such as Sarcoplasmic/endoplasmic reticulum calcium ATPase (SERCA2a), Ryanodine receptor 2 (RYR2), Phospholamban (PLB), Troponins (C, I, T) and voltage-gated calcium channel (CACNB2). For RNA seq, all data is reported as Log2Fold change, adjusted P value, and western blot data is reported as mean +/- standard error (SE) of the mean. Additionally, isolated cardiomyocyte contractility was assessed using the IonOptix system, and data is reported as the mean +/- SE. RNA seq data shows that SERCA2a and RYR2 expression were significantly downregulated in TG mice (SERCA2a -0.44, p=4.72 x 10-6; RYR2: -0.86, p=4.08 x 10-5) in addition to significant reductions in Troponin I (-0.43, p=0.038) and the Voltage-gated calcium channel (CACNB2: -0.71, p=0.0055). Western blot analyses confirmed the reductions in SERCA2a, RYR2, and CACNB2 although these changes were only significant for CACNB2 (1.0 +/- 0.03 for WT vs 0.59 +/- 0.04 for TG, p = 0.016). Expression of Troponins did not change in TG mice. Consistent with our previous data, IonOptix analysis shows reduced contractility of myocytes from EP3 TG mice (bl% peak h is 3.47 +/-

0.20 for WT vs 1.0 +/- 0.14 for TG, p<0.0001) despite a similar increase in the Ca2+ transients (Ca2+ peak h for WT= 0.86 +/- 0.04 and TG=0.86 +/- 0.07) suggesting potential changes in the sensitivity of the myofilament to Ca2+. In conclusion, the reduced contractility observed in EP3 TG mice may be due to alterations in calcium handling proteins and/or changes in calcium sensitivity at the level of the myofilament.

Hypertension and Vascular Research

Bryson T, **Maxwell DA**, **Taube D**, and **Harding P**. Prostaglandin E2 Alters Mitochondrial Energy Metabolism in the Murine Heart. *Circ Res* 2024; 135. Full Text

T. Bryson

Prostaglandin E2 (PGE2) is an autacoid that acts via 4 receptors (EP1-EP4), with EP3 and EP4 being the most prominent in the heart. We previously reported that cardiomyocyte specific knockout of EP4 (EP4 KO) results in dilated cardiomyopathy. Additionally, transgenic mice that overexpress EP3 in the cardiomyocyte (EP3 TG) develop heart failure. Recently published data from our laboratory suggests EP4 KO results in mitochondrial dysfunction, likely via EP3 receptor signaling. We therefore hypothesized that PGE2 alters energy metabolism in the heart via EP3. To test our hypothesis, we performed gene array analysis on left ventricles from adult EP4 KO and wild type (WT) mice. Significant reductions (2.1-fold) in carnitine palmitoyltransferase 2 (Cpt2) were observed in EP4 KO vs. EP4 WT. CPT2 is a key enzyme in fatty acid oxidation and deficiencies in humans have been shown to cause cardiomyopathy. Substantial reductions in CPT2 were also observed in C57 mice after 2 weeks of myocardial infarction (0.22 +/- 0.04 a.u. in sham controls vs. 0.039 +/- 0.06 a.u. after MI. p<0.01) by western blot analysis. Moreover, treatment with the EP3 receptor agonist, sulprostone, reduced CPT2 protein expression significantly in cardiomyocytes isolated from C57 mice (1.0 +/- 0.0 a.u. in vehicle control vs. 0.67 +/- 0.07 a.u. in sulprostone treated. p<0.005). These data suggest that PGE2 via its EP3 receptor reduces CPT2 expression. In fact, RNAseq analysis on left ventricles from EP3 TG and EP3 WT mice showed significant reductions in Cpt2 expression as early as 5 wks of age (log2FC = -1.17. p<0.01). RNAseq also showed reductions in other key fatty acid oxidation/transport genes in EP3 TG mice (Acsl1; log2FC= -0.73, Acads, log2FC= -0.59, Cd36, log2FC= -0.64. p<0.005). Lastly, to further investigate the role of the EP receptors on energy metabolism in the heart, we isolated cardiomyocytes from EP4 KO and EP4 WT mice and performed metabolomics. As anticipated, we observed significant reductions in L-carnitine (7.6 +/- 1.13 fmol/cell in EP4 WT vs. 2.1 +/- 0.32 fmol/cell in EP4 KO. p<0.005) and several acyl carnitine products. Altogether our data supports our hypothesis that PGE2 signaling via its EP3 receptor impairs mitochondrial energy metabolism in the heart by reducing fatty acid oxidation.

Infectious Diseases

Hagerman TK, **Rammal J**, **Loszewski C**, **Tuttle JE**, **Brar I**, **Payne S**, **Zahul S**, **Miller J**, **Klausner HA**, **Joyce K**, and **Manteuffel J**. 403 Description and impact of an emergency department opt-out HIV screening program. *Acad Emerg Med* 2024; 31(S1):192. Full Text

Background and Objectives: Emergency department (ED) based HIV screening initiatives are effective in new case identification, allow for early detection, and are encouraged by CDC guidelines. Collaboration with Infectious Diseases allows for early linkage to care. We describe our ED-based opt-out HIV screening program in an urban ED. Methods: This is a retrospective analysis of an opt-out HIV screening program in an urban ED from 7/16/2020 to 10/28/2023. A best practice alert (BPA) prompted providers to order an HIV screening test for patients ages 18–65 that were not known to have HIV for whom a complete blood count was already being ordered. Patients were informed of the ordered test and could opt-out. The division of infectious disease managed patient notification and follow up. Results: During the study period, a total of 36,905 fourth generation HIV screening tests were performed, of which 494 tests were reactive (1.34% of tests performed). Of the reactive tests, 86 patients (0.23% of all tests) were found to have a new diagnosis of HIV (38% with CD4?<?200), 331 (0.90%) had a pre-existing diagnosis of HIV (of which 36% were not actively in care), 54 (0.15%) were false positives, and 23 tests had unknown status. Patients with a new diagnosis had a median age of 34 (26–49 IQR), 71% were male, 88% were black, 29% were men who have sex with men, and 5% were identified to have current or prior intravenous drug use. At the time of the ED visit, 39% of new cases had no primary care physician. Of the 86 new

cases, 71 (83%) were confirmed to be connected to care. The median time from positive result to first scheduled appointment was 10.5?days and first attended appointment was 13?days (includes the 31 patients admitted from the ED). The median time from screening test result to initiation of antiviral therapy was 10?days. Of patients linked to care with available data (n?=?50), 68% had a non-detectable viral load within 6?months after starting treatment (74% within 1?year). Conclusion: Our ED-based opt-out HIV screening program has been highly successful in identifying new cases and connecting patients to care. We also identified a substantial number of patients with known HIV who were not actively in care, highlighting the importance of close partnerships with infectious disease. Sustainability for HIV screening programs in the ED will rely on increased support from payers for testing costs and care coordination required to effectively engage patients in care.

Internal Medicine
Bunch CM, Weiping L, Zachariya S, **Nehme J**, **Condon S**, **Chien C**, **Tuttle JE**, **Haidar S**, Lin K, Walsh M, **Cook B**, **Lopez-Plaza I**, **Hayward J**, Kwaan H, **Miller J**, Walsh M, Hall T, Stegemann J, and Deng C. 29 Resonant acoustic rheometry predicts transfusion requirements and correlates to clauss fibrinogen and thromboelastography results. *Acad Emerg Med* 2024; 31(S1):21. Full Text

Background and Objectives: Disordered hemostasis associated with life-threatening hemorrhage commonly afflicts patients in the emergency room, critical care unit, and perioperative settings. Clinicians in these arenas are seeking a point-of-care global hemostasis test to rapidly diagnose coagulopathies and guide blood components and hemostatic adjuncts to reverse aberrant coagulofibrinolysis. Resonant acoustic rheometry (RAR) is an ultrasound-based viscoelastic biomaterial characterization technique which offers key advantages over current shear rheometric assays in terms of speed, throughput, reduced sample volume, and increased information content. Methods: Here, a convenience sample of pathologic plasma samples from 38 patients were tested under nine unique reagent conditions with RAR to compare with concomitant clinical Clauss fibrinogen, conventional coagulation assays, whole blood TEG® 6s results, patient demographics, and transfusion requirements. About half of the patients were admitted for major surgery, the most common cases being cardiac surgery (n?=?5, 13.2%), general surgery (n?=?5, 13.2%), and organ transplantation (n?=?7, 18.4%). Other reasons for hospitalization included traumatic injury (n?=?5, 13.2%), decompensated cirrhosis (n?=?10, 26.3%), septic shock (n?=?1, 2.6%), post-cardiac arrest syndrome (n?=?1, 2.6%), cardiogenic shock requiring peripheral venoarterial extracorporeal membrane oxygenation (n?=?2, 5.3%), and non-cirrhotic gastrointestinal bleeding (n?=?2, 5.3%). Results: The RAR parameter Final Resonant Frequency (FRF) demonstrated agreement with the Clauss fibrinogen and TEG functional fibrinogen. RAR parameters Start Time and Duration demonstrated agreement with the TEG reaction time. Significantly, RAR FRF correlated to the clinical need for cryoprecipitate across all nine RAR reagent conditions. Additionally, plasma administration correlated to the RAR parameters when kaolin and Tissue Factor were used as coagulation activators. Conclusion: These results lay the foundation for future study with whole blood to further elucidate RAR's bedside potential for sensitivity to fibrinogen content and fibrinolysis in bleeding patients.

Internal Medicine
Khairy M, Hawatian K, Bradley T, Rao A, Booher TR, Haupfear I, **Dercon S**, **Zetuna S**, **Attisha T**, **Mcclain-Gierach S**, Khalil F, **Page B**, **Gunaga S**, **Miller J**, and **Karmo B**. 766 Hematoma expansion in patients with spontaneous intracranial hemorrhage: Role of emergency department transfer. *Acad Emerg Med* 2024; 31(S1):339. Full Text

Background and Objectives: Patients with spontaneous intracranial hemorrhage (sICH) have high mortality and frequently require transfer to a Comprehensive Stroke Center (CSC). The transfer process can delay critical aspects of guideline-based care. Our objective was to measure the association of ED transfer with hematoma expansion in patients with sICH. Methods: This was an observational study analysing the Get with the Guidelines Stroke Registry from large CSC receiving transfers across southeast Michigan. We analysed data from 2019 to 2023 of all sICH adults admitted to the CSC, excluding those with traumatic etiology. Transfer patients were defined as those sent to the CSC from a separate ED. Investigators calculated hematoma volume for presenting and 24-h CT images using the ABC/2 formula. The registry also included validated ICH score data, incorporating age, ICH volume,

intraventricular extension, and anatomical location. The primary outcome was hematoma expansion, defined by any increase in hematoma volume from baseline. Analysis included descriptive statistics and multivariable logistic regression. Results: We included 333 patients with spontaneous ICH. The mean age was 62.1?±?15.2?years, 179 (53.8%) presenting directly to a CSC and 154 (46.3%) requiring transport to the CSC. The overall cohort had 161 (48.4%) females, 177 (53.2%) African Americans, and 105 (31.5%) Caucasians. There were 52 (34.0%) patients on anticoagulation: 27 (51.9%) in the non-transfer cohort and 25 (48.1%) in the transfer cohort. Among the 52 patients on anticoagulation, 33 (63.5%) were on direct oral anticoagulants (DOAC). Mortality was similar in both groups: 31 (17.3%) patients in the non-transfer cohort and 25 (16.2%) in the transfer cohort (p?=?0.79). Hematoma expansion was present in 51 (15.4%) patients: 11 (6.1%) in the non-transfer cohort and 40 (25.9%) in the transfer cohort. Adjusting for baseline ICH score and use of a DOAC, transfer patients had significantly higher odds of hematoma expansion compared to non-transfer patients (odds ratio 5.1, 95% CI 2.5–10.3, p?<?0.001). Conclusion: Among all patients with sICH presenting to a CSC, patients requiring transfer had significantly greater odds of hematoma expansion compared to those not requiring transfer. Further data is needed to determine if delays in guideline-based care explain this finding.

Internal Medicine

Manas F, **Veracruz N**, and **Honasoge M**. Primary hyperaldosteronism, secondary hyperparathyroidism, low bone mass and kidney stones - an underappreciated relationship. *J Bone Miner Res* 2024; 39:344. Full Text

F. Manas, Mahalakshmi Honasoge, Henry Ford Health System, United States

Primary hyperaldosteronism (PHA) is increasingly recognized as a cause of hypertension. Given that sodium excretion is linked with calcium excretion, PHA can lead to kidney stones, secondary hyperparathyroidism (SHPT), and reduced bone density (BMD). Here, we present a case of PHA, renal stones, and low bone mass in a patient who additionally experiences muscle weakness associated with episodes of hypokalemia and hypophosphatemia. A 38-year-old male with history of hypertension and renal stones status post lithotripsy sought consultations with a neurologist and nephrologist due to proximal muscle weakness. Key findings from his biochemical assessments were mild hypokalemia, hypophosphatemia (with normal serum calcium) and mild metabolic alkalosis. Vitamin D was normal and parathyroid hormone was elevated. His renin was 2.6 (ref. range 3.1 - 57.1 pg/mL), aldosterone of 35.8 (ref. range <=39.ng/dL), and cortisol levels of 8.8 (ref. range 2.9-19.4 ug/dL). He had two episodes of severe hypokalemia (2.8 mmol/L) and hypophosphatemia (0.7 mg/dL) after surgical procedures. A 24-hour urine aldosterone test showed levels of 29 (ref. range 2.0-20 mcg/24 hours). Abdominal CT scan showed normal adrenals and left-sided hydronephrosis. An isotope renal scan indicated 17.3% function in the left kidney and 82.7% in the right kidney. EMG nerve conduction velocity tests were normal, as was serum carnitine. BMD showed osteopenia. Genetic testing did not identify any mutations related to channelopathies. He was diagnosed with PHA and SHPT by endocrinologists and began treatment with 100mg of eplerenone. Genetic testing for mutations related to PHA and periodic paralysis will be pursued further. Low BMD and kidney stones have been linked with PHA. In PHA, excessive sodium intake can lead to increased calcium excretion. When coupled with low calcium intake, it can trigger SHPT, which subsequently promotes phosphaturia. Sodium restriction is crucial in managing PHA as it not only reduces the renin-aldosterone ratio but also helps conserve calcium. It has been shown that sodium restriction can decrease phosphaturia and enhance bone alkaline phosphatase levels, suggesting potential osteo-anabolic effects. Furthermore, there is a hypothesized bidirectional relationship between aldosterone and parathyroid hormone, where aldosterone may stimulate parathyroid hormone secretion and vice versa. Given that both hyperaldosteronism and secondary hyperparathyroidism are common conditions, it is essential to recognize and manage kidney stones and low bone mass in patients with primary hyperaldosteronism.

Internal Medicine

Meranda M, **Drallmeier M**, **Kavuri S**, **Abad J**, **Mittal A**, **Farook R**, **Hossain M**, **Rose C**, **Wilson C**, **Shahid M**, **Kuriakose P**, and **Mattour AH**. The Mediating Effects of Racial and Social Health Disparities on Cancer Urgent Care Outcomes: An Urban Cancer Center Experience. *Blood* 2024; 144(Supplement 1):2266-2266. Full Text

BackgroundTherapy and disease related complications are common among patients with cancer, leading to increased acute care resource use during the treatment period. Previously, we published an analysis supporting the efficacy of Henry Ford Cancer Institute's (HFCI) cancer urgent care clinic in reducing excess emergency department (ED) visits in patients with hematologic malignancies. Keeping in mind our diverse patient population, we sought to assess whether racial and socioeconomic variables impacted this observed benefit.MethodsWe conducted a retrospective review of patients with active hematologic malignancies seen at HFCI's cancer urgent care clinic between January 1, 2021, to December 31, 2022. As in our prior analysis, determination of whether cancer urgent care interventions prevented a subsequent ED visit, denoted at the end of each visit note by the performing provider, was collected. Patient demographics, malignancy, treatment characteristics, performance status (ECOG), Charlson Comorbidity Index (CCI), reason for urgent care visit, and interventions performed therein were collected for each patient along with Area Deprivation Index (ADI), insurance status, and race. A multivariable regression analysis was conducted to assess the impact of these variables in whether ED disposition was prevented by urgent care interventions.ResultsBoth initial patient visits (n=141) and repeat presentations (n=269) to cancer urgent care during the study period were analyzed; 51.8% of patients were male and 48.2% were female. 51.8% of patients identified as black, 29.8% as white, and 18.4% as other/non-white. 35% of patients had private insurance while 54.3% and 10.7% had Medicare and Medicaid respectively. 21.3% of patients were ECOG 0, while 48.9%, 22.0%, and 7.8% were ECOG 1, 2, and 3 respectively. Mean CCI was 4.1 (SD 2.24), mean state ADI was 6.2 (SD 3.21), and mean national ADI was 70.1 (SD 26.7).86.5% of patients were on active treatment at the time of visit, 96.6% of whom were on standard of care regimens with the remainder on clinical trials. Of patients on any treatment, 41.5% presented to urgent care within the first two cycles of therapy while 58.5% presented after the first two cycles. The most represented malignancies were multiple myeloma and high-grade lymphoma at 33.3% and 19.1% of cases respectively.Of the 138 initial cancer urgent care visits in which complete data were available, a subsequent ED visit was prevented in 103 cases. In multivariable regression analysis, no difference was seen in the odds of preventing an ED visit when accounting for patients' race, ADI, or insurance status while controlling for all other variables; however, ECOG score and patient presentation during the first two cycles of therapy were statistically significant mediators of this outcome. The odds of preventing an ED visit were decreased by 86% (95% CI [0.03-0.67]) for patients ECOG 2 compared to ECOG 0 and 94% (95% CI [0.01-0.60]) for patients ECOG 3 compared to ECOG 0 (p=0.018). A visit to urgent care was 3.21 times (95% CI [1.01-10.24]) more likely to prevent a subsequent ED visit for patients presenting after their first two cycles of therapy compared to those presenting during their first two cycles while controlling for all other variables (p=0.008). These findings were re-demonstrated when analyzing repeat patient presentations to cancer urgent care during the study period (n=269).DiscussionSignificant morbidity is imposed on patients undergoing treatment for hematologic malignancies. Our data align with existing literature demonstrating that dedicated cancer urgent care centers can reduce ED resource use while ameliorating disease related complications. In our analysis, indices of patient morbidity such as ECOG and proximity to initiation of therapy predictably affected the efficacy of cancer urgent care preventing ED disposition. That CCI was not seen as a significant mediator of this outcome is likely due to the low CCI of our patient population with narrow standard deviation.The benefit of cancer urgent care in preven ing ED disposition was otherwise seen equally across our patient population, regardless of ADI, race, or insurance status. These findings suggest that dedicated cancer urgent care centers are socially equitable resources to offload the burden of acute care in diverse patient populations with hematologic malignancy.

Internal Medicine

Schaefer JK, Errickson J, Kong X, Callahan C, Giuliano C, Ali MA, Chipalkatti N, Haymart B, **Kaatz S**, **Krol GD**, **Ryan N**, Sood SL, Froehlich J, and Barnes GD. Treatment Versus Prophylactic Apixaban or Rivaroxaban for Extended Venous Thromboembolic Disease Management. *Blood* 2024; 144(Supplement 1):699-699. Full Text

Introduction:Apixaban and rivaroxaban are the most commonly used direct oral anticoagulants (DOACs) for the management of venous thromboembolism (VTE), which includes deep vein thrombosis (DVT) and pulmonary embolism (PE). For patients at clinical equipoise for continued anticoagulation after six months of standard anticoagulation treatment, prophylactic dose apixaban (2.5 mg twice daily) was associated with a reduced risk of recurrent VTE compared to placebo, achieving similar outcomes to full dose

apixaban (5 mg twice daily). Similarly, rivaroxaban (10 mg daily) has been shown to significantly reduce the risk of recurrent VTE compared to aspirin, achieving similar thrombotic outcomes to full dose rivaroxaban (20 mg daily).The 2021 American College of Chest Physician Guidelines suggest reduced-dose apixaban or rivaroxaban for extended-phase VTE management, providing a weak recommendation with very low-certainty evidence. We sought to determine if clinical outcomes differ for patients treated with full compared to prophylactic anticoagulation for extended therapy of VTE.Methods:We conducted a registry-based cohort study of adults on DOAC therapy for VTE followed at four health systems in Michigan between January 2012 to December 2023, recruited through the Michigan Anticoagulation Quality Improvement Initiative (MAQI2). Included patients had to be anticoagulated for DVT and/or PE, treated with apixaban or rivaroxaban, and have at least 9 months of follow-up. We required 9 months of follow-up to ensure that at least 3 months of follow-up occurred after the initial 6 months of anticoagulation. Patients with mechanical heart valves, on dual antiplatelet therapy, and with cirrhosis were excluded.Two propensity score-matched cohorts of patients were compared based on anticoagulant dose using full matching, allowing one prophylactic dose patient to match to up to six therapeutically treated patients. Patients were matched on factors anticipated to influence anticoagulant treatment. Recurrent VTE was the primary outcome. Secondary outcomes included new episodes of any thrombosis, bleeding, emergency department visits, hospitalizations, and death. Random chart audits were done to confirm data accuracy. Event rates were compared using Poisson regression.Results:A total of 978 patients met the study inclusion criteria, 200 (20.4%) were on prophylactic dose anticoagulation. Unadjusted rates of thrombosis, bleeding, and healthcare utilization were higher among patients on therapeutic dosing. After propensity matching, we compared two groups: 662 patients with therapeutic dosing to 189 patients on prophylactic dosing. Mean (standard deviation [SD]) age was 66.4 years old (15.4), with 47.7% identified as male sex, 51.9% had a body mass index >30 kg/m2, and the average follow-up was 21.1 months (SD 22.0). Of the matched cohort, 18.8% had provoked VTE, 32.4% had cancer, and 7.9% were receiving chemotherapy.After matching, patients on therapeutic dose anticoagulation had a similar rate of recurrent VTE (1.8 versus 0.3 PE/100 patient years, 95% confidence interval [CI] 1.1-2.8 versus 0.0-1.4, p=0.21 for PE; 1.1 versus 0.3 DVTs/100 patient years, 95% CI 0.6-1.9 versus 0.0-1.4, p=0.22 for DVT) and rate of any thrombosis compared to patients on prophylactic dosing (4.1 versus 1.3 events/100 patient years; 95% CI 3.0-5.5 versus 0.4-3.0, p=0.055). Patients on therapeutic anticoagulation had a higher bleeding event rate (45.6 versus 40.0 events/100 patient years; 95% CI 41.7-49.8 versus 34.0-46.8, p=0.039) but a similar major bleeding rate compared to prophylactic anticoagulation (3.6 versus 1.8 events/100 patient years; 95% CI 2.6-4.9 versus 0.7-3.7, p=0.067). Patients on therapeutic anticoagulation had more bleed or thrombosis related emergency department (ED) visits (17.2 versus 9.1 ED visits/100 patient years, 95% CI 14.8-19.8 versus 6.4-12.6, p=0.002) and hospitalizations (9.0 versus 5.1 hospitalizations/100 patient years, 95% CI 7.3-10.9 versus 3.1-7.8, p=0.011). Mortality was similar between groups.Conclusions:Compared to prophylac ic dosing, therapeutic dosing was associated with a similar rate of recurrent VTE, an increased bleeding rate, and a higher rate of healthcare utilization for extended secondary prevention of VTE in a real-world cohort. These findings support current guideline recommendations but should be confirmed in randomized trials.

Internal Medicine

Zimmer M, **Jacob B**, **Spica M**, **Ghosh S**, and **Dabak VS**. Outcomes of Acute Myeloid Leukemia Treated with a Hypomethylating Agent and Venetoclax: A Single Institution Analysis. *Blood* 2024; 144(Supplement 1):6040-6040. Full Text

Introduction:Acute myeloid leukemia (AML) commonly occurs in older adults where intensive therapy is often not well tolerated or as effective. Azacitidine (AZA) and venetoclax (VEN) showed benefit in VIALE-A compared to AZA alone in untreated patients with AML who were ineligible for intensive therapy, with an overall survival (OS) of 14.7 months. Cytopenia, febrile neutropenia and tumor lysis syndrome (TLS) were among the most reported adverse events (DiNardo, 2020).Methods:This was a retrospective, single institution analysis of patients over 18 years of age with diagnosis of AML treated with hypomethylating agents (azacitidine or decitabine) (HMA) and VEN between January 2017 and January 2024. We investigate the use of HMA and VEN, trends of regimen and prophylactic regimen dosing, the impact on OS, the use of allo-HSCT and outcomes of relapsed and refractory disease.Results:Thirty patients received VEN and HMA for AML between January 2017 and January 2024. Ten patients were female and 20 were male. The median age was 72 years. Twenty-four patients (80%) were Caucasian, 5 (16.7%)

were African American and one patient's race was unidentifiable. Twenty-three patients (76.7%) were diagnosed with AML, 5 (16.7%) treatment related AML (t-AML) and 2 (6.7%) MDS/AML. Risk stratifying patients with molecular data available for review by ELN 2022 criteria, there were 5 (16.7%) favorable, 6 (20%) intermediate and 17 (56.7%) adverse. Within the adverse risk group, 6 had mutated TP53.The median time from diagnostic bone marrow biopsy (BMB) to the start of cycle 1 (C1) was 10.5 days and median time from the start of C1 to the next BMB was 27 days. Patients completed a mean of 5.97 cycles (range, 1-26). Antimicrobial and TLS prophylaxis were used in most patients in C1. VEN duration decreased throughout each cycle (21.60 days in C1, to 15.38 in C2, to 8.62 in C3 and 8.10 in C4). The median number of days between the start of subsequent cycles generally increased (34.5 days from C1 to C2; 39 days from C2 to C3; 42 days from C3 to C4). Twenty-one patients received the treatment in the front-line setting, 7 as salvage therapy and 2 as salvage after allo-HSCT. Three patients proceeded to allo-HSCT a median of 179 days after initial diagnosis.At data collection, 9 patients (30%) were in remission, 20 (66.7%) had active disease and one patient's disease status was unknown. Mean OS was 22.67 months (5.92-39.42, 95% CI, p=0.346). There was a trend towards double OS in patients who were younger than 72 years of age (26.12 months 3.37-48.87, 95% CI versus 12.75, 0-31.55, 95% CI, p=0.68). Caucasians had greater than 6 times OS than African Americans, and this was statistically significant (26.12 months, 10.42-41.82, 95% CI versus 4.44 months, 0-10.85, 95% CI, p=0.015). Frontline use had a clinically significant difference in OS compared to salvage use (22.67 versus 4.53 months, p=0.200).The median OS in patients with favorable risk disease was approximately 3 times greater than the adverse risk group (22.67 versus 8.87 months, p=0.449). While not of statistical significance, TP53 mutated AML was associated with approximately one third the median OS than non-mutated TP53 AML (7.95 months, 2.75-13.16, 95% CI versus 26.12 months, 0-52.28, 95% CI, p=0.947). Patients who achieved complete remission (CR) after C1 had greater PFS (median 51.91 versus 8.87 months, p=0.033) and OS than those who did not (52.83 months versus 12.75 months, p=0.063).Conclusions:We evaluated the use of VEN and HMA in patients with AML treated in an urban setting. Patients received decreasing number of days of VEN each cycle and had increasing number of days between cycles, suggesting treatment reduction and delays due to complications such as neutropenia and infections, however without compromise to OS.OS analysis was not statistically significant but was clinically significant at 22.67 months, with younger patients, Caucasians, favorable risk disease and frontline use having greater OS. Achieving CR by the end of C1 translated to a benefit in PFS and OS. The presence of TP53 mutation remains a high-risk feature with detrimental effects on OS.Future work needs to evaluate the impact of race and regimen variations, including VEN reduction and cycle delays, on CR, PFS and OS.

Nephrology

Lu Z, **Yoshida A**, and **Patel A**. Characteristics and Outcomes of Deceased Donor Kidneys Turned Down by A Single Center and Transplanted Elsewhere. *Am J Transplant* 2025; 25(1):S33-S34. Full Text

Background: The number of kidney transplants performed in the US remains insufficient for the number of patients awaiting one. To meet these demands and hit nationally set growth targets, it is imperative for transplant centers to review their kidney utilization practice, especially for kidneys that were not accepted. This study analyzed accepted versus turned down kidneys for Henry Ford Hospital to better understand acceptance practices and to evaluate the need for modifying our acceptance criteria. Methods: Retrospective analysis of OPTN data on deceased donor kidneys offered by Gift of Life Michigan to Henry Ford Hospital (HFH) between 8/2/2022 and 7/19/2024. Only kidneys that were ultimately transplanted were included. Kidneys were classified as either “kidney transplanted by center (KTC)” if accepted and transplanted by HFH and “kidney transplanted elsewhere (KTE)” if turned down by HFH and transplanted elsewhere. Kidneys turned down for donor variables or organ quality were included in the analysis. Kidney characteristics and recipient outcomes were compared between the two groups. Outcomes of interest were rate of delayed graft function (DGF), recipient 6-month and 1-year serum creatinine (Se Cr), and 6-month and 1-year graft survival (GS). Results: 312 kidneys were included, with 65 in the KTC group and 247 in the KTE group. Selected analysis results are shown in Figure 1. KTE kidneys came from donors with significantly higher KDPI and terminal creatinine. Other donoror kidney characteristics did not differ significantly between the two groups. Recipients of KTC kidneys had a significantly longer length of hospital stay, but DGF rate, 6-month and 1-year recipient renal function did not differ significantly between the two groups. Rates of 6-month GS were similar, while 1-year GS rates were significantly higher in the KTC group. Conclusions: Despite differences in donor characteristics,

renal outcomes did not differ significantly between kidneys we accepted versus those turned down. Findings of comparable outcomes with KTE kidneys can help reframe a center's understanding of acceptable organ quality metrics and motivate centers to rethink and expand their acceptance criteria. [Formula presented] DISCLOSURES: Z.Y. Lu: None. A. Yoshida: None. A. Patel: None.

Nephrology
Lu Z, **Yoshida A**, and **Patel A**. Characteristics and Outcomes of Kidneys Accepted versus Turned Down by Regional Centers. *Am J Transplant* 2025; 25(1):S34. Full Text

Background: The number of kidney transplants performed in the US remains insufficient for the number of patients awaiting one. To meet these demands, it is important to review kidney utilization patterns, particularly for transplanted kidneys turned down by other centers. We performed an analysis of accepted versus turned down kidneys by transplant hospitals in Region 10 to examine kidney acceptance practices and recipient outcomes across the region. Methods: Retrospective analysis of OPTN data for deceased donor kidneys offered by Gift of Life Michigan to Region 10 adult kidney transplant centers between 8/2/22 and 7/19/24. Only kidneys that were ultimately transplanted were included. Offers received by each center were classified as "kidney transplanted by center (KTC)" for those accepted and transplanted by that center and "kidney transplanted elsewhere (KTE)" for those turned down by that center and transplanted elsewhere. Only kidneys turned down for donor variables or organ quality were included in the analysis. Donor characteristics and recipient outcomes were compared between the groups for each center. Outcomes of interest were occurrence of delayed graft function (DGF), recipient 6-month and 1-year serum creatinine (Se Cr), and 6-month and 1-year graft survival (GS). Results: 1046 kidneys, offered to 12 regional centers, were included. One regional center was excluded from the analysis due to lack of recipient 1-year Se Cr data. Center-specific acceptance and turndown rates varied widely and are shown in Figure 1. Selected analysis results are shown in Figure 2. Across multiple centers, KTE kidneys differed significantly in terms of KDPI, donor age, terminal creatinine, biopsy rate, and cold ischemia time. For most centers, recipient outcomes did not differ significantly in terms of DGF, 6-month or 1-year creatinine or GS. Conclusions: Despite differences in organ characteristics, renal outcomes did not differ significantly between KTC and KTE kidneys across the region. While further analysis is needed to elucidate the differences between centers, findings of comparable outcomes with KTE kidneys can help reframe a center's understanding of acceptable organ quality metrics and motivate centers to rethink and expand their acceptance criteria. DISCLOSURES: Z.Y. Lu: None. A. Yoshida: None. A. Patel: None.

Nephrology
Lu Z, **Yoshida A**, and **Patel A**. Outcomes of Deceased Donor Kidneys Turned Down for Biopsy Results That Were Transplanted Elsewhere. *Am J Transplant* 2025; 25(1):S97-S98. Full Text

Background: The number of kidney transplants performed in the US remains insufficient for the number of patients awaiting one. To meet these demands, transplant centers should review their kidney utilization, especially for kidneys that were not accepted. Previous review of kidney offers turned down at our institution revealed a common refusal reason to be unacceptable biopsy results. Some of these organs were subsequently transplanted elsewhere. We analyzed accepted versus turned down biopsied kidneys for Henry Ford Hospital (HFH) to assess our acceptance practices and the need for modifying our acceptance criteria. Methods: Retrospective analysis of OPTN data on deceased donor kidneys offered by Gift of Life Michigan to HFH between 8/2/2022 and 7/19/2024. Only kidneys that were biopsied and ultimately transplanted were included. Biopsied kidneys were classified as either "kidney transplanted by center (KTC)" if accepted and transplanted by HFH and "kidney transplanted elsewhere (KTE)" if turned down by HFH and transplanted elsewhere. Only kidneys turned down for biopsy- specific reasons were included in the analysis. Kidney characteristics and recipient outcomes were compared between the groups. Outcomes of interest were rate of delayed graft function (DGF), recipient 6-month and 1-year serum creatinine (Se Cr), and 6-month and 1-year graft (GS) and patient survival (PS). Results: 103 offers with kidney biopsies were included in the analysis, with 46 in the KTC group and 57 in the KTE group. Selected analysis results are shown in Figure 1. KTE kidneys had a significantly higher percentage of glomerulosclerosis and longer cold ischemia time. Donor characteristics and other biopsy features did not differ significantly between the groups. Recipient outcomes did not differ significantly between the two groups in terms of DGF rate, 6-month and 1-year Se Cr, and 6-month and 1-year GS or PS. Conclusions:

While kidney characteristics differed between accepted and passed biopsy kidneys, no significant differences in renal allograft outcomes were noted. Findings of comparable outcomes with KTE kidneys can help reframe a center's understanding of acceptable organ quality metrics and motivate centers to rethink and expand their acceptance criteria. [Formula presented] DISCLOSURES: Z.Y. Lu: None. A. Yoshida: None. A. Patel: None.

Orthopedics/Bone and Joint Center

Brossard M, Zang K, **Wilson TG**, **Ali SA**, and Espin-Garcia O. FunColoc: A Generalized Functional Regression Model for Genetic Colocalization Analysis of microRNA Counts and Disease-related Outcomes. *Genet Epidemiol* 2024; 48(7):349-349. Full Text

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Orthopedics/Bone and Joint Center

Vinokurov N, **Mendez D**, Chougule AS, **Zhang C**, and **Gardinier JD**. Examining the Role of Arhgef3 in Regulating Bone Mass and Tissue Quality in Adult Mice. *J Bone Miner Res* 2024; 39:258-259. Full Text

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Genome-wide studies have found ARHGEF3 gene to be situated within a quantitative trait locus for bone mineral density (BMD) and has been identified as a strong positional candidate for the development of osteoporosis. However, the underlying role of Arhgef in regulating bone mass and tissue strength is entirely unknown. Given that Arhgef3 plays a key role in regulating the RhoA signaling pathway, a pathway that limits bone formation throughout adulthood, we hypothesized the absence of Arhgef3 in global knockout (KO) mice will increase bone mass and tissue quality compared to wild-type (WT) controls. Based on micro-CT analysis, cortical area and BMD in the tibia and femur were not statistically different between WT and KO mice (Fig 1A). However, the moment of inertia (MOI) was significantly higher in KO mice by 20% when compared to WT. This shift in MOI was attributed to an increase in periosteal expansion as well as endocortical expansion, which resulted in a cortical thickness that was significantly smaller in KO than WT. Despite differences in cortical bone, trabecular bone analysis in the femur found no significant differences between WT and KO mice. We then examined the mechanical properties of bone under four-point bending and found gains in ultimate load and stiffness, which on average were respectively 25% and 27% greater than WT mice (Fig 1B). Having used four-point bending, the tissue-level properties were then calculated and found significantly higher in KO mice compared to WT (Fig 1C). In particular, the ultimate stress and modulus of the bone were respectively 20% and 18% higher compared to WT. These findings suggest Arhgef3 not only regulates the architecture of the tissue being formed, but also the type of tissue that is deposited. To better understand how Arhgef3 impacts the type of matrix proteins expressed by osteoblasts, bone marrow stromal cells from WT and KO mice were isolated and differentiated into osteoblasts. After 14 days of culture in the presence of ascorbic acid and β-glycerophosphate, osteoblasts from KO mice expressed significantly higher levels of periostin, osteopontin, bone sialoprotein, along with alkaline phosphate expression (Fig 1D). Expression of osterix and Runt-related transcription factor 2 showed similar trends in WT and KO derived osteoblasts, indicating similar trends in osteoblast differentiation, but variations in the expression of matrix proteins and alkaline phosphate. Altogether these findings demonstrate that Arhgef3 plays a critical role in regulating cortical bone architecture and tissue properties. Furthermore, gains in tissue properties when

deleting Arhgef3 are likely a function in the type of matrix produced by osteoblasts. To date, this is the first study to examine the role of Arhgef3 in regulating cortical bone architecture and tissue properties.

Palliative Medicine

Fagan T, **Joseph J**, **Faraone H**, **Miller J**, and **Manteuffel J**. 90 Increasing naloxone prescriptions through electronic medical record best practice advisory alerts. *Acad Emerg Med* 2024; 31(S1):49. Full Text

Background and Objectives: Deaths from opiate overdose remain a persistent public health crisis. Naloxone can rapidly reverse a fatal overdose and evidence shows reduced mortality when naloxone is available in the community. Though clinicians are generally willing to prescribe naloxone or order naloxone take home kits for high-risk patients, prescriptions and kit distribution remain inconsistent. We hypothesize that the implementation of a Best Practice Advisory (BPA) alert within the electronic medical record (EMR) can increase the number of naloxone take home kits and prescriptions given to high-risk patients in the ED. Methods: In this retrospective chart review, we identified cases using opioid use disorder (OUD) or opioid overdose ICD-10 codes over an 11-month period from November 2022 through September 2023. The chart review was inclusive of 10 EDs across a regional health system. After identification of cases with appropriate ICD-10 codes, charts were abstracted to determine whether naloxone was ordered as a take home kit or prescribed. In October 2023 an EMR BPA was implemented triggered by OUD and opioid overdose diagnosis ICD-10 codes with a disposition of discharge home. We reviewed cases from November 2023 to determine the number of BPA fires that prompted a clinician to order a naloxone take home kit or prescribe naloxone. Analysis included Fisher exact testing. Results: From November 2022 through September 2023 there were 869 cases identified meeting ICD-10 code criteria, in which 362 patients received either a naloxone take home kit or a prescription for naloxone at a rate of 41.7%. Chart review from November 2023 yielded 23 cases meeting ICD-10 codes and a discharge home disposition triggering the BPA to fire with 22 of those patients receiving a naloxone take home kit or a naloxone prescription at a rate of 95.7%. Of those that received naloxone, 19/22 (86.4%) received naloxone take home kit. The BPA was associated with a 6.6 times higher odds of receiving a naloxone kit or prescription (95% confidence interval: 2.2–19.7). Conclusion: Increasing naloxone availability should be considered an important part of a multi-pronged approach to combating the opioid epidemic. BPAs within the EMR could be a low-cost, effective intervention to increase naloxone availability for patients at-risk of opioid overdose in the ED. Further investigation is needed to explore patient centered outcomes related to ED naloxone and OUD.

Pathology and Laboratory Medicine

Benjamin RJ, Snyder EL, Sekela M, Welsby I, Toyoda Y, Alsammak M, Sodha N, Beaver T, Pelletier JP, Gorham J, McNeil J, Sniecinski R, Pearl R, Nuttall GA, Sarode R, Reece TB, Kaplan A, Davenport R, Ipe T, Benharash P, **Lopez-Plaza I**, Sadler P, Reik R, Gammon R, Corash L, Liu K, Mufti N, and Varrone JT. Transfusion Efficacy and Safety of Amustaline/Glutathione Pathogen-Reduced Red Blood Cells: Results of a Randomized, Controlled Phase III Trial. *Blood* 2024; 144(Supplement 1):5592-5592. Full Text

Introduction: Red blood cell (RBC) transfusion is a lifesaving intervention with a low but persistent risk of transfusion-transmitted infection. Amustaline/glutathione RBC pathogen-reduction (PR) technology is designed to proactively inactivate a broad spectrum of viruses, bacteria, protozoa and leukocytes by chemically crosslinking nucleic acids and preventing replication and transcription. The Red Cell Pathogen Inactivation (ReCePI) trial was a Phase III, double-blinded, randomized non-inferiority study comparing PR and conventional RBCs for the support of acute anemia.Methods/Study Design: Complex cardiac or thoracic-aorta surgery patients received conventional (Control) or PR RBCs (Test) during and for 7 days after surgery. The protocol was conducted with ethics committee approval at all participating centers and written informed consent from all participants. Hemoglobin levels, blood utilization and serum creatinine were assessed as indicators of efficacy and oxygenation of tissues (Karkouti et al. Br J Anaesth. 2012; 109 Suppl 1: i29-i38). The primary endpoint was the incidence of acute kidney injury (AKI) measured as change in serum creatinine from baseline within 48 hours of surgery, a predictor of adverse postoperative outcomes including mortality by Day 30 post-surgery (Lassnig et al. Am Soc Nephrol 2004; 1597-1605). Secondary endpoints included AKI occurring up to 7 days post-surgery (KDIGO Clinical Practice Guideline for AKI, Kidney Inter, Suppl. 2012;2:1-138); death or the need for renal replacement therapy by

30 days post-surgery; PR RBC-specific antibodies; and death by day 75 post-surgery. With >292 subjects enrolled, the study had 80% power to demonstrate non-inferiority, assuming an AKI incidence of 30% with conventional RBCs and a non-inferiority margin of half the conventional RBC rate. Under these circumstances, an absolute treatment increase of 5% in the AKI rate in the PR RBC arm would fail the non-inferiority test. This work was supported by a contract with the US Biomedical Advanced Research and Development Authority (HHS010020160009c) with Cerus Corporation.Results: Five-hundred and eighty-one subjects were randomized and 321 (55%) transfused in 18 US hospitals. In the modified intent-to-treat analysis subjects receiving Test and Control RBCs had similar median [IQR] total blood loss (1500 [940-2475] mL Test, 1733 [1060-2880] mL Control, p=0.310) and comparable median hemoglobin levels at baseline and immediately post-surgery (9.8 [8.9-10.9] g/dL Test, 9.6 [8.6-10.6] g/dL Control, p=0.157) and for 7 days after surgery, The PR RBC arm was transfused with fewer RBCs, measured as total RBC Hb transfused over 7-days (169.0 [102.0-240.0] g Hb PR arm, 188.0 [126.0-295.0] g Hb, conventional RBC arm, p=0.008). The incidence of AKI was 29.3% (46/157) for Test and 28.0% (45/161) for Control. The treatment difference was 0.74% (95% CI -8.9, 10.4%, non-inferiority margin 14.0%, p=0.001 for non-inferiority). Non-inferiority was also achieved by the per protocol analysis. Average mean change in serum creatinine within 48 hours of surgery was comparable (Test 0.020, Control 0.23 mg/dL, P=0.515). Adverse events, serious adverse events and deaths on study were not different. Five of 159 (3.1%) PR RBC recipients developed low titer PR RBC-specific antibodies without clinical signs of hemolysis. Flow cytometry analysis revealed persistent circulating PR RBCs with uniform antigen loss (modulation). Low level human IgG antibody binding was demonstrated in 3 of 5 subjects.Conclusions: PR RBCs showed equivalent hemoglobin support for acute bleeding patients undergoing cardiac or thoracic-aorta surgery while using less transfused total RBC Hb over 7 days. The incidence of AKI in patients transfused with PR RBCs was non-inferior to that observed with conventional RBCs, indicative of effective tissue oxygenation. Treatment-related antibodies to PR-RBC were observed only in Test subjects, the antibodies were low titer, transient, without clinical hemolysis, and persistent circulating PR RBCs were detected with modul ted low level acridine antigen expression (www.clinicaltrials.gov #NCT03459287).

Pathology and Laboratory Medicine

Bunch CM, Weiping L, Zachariya S, **Nehme J**, **Condon S**, **Chien C**, **Tuttle JE**, **Haidar S**, Lin K, Walsh M, **Cook B**, **Lopez-Plaza I**, **Hayward J**, Kwaan H, **Miller J**, Walsh M, Hall T, Stegemann J, and Deng C. 29 Resonant acoustic rheometry predicts transfusion requirements and correlates to clauss fibrinogen and thromboelastography results. *Acad Emerg Med* 2024; 31(S1):21. Full Text

Background and Objectives: Disordered hemostasis associated with life-threatening hemorrhage commonly afflicts patients in the emergency room, critical care unit, and perioperative settings. Clinicians in these arenas are seeking a point-of-care global hemostasis test to rapidly diagnose coagulopathies and guide blood components and hemostatic adjuncts to reverse aberrant coagulofibrinolysis. Resonant acoustic rheometry (RAR) is an ultrasound-based viscoelastic biomaterial characterization technique which offers key advantages over current shear rheometric assays in terms of speed, throughput, reduced sample volume, and increased information content. Methods: Here, a convenience sample of pathologic plasma samples from 38 patients were tested under nine unique reagent conditions with RAR to compare with concomitant clinical Clauss fibrinogen, conventional coagulation assays, whole blood TEG® 6s results, patient demographics, and transfusion requirements. About half of the patients were admitted for major surgery, the most common cases being cardiac surgery (n?=?5, 13.2%), general surgery (n?=?5, 13.2%), and organ transplantation (n?=?7, 18.4%). Other reasons for hospitalization included traumatic injury (n?=?5, 13.2%), decompensated cirrhosis (n?=?10, 26.3%), septic shock (n?=?1, 2.6%), post-cardiac arrest syndrome (n?=?1, 2.6%), cardiogenic shock requiring peripheral venoarterial extracorporeal membrane oxygenation (n?=?2, 5.3%), and non-cirrhotic gastrointestinal bleeding (n?=?2, 5.3%). Results: The RAR parameter Final Resonant Frequency (FRF) demonstrated agreement with the Clauss fibrinogen and TEG functional fibrinogen. RAR parameters Start Time and Duration demonstrated agreement with the TEG reaction time. Significantly, RAR FRF correlated to the clinical need for cryoprecipitate across all nine RAR reagent conditions. Additionally, plasma administration correlated to the RAR parameters when kaolin and Tissue Factor were used as coagulation activators. Conclusion: These results lay the foundation for future study with whole blood to

further elucidate RAR's bedside potential for sensitivity to fibrinogen content and fibrinolysis in bleeding patients.

Pathology and Laboratory Medicine
Ghanem A, **Gilbert M**, **Keller C**, **Gardner G**, **Mayerhoff R**, and **Siddiqui F**. The role of Radiation for Recurrent Laryngeal Carcinoma in Situ compared to First Line Radiotherapy. *Cancer Clin Trials* 2024; 47(10):S7. Full Text

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Pathology and Laboratory Medicine
Hawatian K, Danagoulian S, Nassereddine H, **Morton TJ**, **Cook B**, **Klausner HA**, **Gunaga S**, Levy P, Mahler SA, **Krupp SS**, **McCord J**, and **Miller J**. 88 Economic evaluation of a cluster randomized trial for an accelerated, high-sensitivity cardiac troponin protocol. *Acad Emerg Med* 2024; 31(S1):48. Full Text

Background and Objectives: Accelerated protocols (AP) using high-sensitivity cardiac troponin (hs-cTn) to evaluate for myocardial infarction (MI) are becoming increasingly common in the United States (US), but their cost effectiveness remains unknown in the US. Added sensitivity within such protocols could drive costs higher. We aimed to measure the implementation of a hs-cTn AP compared to a conventional protocol on overall treatment cost and length of stay. Methods: We performed a planned secondary economic analysis of a large, cluster randomized trial across 9 emergency departments (EDs) from July 2020 to April 2021. Patients 18?years or older with clinical suspicion for MI were included and we excluded those with ST-segment MI or traumatic chest pain. According to the AP, patients could be discharged without further testing at 0?h if they had a hs-cTnI?<?4?ng/L and at 1?h if the initial value was 4?ng/L and the 1-h value ?7?ng/L. The conventional protocol required cTn testing at 0 and 3?h for all patients and did not report cTn values <99th percentile to clinicians. The primary outcome was the total cost of treatment, obtained through patient-level billing data, and the secondary outcome was ED length of stay. Analysis included adjustments for patient and study design factors. We report adjusted cost differences with 95% confidence intervals (CI). Results: There were 32,450 included patients in the trial, of whom 57.4% were female and the mean age was 58.0?years. The average unadjusted cost for each encounter was $3118. The AP had no significant differences in adjusted total cost (+$89, 95% CI: ?$714 to $893). There was also no significant adjusted difference in hospital revenue (+$362, 95% CI: ?$414 to $1138) nor patient payment cost (?$7, 95% CI: ?$42 to $28) under the AP compared to the conventional protocol. The overall ED length of stay in the AP cohort was not significantly different (+46, 95% CI: ?28 to 120?min) compared to the conventional protocol. In lower acuity, free-standing EDs, patients treated using the AP experienced shorter length of stay (-37?min, 95% CI: ?62 to ?12?min) and incurred less health system cost (?$112, 95% CI: ?$250 to $25). Conclusion: Overall, an AP using hs-cTn testing did not increase cost and may reduce length of stay in certain settings as compared to conventional protocols to rule-out MI.

Pathology and Laboratory Medicine
Husain A, **Hawatian K**, **Emakhu JO**, **Morton TJ**, **Cook B**, **Klausner N**, **Schwab E**, **Nassereddine H**, **Tuttle JE**, **Wanis N**, **Almri Y**, **Klausner HA**, **Gunaga S**, **Krupp SS**, **McCord J**, and **Miller J**. 280 Exploring the value of nonspecific electrocardiogram findings in the setting of low high-sensitivity troponin levels. *Acad Emerg Med* 2024; 31(S1):136. Full Text

Background and Objectives: The value of non-specific electrocardiogram (ns-ECG) findings to modify the risk for myocardial infarction (MI) in the context of low high-sensitivity cardiac troponin I (hs-cTnI) is uncertain. Our objective was to assess the relationship between ns-ECG findings and the occurrence of 30-day major adverse cardiac events (MACE) among patients with low hs-cTnI values. Methods: We conducted a secondary analysis of the RACE-IT trial, a cluster randomized trial performed across 9 EDs from July 2020 through March 2021. The trial included all patients being evaluated for MI and tested the safety and effectiveness of a 0/1-h accelerated protocol using hs-cTnI compared to conventional troponin

testing using a 0/3-h protocol. The trial excluded patients with ST-elevation MI and hs-cTnI values >?99th percentile. For this analysis, we included patients that ruled-out in 0/1-h (all hs-cTnI values <8?ng/L). We defined ns-ECG findings as left bundle branch block (LBBB), ST-segment depression or elevation less than 1?mm, or T-wave inversions (TWI). Adjudicators determined 30-day MACE (death or MI). Analysis included descriptive statistics and multivariable logistic regression. Results: We included 16,606 patients who ruled-out for MI within 1-h in this analysis. The mean age was 53.4?years (SD 17.8), 9820 (59.3%) were female, and 5367 (32.3%) Black. There were 3345 (20.1%) patients with ns-ECG findings, of which 2145 (12.9%) had ST-segment changes and 1317 (8.4%) had TWI. Thirty-day MACE occurred in 66 (0.40%) patients, including 47 (0.29%) deaths (38 adjudicated as non-cardiac) and 19 (0.11%) MIs (16 adjudicated as Type II AMI). There was no significant difference in MACE events based on the presence of ns-ECG findings overall (OR 1.38, 95% CI 0.79–2.39, p?=?0.257). The presence of ST-segment changes, however, had a trend towards greater odds of MACE (OR 2.53, 95% CI 0.92–6.99, p?=?0.076). Conclusion: Non-specific ECG findings in the setting of low hs-TnI were not associated with greater MACE events in this large trial with a low overall prevalence of MACE.

Pathology and Laboratory Medicine

Jaehne AK, Naiman MI, **Cook B**, **Wilson I**, **Versyer D**, **Kelly WG**, **Ghosh S**, and **Rivers EP**. 82 Emergency department bacteremia incidence by age and monocyte distribution width value. *Acad Emerg Med* 2024; 31(S1):45. Full Text

Background and Objectives: Bacteremia is the presence of viable bacteria in the bloodstream recognized by diagnostic blood cultures. Monocyte Distribution Width (MDW) is a pathogen-agnostic marker of immune response and dysregulation, reported as part of a Complete Blood Count (CBC) with differential. MDW is derived from the distribution of peripheral blood monocyte volumes and aids in the identification of severe infections and sepsis in adult Emergency Department (ED) patients. Previous clinical trials found no association between age and MDW value. However, patients without suspected infection were included in these studies. This analysis evaluated the relationship between MDW values and age in a real-world population of patients with suspected infection. Methods: This was a prospective, observational cohort study. All patients aged 18 and older who presented to the ED and received orders for a CBC with differential and blood cultures were included. MDW values were not reported to those involved in direct patient care. We evaluated the incidence of bacteremia by age (in decades) and the associated MDW values as median with minimum and maximum values using SPSS Version25. Results: A total of 5310 ED blood culture and MDW results were matched for this interim analysis. The overall blood culture positivity rate was 14.5%. The blood culture positivity rate increased by decade from 11.2% in patients 18–30?years to 19.3% in patients 80–90?years old. There was a significant difference in median MDW values in patients with bacteremia (25.2, range 14.1–82.8) compared with patients without bacteremia (20.65, range 12.8–102.1). There was no significant difference in MDW values within bacteremia status across age groups. Conclusion: There is an incremental increase in bacteremia by age in decades. This analysis reproduced previous observations that MDW elevation is consistent among adults. It is unlikely that MDW value interpretation will require age adjustment, but further research is needed to integrate MDW assessments into ED diagnostic workups.

Pathology and Laboratory Medicine

Sweidan A, **Brancamp RL**, **Lopez-Plaza I**, **Jacobsen G**, and **Kuriakose P**. Real World Data on the Utility of P-Selectin Expression Assay; Correlation of Test Results and Disease Expression. *Blood* 2024; 144(Supplement 1):1244-1244. Full Text

Background:Serotonin Release Assay (SRA); the gold standard confirmatory test for Heparin Induced Thrombocytopenia (HIT), is usually a reflex test done after the initial screening test detecting platelet factor 4 (PF4) antibodies using enzyme-linked immunosorbent assay (ELISA). SRA testing uses radioactive labeled serotonin, is time and labor consuming, and is only done in a limited number of laboratories around the United States. Given the difficulty in performing this confirmatory test, there has been a growing need for innovative testing methods.P Selectin Expression Assay (PEA) is a relatively simple method for detecting platelet-activating HIT antibodies based on the expression of p-selectin/CD62p by normal platelets mixed with patient serum and exogenous PF4 in the absence of heparin. It is based on a non-radioactive, less labor-intensive, readily available technology (flow

cytometry), with a shorter turnaround time.A PEA test is considered positive only if the following 2 conditions are met: 1) P Selectin expression is greater than 35% when the patient's serum is mixed with 30mcg of PF4, AND 2) P-Selectin expression is suppressed greater than 50% after mixing with 100 units of heparin. We noticed that some patients with high clinical suspicion for HIT had initial P Selectin expression of less than 35% but had more than 50% suppression after mixing with 100U heparin.We incorporated PEA testing as the primary reflex test at Henry Ford Hospital (HFH) following any positive anti-PF4 ELISA test (defined as Optical Density (OD) > 0.4) in December of 2021. Only selected cases undergo SRA testing as a secondary confirmatory test when PEA results are negative in the presence of strong clinical suspicion.Methods:A retrospective review was performed on all patients who underwent PEA testing from January 2023 to May 2024. Data included admission diagnosis, previous exposure to heparin, initial platelet count, platelet nadir, interval time until the drop of platelets, thrombotic events, bleeding events, anti-PF4 ELISA OD value, PEA test values and interpretation, type of anticoagulation used, duration of anticoagulation, survival of hospital admission, and etiology of death if occurred. We calculated individual 4Ts scores for all patients. All anti-PF4 ELISA tests were performed at HFH special coagulation labs, and all PEA tests were performed at Versiti diagnostic laboratories (Milwaukee, WI).Results:We had a total of 61 PEA tests, of which 25 (40.9%) were positive and 36 (59%) were negative. Of the negative tests, 24 (66.6%) had P selectin expression less than 35% when serum was mixed with 30mcg of PF4 but had more than 50% suppression in P-Selectin expression after mixing with 100 units of heparin. Of these 24 patients, 5 (20.8%) had 4Ts score > 5, 3 (12.5%) had 4Ts score of 7; 9 (37.5%) had PF4 antibody ELISA OD >1.0, 5 (20.8%) with OD >1.5 (2 of whom had OD values of 3.862 and 2.652); and 9 (37.5%) had a P Selectin expression of 10-20% when serum was mixed with 30mcg of PF4 and >50% suppression when mixed with 100U of heparin. 15/24 (62.5%) were treated as HIT based on clinical suspicion, 4Ts scores, and OD values despite negative PEA results, most commonly with Bivalirudin followed by Warfarin or direct oral anticoagulants (DOACs).Conclusion:Though limited by small sample size, our study suggests that a finite number of patients with high clinical suspicion for HIT had negative PEA results. We found that these patients had a P Selectin expression of 10-20% (<35%) when mixed with 30mcg of PF4 but more than 50% suppression when mixed with 100U of heparin. These results emphasize the importance of continuously reassessing binary tests. We propose reviewing larger data sets to assess if a separate intermediate PEA risk group might need to be defined while incorporating clinical parameters to finalize the diagnosis and help guide appropriate management.

Pharmacy

Morton TJ, **Manteuffel J**, **Miller J**, MacDonald NC, and **Makowski C**. 238 Reduction in opiate administration in emergency department patients following implementation of alternatives to opiates program. *Acad Emerg Med* 2024; 31(S1):116. Full Text

Background and Objectives: The opioid overdose epidemic has worsened causing 80,000 deaths per year in the US. Alternatives to Opiates (ALTO) programs are pain management algorithms that support emergency department (ED) clinicians to treat pain using non-opiate medications, decreasing patient exposure to opiates. We developed an ALTO program to reduce administration of opiate medications within 9 EDs of a regional health system. We targeted a 30% reduction in morphine milliequivalents (MME) administered in the ED per hour of length of stay (LOS). Methods: A multi-disciplinary group developed an ALTO program using existing practice patterns and available literature and implemented a “Quicklist” in the electronic medical record to organize orders for non-opiate analgesics, allowing for greater ease of ordering. The ALTO program was implemented with preceding education, in the form of text resources and in-person forums, provided to ED clinicians and nursing staff. The program was implemented in November 2019. Feedback regarding the program was communicated at 4-month intervals via email. All 9 EDs participated in implementation and maintenance of the ALTO program and have an annual volume of nearly 450,000 patient visits. We calculated the total number of MMEs per encounter using standard conversion factors as well as the total number of ED LOS hours during the study period. These were used to calculate the MME per hour of ED LOS, which was then compared between the 36-month baseline period and the 47-month post-implementation period. Results: In the 36-month period prior to ALTO implementation there were 4,937,743?MME administered system-wide to patients across 7,890,174 total ED LOS hours for an average of 0.63?MME administered per hour of ED LOS. In the 47-month period post-ALTO implementation there were 4,330,151?MME administered over

10,169,620 total ED LOS hours for an average of 0.43?MME administered per hour of ED LOS. These results demonstrate a 31.7% decrease in opiates administered as measured in MME per hour of ED LOS. Conclusion: The ALTO program was associated with a decrease in opiate administration across a regional health system with a large annual patient volume. Standardized opiate administration as measured by MME per hour of ED LOS can help account for variables including fluctuations in volume and boarding. Continued program education is needed as is further study on associated patient-centered outcomes.

Pharmacy

Schaefer JK, Errickson J, Kong X, Callahan C, Giuliano C, Ali MA, Chipalkatti N, Haymart B, **Kaatz S**, **Krol GD**, **Ryan N**, Sood SL, Froehlich J, and Barnes GD. Treatment Versus Prophylactic Apixaban or Rivaroxaban for Extended Venous Thromboembolic Disease Management. *Blood* 2024; 144(Supplement 1):699-699. Full Text

Introduction:Apixaban and rivaroxaban are the most commonly used direct oral anticoagulants (DOACs) for the management of venous thromboembolism (VTE), which includes deep vein thrombosis (DVT) and pulmonary embolism (PE). For patients at clinical equipoise for continued anticoagulation after six months of standard anticoagulation treatment, prophylactic dose apixaban (2.5 mg twice daily) was associated with a reduced risk of recurrent VTE compared to placebo, achieving similar outcomes to full dose apixaban (5 mg twice daily). Similarly, rivaroxaban (10 mg daily) has been shown to significantly reduce the risk of recurrent VTE compared to aspirin, achieving similar thrombotic outcomes to full dose rivaroxaban (20 mg daily).The 2021 American College of Chest Physician Guidelines suggest reduced-dose apixaban or rivaroxaban for extended-phase VTE management, providing a weak recommendation with very low-certainty evidence. We sought to determine if clinical outcomes differ for patients treated with full compared to prophylactic anticoagulation for extended therapy of VTE.Methods:We conducted a registry-based cohort study of adults on DOAC therapy for VTE followed at four health systems in Michigan between January 2012 to December 2023, recruited through the Michigan Anticoagulation Quality Improvement Initiative (MAQI2). Included patients had to be anticoagulated for DVT and/or PE, treated with apixaban or rivaroxaban, and have at least 9 months of follow-up. We required 9 months of follow-up to ensure that at least 3 months of follow-up occurred after the initial 6 months of anticoagulation. Patients with mechanical heart valves, on dual antiplatelet therapy, and with cirrhosis were excluded.Two propensity score-matched cohorts of patients were compared based on anticoagulant dose using full matching, allowing one prophylactic dose patient to match to up to six therapeutically treated patients. Patients were matched on factors anticipated to influence anticoagulant treatment. Recurrent VTE was the primary outcome. Secondary outcomes included new episodes of any thrombosis, bleeding, emergency department visits, hospitalizations, and death. Random chart audits were done to confirm data accuracy. Event rates were compared using Poisson regression.Results:A total of 978 patients met the study inclusion criteria, 200 (20.4%) were on prophylactic dose anticoagulation. Unadjusted rates of thrombosis, bleeding, and healthcare utilization were higher among patients on therapeutic dosing. After propensity matching, we compared two groups: 662 patients with therapeutic dosing to 189 patients on prophylactic dosing. Mean (standard deviation [SD]) age was 66.4 years old (15.4), with 47.7% identified as male sex, 51.9% had a body mass index >30 kg/m2, and the average follow-up was 21.1 months (SD 22.0). Of the matched cohort, 18.8% had provoked VTE, 32.4% had cancer, and 7.9% were receiving chemotherapy.After matching, patients on therapeutic dose anticoagulation had a similar rate of recurrent VTE (1.8 versus 0.3 PE/100 patient years, 95% confidence interval [CI] 1.1-2.8 versus 0.0-1.4, p=0.21 for PE; 1.1 versus 0.3 DVTs/100 patient years, 95% CI 0.6-1.9 versus 0.0-1.4, p=0.22 for DVT) and rate of any thrombosis compared to patients on prophylactic dosing (4.1 versus 1.3 events/100 patient years; 95% CI 3.0-5.5 versus 0.4-3.0, p=0.055). Patients on therapeutic anticoagulation had a higher bleeding event rate (45.6 versus 40.0 events/100 patient years; 95% CI 41.7-49.8 versus 34.0-46.8, p=0.039) but a similar major bleeding rate compared to prophylactic anticoagulation (3.6 versus 1.8 events/100 patient years; 95% CI 2.6-4.9 versus 0.7-3.7, p=0.067). Patients on therapeutic anticoagulation had more bleed or thrombosis related emergency department (ED) visits (17.2 versus 9.1 ED visits/100 patient years, 95% CI 14.8-19.8 versus 6.4-12.6, p=0.002) and hospitalizations (9.0 versus 5.1 hospitalizations/100 patient years, 95% CI 7.3-10.9 versus 3.1-7.8, p=0.011). Mortality was similar between groups.Conclusions:Compared to prophylac ic dosing, therapeutic dosing was associated with a similar rate of recurrent VTE, an increased bleeding rate, and a

higher rate of healthcare utilization for extended secondary prevention of VTE in a real-world cohort. These findings support current guideline recommendations but should be confirmed in randomized trials.

Plastic Surgery

Yono SS, **Hannoudi A**, **Chamseddine H**, **Rama S**, **Bensenhaver JM**, **Petersen L**, **Nathanson SD**, **Schwartz TL**, **Evangelista M**, and **Atisha DM**. The Effect of Lymphatic Microsurgical Preventive Healing Approach in Reducing Breast Cancer-Related Arm Lymphedema. *J Am Coll Surg* 2024; 239(5):S58-S59. Full Text

S.S. Yono

Introduction: Current guidelines lack surgical prevention recommendation for breast cancer-related arm lymphedema (BCRaL). The study aims to assess the effectiveness of immediate lymphatic microsurgical preventive healing approach (LyMPHA) during axillary lymph node dissection (ALND) in reducing BCRaL. Methods: A retrospective chart review of breast cancer patients who underwent ALND with or without immediate LyMPHA (2016- 2022) was conducted. The exclusion criteria were stage IV, preoperative lymphedema. BCRaL was defined as persisted swelling and/ or heaviness and need for complete decongestive therapy (CDT) > 12 months postoperatively. Patients' percent functional impairment was also assessed using the Lymphedema Life Impact Score (LLIS). Patient demographics, medical history, and treatment history were compared. Outcomes of interest included postoperative complication, lymphedema incidence, and percent of functional impairment. Univariate and Cox regression analysis were used. Results: A total of 187 patients underwent ALND, 121 of whom also had LYMPHA. Mean follow-up was 35 months (SD ± 21), age was 56.4 y (SD ± 13.6), BMI was 30.4 kg/m2 (SD ± 6.9). 76.5% received neoadjuvant chemotherapy, 88.8% adjuvant chemotherapy, and 85.0% adjuvant radiotherapy. 5.3% had history of radiation. Operative outcomes showed significant differences: LyMPHA group had lower median drain duration (13.0 d vs 15.0 d, p = 0.042), lower median percent functional impairment (4.7% vs 11.6%, p = 0.045), and lower risk of lymphedema which persisted over time (p = 0.003). Cox regression analysis showed that, at any point in time, LyMPHA group were half as likely to experience lymphedema as the ALND alone (hazard ratio = 0.50, p = 0.023); (Figure 1). Conclusion: Offering immediate LyMPHA after ALND presents an opportunity to prevent or mitigate lymphedema progression over time and ultimately reduces morbidity in the breast cancer population. (Figure Presented).

Public Health Sciences

Husain A, **Hawatian K**, **Emakhu JO**, **Morton TJ**, **Cook B**, **Klausner N**, **Schwab E**, **Nassereddine H**, **Tuttle JE**, **Wanis N**, **Almri Y**, **Klausner HA**, **Gunaga S**, **Krupp SS**, **McCord J**, and **Miller J**. 280 Exploring the value of nonspecific electrocardiogram findings in the setting of low high-sensitivity troponin levels. *Acad Emerg Med* 2024; 31(S1):136. Full Text

Background and Objectives: The value of non-specific electrocardiogram (ns-ECG) findings to modify the risk for myocardial infarction (MI) in the context of low high-sensitivity cardiac troponin I (hs-cTnI) is uncertain. Our objective was to assess the relationship between ns-ECG findings and the occurrence of 30-day major adverse cardiac events (MACE) among patients with low hs-cTnI values. Methods: We conducted a secondary analysis of the RACE-IT trial, a cluster randomized trial performed across 9 EDs from July 2020 through March 2021. The trial included all patients being evaluated for MI and tested the safety and effectiveness of a 0/1-h accelerated protocol using hs-cTnI compared to conventional troponin testing using a 0/3-h protocol. The trial excluded patients with ST-elevation MI and hs-cTnI values >?99th percentile. For this analysis, we included patients that ruled-out in 0/1-h (all hs-cTnI values <8?ng/L). We defined ns-ECG findings as left bundle branch block (LBBB), ST-segment depression or elevation less than 1?mm, or T-wave inversions (TWI). Adjudicators determined 30-day MACE (death or MI). Analysis included descriptive statistics and multivariable logistic regression. Results: We included 16,606 patients who ruled-out for MI within 1-h in this analysis. The mean age was 53.4?years (SD 17.8), 9820 (59.3%) were female, and 5367 (32.3%) Black. There were 3345 (20.1%) patients with ns-ECG findings, of which 2145 (12.9%) had ST-segment changes and 1317 (8.4%) had TWI. Thirty-day MACE occurred in 66 (0.40%) patients, including 47 (0.29%) deaths (38 adjudicated as non-cardiac) and 19 (0.11%) MIs (16 adjudicated as Type II AMI). There was no significant difference in MACE events based on the presence of ns-ECG findings overall (OR 1.38, 95% CI 0.79–2.39, p?=?0.257). The presence of ST-segment

changes, however, had a trend towards greater odds of MACE (OR 2.53, 95% CI 0.92–6.99, p?=?0.076). Conclusion: Non-specific ECG findings in the setting of low hs-TnI were not associated with greater MACE events in this large trial with a low overall prevalence of MACE.

Public Health Sciences

Hutchings H, **Wang A**, Grady S, **Popoff A**, **Zhang Q**, and **Okereke I**. Influence of air quality on lung cancer in people who have never smoked. *J Thorac Cardiovasc Surg* 2025; 169(2):454-461.e452. Full Text

I. Okereke, Department of Surgery, Henry Ford Health System, 2799 W Grand Blvd, Detroit, MI, United States

Objective: Lung cancer is the leading cause of cancer-related death. The percentage of people who have never smoked with lung cancer has risen recently, but alternative risk factors require further study. Our goal was to determine the influence of air quality on incidence of lung cancer in people who have smoked or never smoked. Methods: The cancer registry from a large urban medical center was queried to include every new diagnosis of lung cancer from 2013 to 2021. Air quality and pollution data for the county were obtained from the US Environmental Protection Agency from 1980 to 2018. Patient demographics, location of residence, smoking history, and tumor stage were recorded. Bivariate comparison analyses were conducted in R (R Foundation for Statistical Computing). Results: A total of 2223 new cases of lung cancer were identified. Mean age was 69.2 years. There was a nonsmoking rate of 8.1%. A total of 37% of patients identified as a racial minority. People who have never smoked were more likely to be diagnosed at an advanced stage. When analyzing geographic distribution, incidence of lung cancer among people who have never smoked was more closely associated with highly polluted areas. People who have never smoked with lung cancer had significantly higher exposure levels of multiple pollutants. Conclusions: Newly diagnosed lung cancer appears to be more related to poor air quality among people who have never smoked than people who have smoked. Future studies are needed to examine the associations of specific pollutants with lung cancer incidence.

Public Health Sciences

Kramarenko DR, Shukr B, **Stephan J**, **Bin L**, **Peterson E**, Amin AS, **Lanfear D**, and Pinto Y. Premature Ventricular Contractions As A Predictive Marker For Cardiac Events In Stable Heart Failure Patients. *J Card Fail* 2025; 31(1):253-254. Full Text

Introduction: Even though premature ventricular contractions (PVCs) are often viewed as harmless, recent studies show that a πρεχεδινγ PVC beat might be inefficient. It suggests that even a moderate number of PVCs could reduce contractile efficiency and elevate event risk. Yet, the prevalence of moderate to high PVCs (>5%) in stable heart failure (HF) patients and the association between PVC percentage and cardiac event risk in stable HF patients are still unclear. Aim: This study aimed to quantify HF patients with >5% PVCs and to evaluate the predictive power of PVCs for cardiac events. Methods: Our study retrospectively reviewed 651 HF patients from Amsterdam UMC (AUMC) with LVEF < 40% or NTproBNP > 600 pg/ml, and 180 HF patients from Henry Ford Hospital (HFH) with LVEF < 40%. We employed a multivariable Cox regression model to evaluate predictors of cardiac events, such as all-cause mortality, VT/VF and/or ICD shocks, and cardiac arrest, selecting variables with $p < 0.05$ from univariable analysis. For survival models, numeric variables not fitting a normal distribution were transformed into categorical variables using ROC-derived thresholds. Results: In AUMC and HFH cohorts, the median age was 64 years, with 43.5% and 50% females, respectively. Approximately, 9-11% of patients in both cohorts had more than 5% PVCs. In AUMC cohort, individuals in the top three PVC deciles faced significantly higher event risk than lower deciles (Figure 1). Based on univariable analysis, four predictors, including PVC %, NT-proBNP, occurrences of bi/trigeminy, and NSVT were selected for inclusion in the multivariable survival model. Thresholds of 0.5% for PVCs and 6000 pg/ml for NTproBNP were used. PVCs greater than 0.5% were significantly linked to an increased risk of cardiac events, exhibiting hazard ratios (HR) greater than two across all models with significant p-values, and slightly outperforming NSVT in predictive strength. (Table 1) Conclusions: Our analysis across two independent cohorts reveals that 9-11% of stable HF patients exhibit a notable PVC burden (>5% of total beats), even with adequate treatment. In AUMC cohort, PVC burden exceeding 0.5%, equal to about 3-4 beats per

minute, is significantly associated with increased cardiac event risk, suggesting PVC's predictive power may rival that of NSVTs.

Public Health Sciences

Meranda M, **Drallmeier M**, **Kavuri S**, **Abad J**, **Mittal A**, **Farook R**, **Hossain M**, **Rose C**, **Wilson C**, **Shahid M**, **Kuriakose P**, and **Mattour AH**. The Mediating Effects of Racial and Social Health Disparities on Cancer Urgent Care Outcomes: An Urban Cancer Center Experience. *Blood* 2024; 144(Supplement 1):2266-2266. Full Text

Background: Therapy and disease related complications are common among patients with cancer, leading to increased acute care resource use during the treatment period. Previously, we published an analysis supporting the efficacy of Henry Ford Cancer Institute's (HFCI) cancer urgent care clinic in reducing excess emergency department (ED) visits in patients with hematologic malignancies. Keeping in mind our diverse patient population, we sought to assess whether racial and socioeconomic variables impacted this observed benefit. Methods: We conducted a retrospective review of patients with active hematologic malignancies seen at HFCI's cancer urgent care clinic between January 1, 2021, to December 31, 2022. As in our prior analysis, determination of whether cancer urgent care interventions prevented a subsequent ED visit, denoted at the end of each visit note by the performing provider, was collected. Patient demographics, malignancy, treatment characteristics, performance status (ECOG), Charlson Comorbidity Index (CCI), reason for urgent care visit, and interventions performed therein were collected for each patient along with Area Deprivation Index (ADI), insurance status, and race. A multivariable regression analysis was conducted to assess the impact of these variables in whether ED disposition was prevented by urgent care interventions. Results: Both initial patient visits (n=141) and repeat presentations (n=269) to cancer urgent care during the study period were analyzed; 51.8% of patients were male and 48.2% were female. 51.8% of patients identified as black, 29.8% as white, and 18.4% as other/non-white. 35% of patients had private insurance while 54.3% and 10.7% had Medicare and Medicaid respectively. 21.3% of patients were ECOG 0, while 48.9%, 22.0%, and 7.8% were ECOG 1, 2, and 3 respectively. Mean CCI was 4.1 (SD 2.24), mean state ADI was 6.2 (SD 3.21), and mean national ADI was 70.1 (SD 26.7).86.5% of patients were on active treatment at the time of visit, 96.6% of whom were on standard of care regimens with the remainder on clinical trials. Of patients on any treatment, 41.5% presented to urgent care within the first two cycles of therapy while 58.5% presented after the first two cycles. The most represented malignancies were multiple myeloma and high-grade lymphoma at 33.3% and 19.1% of cases respectively.Of the 138 initial cancer urgent care visits in which complete data were available, a subsequent ED visit was prevented in 103 cases. In multivariable regression analysis, no difference was seen in the odds of preventing an ED visit when accounting for patients' race, ADI, or insurance status while controlling for all other variables; however, ECOG score and patient presentation during the first two cycles of therapy were statistically significant mediators of this outcome. The odds of preventing an ED visit were decreased by 86% (95% CI [0.03-0.67]) for patients ECOG 2 compared to ECOG 0 and 94% (95% CI [0.01-0.60]) for patients ECOG 3 compared to ECOG 0 (p=0.018). A visit to urgent care was 3.21 times (95% CI [1.01-10.24]) more likely to prevent a subsequent ED visit for patients presenting after their first two cycles of therapy compared to those presenting during their first two cycles while controlling for all other variables (p=0.008). These findings were re-demonstrated when analyzing repeat patient presentations to cancer urgent care during the study period (n=269). Discussion: Significant morbidity is imposed on patients undergoing treatment for hematologic malignancies. Our data align with existing literature demonstrating that dedicated cancer urgent care centers can reduce ED resource use while ameliorating disease related complications. In our analysis, indices of patient morbidity such as ECOG and proximity to initiation of therapy predictably affected the efficacy of cancer urgent care preventing ED disposition. That CCI was not seen as a significant mediator of this outcome is likely due to the low CCI of our patient population with narrow standard deviation.The benefit of cancer urgent care in preven ing ED disposition was otherwise seen equally across our patient population, regardless of ADI, race, or insurance status. These findings suggest that dedicated cancer urgent care centers are socially equitable resources to offload the burden of acute care in diverse patient populations with hematologic malignancy.

Public Health Sciences

Sweidan A, **Brancamp RL**, **Lopez-Plaza I**, **Jacobsen G**, and **Kuriakose P**. Real World Data on the Utility of P-Selectin Expression Assay; Correlation of Test Results and Disease Expression. *Blood* 2024; 144(Supplement 1):1244-1244. Full Text

Background:Serotonin Release Assay (SRA); the gold standard confirmatory test for Heparin Induced Thrombocytopenia (HIT), is usually a reflex test done after the initial screening test detecting platelet factor 4 (PF4) antibodies using enzyme-linked immunosorbent assay (ELISA). SRA testing uses radioactive labeled serotonin, is time and labor consuming, and is only done in a limited number of laboratories around the United States. Given the difficulty in performing this confirmatory test, there has been a growing need for innovative testing methods.P Selectin Expression Assay (PEA) is a relatively simple method for detecting platelet-activating HIT antibodies based on the expression of p-selectin/CD62p by normal platelets mixed with patient serum and exogenous PF4 in the absence of heparin. It is based on a non-radioactive, less labor-intensive, readily available technology (flow cytometry), with a shorter turnaround time.A PEA test is considered positive only if the following 2 conditions are met: 1) P Selectin expression is greater than 35% when the patient's serum is mixed with 30mcg of PF4, AND 2) P-Selectin expression is suppressed greater than 50% after mixing with 100 units of heparin. We noticed that some patients with high clinical suspicion for HIT had initial P Selectin expression of less than 35% but had more than 50% suppression after mixing with 100U heparin.We incorporated PEA testing as the primary reflex test at Henry Ford Hospital (HFH) following any positive anti-PF4 ELISA test (defined as Optical Density (OD) > 0.4) in December of 2021. Only selected cases undergo SRA testing as a secondary confirmatory test when PEA results are negative in the presence of strong clinical suspicion.Methods:A retrospective review was performed on all patients who underwent PEA testing from January 2023 to May 2024. Data included admission diagnosis, previous exposure to heparin, initial platelet count, platelet nadir, interval time until the drop of platelets, thrombotic events, bleeding events, anti-PF4 ELISA OD value, PEA test values and interpretation, type of anticoagulation used, duration of anticoagulation, survival of hospital admission, and etiology of death if occurred. We calculated individual 4Ts scores for all patients. All anti-PF4 ELISA tests were performed at HFH special coagulation labs, and all PEA tests were performed at Versiti diagnostic laboratories (Milwaukee, WI).Results:We had a total of 61 PEA tests, of which 25 (40.9%) were positive and 36 (59%) were negative. Of the negative tests, 24 (66.6%) had P selectin expression less than 35% when serum was mixed with 30mcg of PF4 but had more than 50% suppression in P-Selectin expression after mixing with 100 units of heparin. Of these 24 patients, 5 (20.8%) had 4Ts score > 5, 3 (12.5%) had 4Ts score of 7; 9 (37.5%) had PF4 antibody ELISA OD >1.0, 5 (20.8%) with OD >1.5 (2 of whom had OD values of 3.862 and 2.652); and 9 (37.5%) had a P Selectin expression of 10-20% when serum was mixed with 30mcg of PF4 and >50% suppression when mixed with 100U of heparin. 15/24 (62.5%) were treated as HIT based on clinical suspicion, 4Ts scores, and OD values despite negative PEA results, most commonly with Bivalirudin followed by Warfarin or direct oral anticoagulants (DOACs).Conclusion:Though limited by small sample size, our study suggests that a finite number of patients with high clinical suspicion for HIT had negative PEA results. We found that these patients had a P Selectin expression of 10-20% (<35%) when mixed with 30mcg of PF4 but more than 50% suppression when mixed with 100U of heparin. These results emphasize the importance of continuously reassessing binary tests. We propose reviewing larger data sets to assess if a separate intermediate PEA risk group might need to be defined while incorporating clinical parameters to finalize the diagnosis and help guide appropriate management.

Public Health Sciences

Venkateswaran VR, **She R**, **Cabral WC**, **Williams LK**, **Gui H**, and **Lanfear DE**. Proteomic Response Predictor (PRP) For Beta Blocker Survival Benefit In Heart Failure Patients With Reduced Ejection Fraction. *J Card Fail* 2025; 31(1):265. Full Text

Background: To improve prediction of individual responses to beta-blocker (BB) therapy in Heart failure with reduced ejection fraction (HFrEF) patients, various novel approaches such as proteomics are being used. Aim: Our goal was to derive and validate a proteomic response predictor (PRP) for BB survival benefit in HFrEF patients. Methods: A total of 930 patients with Heart Failure (HF) and low ejection fraction (EF<50%) from the Heart Failure Pharmacogenomic Registry (HFPGR) were studied. Plasma

was profiled using SOMAscan v4 (approximately 5k proteins). The cohort was randomly divided into a derivation subset of 623 patients and a validation set in the remaining n=307. The component proteins of PRP were selected using Lasso-penalized Cox regression of all-cause mortality focusing on protein-by-BB interaction, and adjusted for MAGGIC score, BB propensity score, and race. The PRP score was generated using the coefficients from the Cox model results. The PRP was then tested in the validation group as both a continuous variable and a dichotomized variable. Results: Ten proteins (Table 1) were selected for the optimal PRP in the derivation subset. In validation testing, the interaction of BB with PRP on mortality was significant (P=0.000635). To dichotomize the PRP, various cutoffs were compared across deciles within the derivation group. When PRP is dichotomized at the median, the HR associated with BB treatment in the in favorable response PRP group was 0.41 while in the PRP non-responder group and was 1.78 (95%CI = 1.08-2.93) which was statistically significant (Pinteraction=0.016). Conclusions: Using proteomic profiling of plasma, a 10 protein predictor of BB response in HFrEF was created and validated.

Pulmonary and Critical Care Medicine

Hagerman TK, **Rammal J**, **Loszewski C**, **Tuttle JE**, **Brar I**, **Payne S**, **Zahul S**, **Miller J**, **Klausner HA**, **Joyce K**, and **Manteuffel J**. 403 Description and impact of an emergency department opt-out HIV screening program. *Acad Emerg Med* 2024; 31(S1):192. Full Text

Background and Objectives: Emergency department (ED) based HIV screening initiatives are effective in new case identification, allow for early detection, and are encouraged by CDC guidelines. Collaboration with Infectious Diseases allows for early linkage to care. We describe our ED-based opt-out HIV screening program in an urban ED. Methods: This is a retrospective analysis of an opt-out HIV screening program in an urban ED from 7/16/2020 to 10/28/2023. A best practice alert (BPA) prompted providers to order an HIV screening test for patients ages 18–65 that were not known to have HIV for whom a complete blood count was already being ordered. Patients were informed of the ordered test and could opt-out. The division of infectious disease managed patient notification and follow up. Results: During the study period, a total of 36,905 fourth generation HIV screening tests were performed, of which 494 tests were reactive (1.34% of tests performed). Of the reactive tests, 86 patients (0.23% of all tests) were found to have a new diagnosis of HIV (38% with CD4?<?200), 331 (0.90%) had a pre-existing diagnosis of HIV (of which 36% were not actively in care), 54 (0.15%) were false positives, and 23 tests had unknown status. Patients with a new diagnosis had a median age of 34 (26–49 IQR), 71% were male, 88% were black, 29% were men who have sex with men, and 5% were identified to have current or prior intravenous drug use. At the time of the ED visit, 39% of new cases had no primary care physician. Of the 86 new cases, 71 (83%) were confirmed to be connected to care. The median time from positive result to first scheduled appointment was 10.5?days and first attended appointment was 13?days (includes the 31 patients admitted from the ED). The median time from screening test result to initiation of antiviral therapy was 10?days. Of patients linked to care with available data (n?=?50), 68% had a non-detectable viral load within 6?months after starting treatment (74% within 1?year). Conclusion: Our ED-based opt-out HIV screening program has been highly successful in identifying new cases and connecting patients to care. We also identified a substantial number of patients with known HIV who were not actively in care, highlighting the importance of close partnerships with infectious disease. Sustainability for HIV screening programs in the ED will rely on increased support from payers for testing costs and care coordination required to effectively engage patients in care.

Pulmonary and Critical Care Medicine

Lindgren E, Leung R, Droz Lopez AE, **Liu J**, Gartner SM, Harward S, Frederick M, Wartman H, Hovenden M, Elegante MF, Minges P, Kessler R, Seleno N, Cover MT, and Fung CM. 628 Point-of-care ultrasound and time to drainage of nontraumatic pericardial effusion: Updates from a multicenter study. *Acad Emerg Med* 2024; 31(S1):276. Full Text

Background and Objectives: Pericardial effusion with tamponade may lead to hemodynamic compromise requiring rapid intervention. Cardiac point of care ultrasound (POCUS) has been shown to lead to earlier diagnosis and drainage of pericardial effusions at a single site. We hypothesized that POCUS performed by the emergency physician would decrease time to drainage across multiple sites. Methods: This is a multicenter, retrospective cohort study of patients undergoing a procedure for drainage of non-traumatic

pericardial effusion after admission from the ED between 7/1/2012 and 6/30/2020. Preliminary data from five sites are reported. Patients undergoing a pericardial drainage procedure were identified using billing codes. The primary exposure was the utilization of POCUS in the ED. The primary outcome was time to drainage of pericardial effusion. Data was abstracted from the EHR using single examiner physician chart review. Univariate median time to drainage was estimated using the Kaplan-Meier method. Multivariable Cox regression was used to determine the association between POCUS and time to drainage. Results: 805 encounters were included in this preliminary analysis and 402 (49.9%) underwent POCUS. POCUS patients were more likely to have a pericardial effusion diagnosed in the ED (90.8% vs. 47.1%, p?<?0.001) and tamponade diagnosed in the ED (45.5% vs. 11.9%, p?<?0.001). The median time to drainage was less in POCUS patients (16.8?h [95% CI: 14.2–20.4] vs. 45.4?h [41.7–50.0], p?<?0.001). After adjustment for age, gender, time of presentation, chief complaint, anticoagulation, and initial shock index, POCUS was associated with earlier drainage (Hazard Ratio 1.8 [95% CI 1.5–2.1]). POCUS patients had a lower rate of unplanned ICU transfer (UIT, 5.8% vs. 10.7%, p?=?0.017) and rapid response team (RRT) utilization (9.0% vs. 15.4%, p?=?0.008). POCUS patients had a higher rate of discharge by Hospital Day (HD) 7 (35.1% vs. 25.3%, p?=?0.018). Conclusion: POCUS was associated with decreased time to drainage for non-traumatic pericardial effusion. POCUS patients were found to have a higher rate of tamponade, yet a higher rate of discharge by HD 7 compared to patients that did not undergo POCUS and lower rates of UIT and RRT utilization. These findings suggest that emergency physician performed POCUS can decrease time to intervention and adverse events during hospitalization for patients with pericardial effusion.

Pulmonary and Critical Care Medicine

Rammal J, **Hawatian K**, **Page B**, **Chien C**, **Almri Y**, **Joyce K**, **Morton TJ**, and **Miller J**. 362 Mismatch of empiric treatment and thiamine deficiency in emergency department patients without alcohol dependence. *Acad Emerg Med* 2024; 31(S1):173. Full Text

Background and Objectives: Thiamine (vitamin B1) deficiency is recognized as a treatment consideration in critical illnesses. Clinicians often consider treatment in the emergency department (ED) when patients have alcohol use disorder, but the identification and treatment of patients without alcohol use disorder in the ED is not well studied. Our objective was to determine the association between thiamine treatment and thiamine deficiency in ED patients without a history of alcohol use disorder. Methods: This was a secondary analysis of an observational study assessing thiamine deficiency in adult ED patients. We excluded patients with known alcohol use disorder. Investigators collected whole blood levels on all patients in ED, which measure thiamine-diphosphate. We collected demographic and clinical characteristics that could contribute to nutritional deficiencies. Analysis consisted of descriptive statistics and logistic regression to assess the relationship between thiamine treatment, defined as intravenous administration of thiamine, and deficiency, defined as a whole blood level below the normal reference range. Analysis included adjustments for sex and age. Where applicable, we report odds ratios (OR) with 95% confidence intervals (CI). Results: The study included 343 patients, the average age being 57.0 (SD 17.4)?years, 47.5% were female, and 80.5% were Black. Comorbid conditions were significant (50.7% diabetes mellitus, 22.7% chronic kidney disease, 30.3% cancer), and inpatient mortality occurred in 7.3% patients. Thiamine deficiency occurred in 18.4% patients. Thiamine treatment occurred in 7.0% patients. Matched treatment to thiamine deficiency was present in 4.8%. Among those identified with sepsis 9.1% of those with deficiency were treated and 11.7% of those without deficiency were treated. A mismatch between treatment and normal thiamine occurred in 7.5%. There was no significant unadjusted (OR 0.62, 95% CI 0.18–2.14) or adjusted (OR 0.68, 95% CI 0.19–2.38) association with the decision to treat and the presence of thiamine deficiency. Conclusion: In this study, thiamine deficiency was common in a cohort of ED patients with significant disease burden and no history of alcohol use disorder. Clinicians rarely considered thiamine treatment and were poor at identifying those that were deficient. Further research is needed to improve identification of ED patients likely to benefit from treatment.

Radiation Oncology

Ghanem A, **Gilbert M**, **Keller C**, **Gardner G**, **Mayerhoff R**, and **Siddiqui F**. The role of Radiation for Recurrent Laryngeal Carcinoma in Situ compared to First Line Radiotherapy. *Cancer Clin Trial* 2024; 47(10):S7. Full Text

[Ghanem, Ahmed] Alexandria Univ, Dept Radiat Oncol, Henry Ford Canc Inst, Detroit, MI USA. [Gilbert, Marissa] Henry Ford Canc Inst, Dept Radiat Oncol, Detroit, MI USA. [Keller, Christian; Siddiqui, Farzan] Henry Ford Hlth Syst, Dept Pathol & Lab Med, Detroit, MI USA. [Gardner, Glendon; Mayerhoff, Ross] Henry Ford Canc Inst, Dept Otolaryngol, Detroit, MI USA.

Research Administration
Gumenyuk V, **Roth T**, Korzyukov O, Miller N, Jones T, Rizzo M, and Murman DL. Clinical Manifestations. *Alzheimers Dement* 2024; 20(S3):e092414. Full Text

BACKGROUND: Sleep disturbances and cognitive impairments, especially memory deficiency are one of the most common complications affecting everyday life in patient diagnosed with neurodegenerative disorder. Clinically evaluated, specific cognitive processes can be grouped into two categories: amnestic functions (AMN, clinically memory impairments) and non-amnestic functions (n-AMN, cognitive impairments non-memory related). To date, no cure treatments are available for AMN / n-AMN patients, therefore maintaining the well-being and an adequate sleep quality of people who are in prodromal state (i.e., AMN or n-AMN is a high priority for society general and for the patient / family specifical. In this study, we compared objective sleep results to self-reported sleep in AMN and n-AMN groups with respect to healthy matched controls to investigate whether the self-reported sleep results are accurate METHOD: Sleep disturbances and cognitive impairments, especially memory deficiency are one of the most common complications affecting everyday life in patient diagnosed with neurodegenerative disorder. Clinically evaluated, specific cognitive processes can be grouped into two categories: amnestic functions (AMN, clinically memory impairments) and non-amnestic functions (n-AMN, cognitive impairments non-memory related). To date, no cure treatments are available for AMN / n-AMN patients, therefore maintaining the well-being and an adequate sleep quality of people who are in prodromal state (i.e., AMN or n-AMN is a high priority for society general and for the patient / family specifical. In this study, we compared objective sleep results to self-reported sleep in AMN and n-AMN groups with respect to healthy matched controls to investigate whether the self-reported sleep results are accurate RESULT: Table summarizes all results found in the study. AMN group showed lower score in cognitive memory related processes (Craft story and Benson figure recall), as compared to n-AMN and Healthy groups. Both patient groups overestimated their SE in self-report data as compared to SE in objective actigraphy data. In healthy group, the SE was accurately self-reported (see Figure). CONCLUSION: Our results suggest that regardless of the severity of memory impairments objective measure of sleep should be implemented for clinical evaluation.

Research Administration
Kramarenko DR, Shukr B, **Stephan J**, **Bin L**, **Peterson E**, Amin AS, **Lanfear D**, and Pinto Y. Premature Ventricular Contractions As A Predictive Marker For Cardiac Events In Stable Heart Failure Patients. *J Card Fail* 2025; 31(1):253-254. Full Text

Introduction: Even though premature ventricular contractions (PVCs) are often viewed as harmless, recent studies show that a πρεχεδινγ PVC beat might be inefficient. It suggests that even a moderate number of PVCs could reduce contractile efficiency and elevate event risk. Yet, the prevalence of moderate to high PVCs (>5%) in stable heart failure (HF) patients and the association between PVC percentage and cardiac event risk in stable HF patients are still unclear. Aim: This study aimed to quantify HF patients with >5% PVCs and to evaluate the predictive power of PVCs for cardiac events. Methods: Our study retrospectively reviewed 651 HF patients from Amsterdam UMC (AUMC) with LVEF < 40% or NTproBNP > 600 pg/ml, and 180 HF patients from Henry Ford Hospital (HFH) with LVEF < 40%. We employed a multivariable Cox regression model to evaluate predictors of cardiac events, such as all-cause mortality, VT/VF and/or ICD shocks, and cardiac arrest, selecting variables with $p < 0.05$ from univariable analysis. For survival models, numeric variables not fitting a normal distribution were transformed into categorical variables using ROC-derived thresholds. Results: In AUMC and HFH cohorts, the median age was 64 years, with 43.5% and 50% females, respectively. Approximately, 9-11% of patients in both cohorts had more than 5% PVCs. In AUMC cohort, individuals in the top three PVC deciles faced significantly higher event risk than lower deciles (Figure 1). Based on univariable analysis, four predictors, including PVC %, NT-proBNP, occurrences of bi/trigeminy, and NSVT were selected for inclusion in the multivariable survival model. Thresholds of 0.5% for PVCs and 6000 pg/ml for NTproBNP

were used. PVCs greater than 0.5% were significantly linked to an increased risk of cardiac events, exhibiting hazard ratios (HR) greater than two across all models with significant p-values, and slightly outperforming NSVT in predictive strength. (Table 1) Conclusions: Our analysis across two independent cohorts reveals that 9-11% of stable HF patients exhibit a notable PVC burden (>5% of total beats), even with adequate treatment. In AUMC cohort, PVC burden exceeding 0.5%, equal to about 3-4 beats per minute, is significantly associated with increased cardiac event risk, suggesting PVC's predictive power may rival that of NSVTs.

Research Administration

Venkateswaran VR, **She R**, **Cabral WC**, **Williams LK**, **Gui H**, and **Lanfear DE**. Proteomic Response Predictor (PRP) For Beta Blocker Survival Benefit In Heart Failure Patients With Reduced Ejection Fraction. *J Card Fail* 2025; 31(1):265. Full Text

Background: To improve prediction of individual responses to beta-blocker (BB) therapy in Heart failure with reduced ejection fraction (HFrEF) patients, various novel approaches such as proteomics are being used. Aim: Our goal was to derive and validate a proteomic response predictor (PRP) for BB survival benefit in HFrEF patients. Methods: A total of 930 patients with Heart Failure (HF) and low ejection fraction (EF<50%) from the Heart Failure Pharmacogenomic Registry (HFPGR) were studied. Plasma was profiled using SOMAscan v4 (approximately 5k proteins). The cohort was randomly divided into a derivation subset of 623 patients and a validation set in the remaining n=307. The component proteins of PRP were selected using Lasso-penalized Cox regression of all-cause mortality focusing on protein-by-BB interaction, and adjusted for MAGGIC score, BB propensity score, and race. The PRP score was generated using the coefficients from the Cox model results. The PRP was then tested in the validation group as both a continuous variable and a dichotomized variable. Results: Ten proteins (Table 1) were selected for the optimal PRP in the derivation subset. In validation testing, the interaction of BB with PRP on mortality was significant (P=0.000635). To dichotomize the PRP, various cutoffs were compared across deciles within the derivation group. When PRP is dichotomized at the median, the HR associated with BB treatment in the in favorable response PRP group was 0.41 while in the PRP non-responder group and was 1.78 (95%CI = 1.08-2.93) which was statistically significant (Pinteraction=0.016). Conclusions: Using proteomic profiling of plasma, a 10 protein predictor of BB response in HFrEF was created and validated.

Sleep Medicine

Gumenyuk V, **Roth T**, Korzyukov O, Miller N, Jones T, Rizzo M, and Murman DL. Clinical Manifestations. *Alzheimers Dement* 2024; 20(S3):e092414. Full Text

BACKGROUND: Sleep disturbances and cognitive impairments, especially memory deficiency are one of the most common complications affecting everyday life in patient diagnosed with neurodegenerative disorder. Clinically evaluated, specific cognitive processes can be grouped into two categories: amnestic functions (AMN, clinically memory impairments) and non-amnestic functions (n-AMN, cognitive impairments non-memory related). To date, no cure treatments are available for AMN / n-AMN patients, therefore maintaining the well-being and an adequate sleep quality of people who are in prodromal state (i.e., AMN or n-AMN is a high priority for society general and for the patient / family specifical. In this study, we compared objective sleep results to self-reported sleep in AMN and n-AMN groups with respect to healthy matched controls to investigate whether the self-reported sleep results are accurate METHOD: Sleep disturbances and cognitive impairments, especially memory deficiency are one of the most common complications affecting everyday life in patient diagnosed with neurodegenerative disorder. Clinically evaluated, specific cognitive processes can be grouped into two categories: amnestic functions (AMN, clinically memory impairments) and non-amnestic functions (n-AMN, cognitive impairments non-memory related). To date, no cure treatments are available for AMN / n-AMN patients, therefore maintaining the well-being and an adequate sleep quality of people who are in prodromal state (i.e., AMN or n-AMN is a high priority for society general and for the patient / family specifical. In this study, we compared objective sleep results to self-reported sleep in AMN and n-AMN groups with respect to healthy matched controls to investigate whether the self-reported sleep results are accurate RESULT: Table summarizes all results found in the study. AMN group showed lower score in cognitive memory related processes (Craft story and Benson figure recall), as compared to n-AMN and Healthy groups. Both

patient groups overestimated their SE in self-report data as compared to SE in objective actigraphy data. In healthy group, the SE was accurately self-reported (see Figure). CONCLUSION: Our results suggest that regardless of the severity of memory impairments objective measure of sleep should be implemented for clinical evaluation.

Surgery
Ferguson RL, Petersen S, Tipirneni R, Hider A, Finks JF, **Obeid NR**, **Carlin A**, and **Varban OA**. Community-Level Socioeconomic Disadvantage and Adverse Events after Metabolic Surgery Outcomes: A State-Wide Analysis from the Michigan Bariatric Surgery Collaborative. *J Am Coll Surg* 2024; 239(5):S36. Full Text

R.L. Ferguson

Introduction: Patients from socioeconomically disadvantaged communities have been shown to have poorer health-care outcomes. The area deprivation index (ADI) is a validated, composite index that uses zip codes to identify neighborhood-level social disparities. A higher ADI indicates a greater degree of disadvantage. To date, metabolic surgery outcomes according to ADI have not been evaluated. Methods: Using a state-wide bariatric-specific data registry, we obtained state-level ADI (Percentile Rank: 1-10) on all patients who underwent primary metabolic surgery (n = 79,311). Patient characteristics and 30-day risk-adjusted outcomes were compared between patients in the highest and lowest quartile for ADI. Results: Patients in the highest quartile for ADI (mean ADI 9.1) were younger (43.8 years vs 46.5 years, p < 0.0001), had a higher preoperative body mass index (BMI) (49.3 kg/m2 vs 46.6 kg/m2, p < 0.0001) and were more likely to be female (84.4% vs 76.8%, p < 0.0001), non-White (53.9% vs 23.1%, p < 0.0001) and have diabetes (33.6% vs. 30.8%, p < 0.0001) when compared to patients in the lowest quartile (mean ADI 2.2). The highest quartile experienced similar complication rates, emergency room visit rates and readmission rates for both sleeve gastrectomy (5.3% vs 5.5% p = 0.859, 7.6 vs 7.5, p = 0.1071 and 2.7% vs 2.9%, p = 0.7583, respectively) and gastric bypass (12.3% vs 11.2%, p = 0.0637, 11.2% vs 11.1%, p = 0.3013 and 5.5% vs 5.6%, p = 0.6459, respectively). Conclusion: Within the context of a state-wide quality improvement collaborative, adverse events after metabolic surgery are similar between patients living in neighborhoods with high and low ADI in Michigan. Long-term outcomes require further investigation.

Surgery
Hider A, Petersen S, **Carlin A**, **Ehlers A**, Finks JF, **Varban OA**, and **Obeid NR**. Evaluating Outcomes after Metabolic-Bariatric Surgery among Middle Eastern and North African Patients in Michigan. *J Am Coll Surg* 2024; 239(5):S38. Full Text

A. Hider

Introduction: The Middle Eastern and North African population (MENA) in the US comprises 3.8 million individuals. This study aims to elucidate healthcare outcomes for MENA patients compared to non-MENA patients undergoing bariatric surgery in Michigan. Methods: This retrospective cohort study utilized 2017 - present data from the Michigan Bariatric Surgery Collaborative (MBSC) database. The self identified MENA group comprised 839 patients (1.5% of the total cohort). Data included demographics, comorbidities, procedure performed, 30-day complications, and 1-year postoperative outcomes including weight loss and changes in comorbid status. The analysis included adjusted outcomes using logistic regression and comparisons using chi square or Fisher's exact test were indicated. Results: Compared to non-MENA patients, MENA patients were more likely to be males (25.6% vs 18.6%; p < 0.0001), present at younger ages (age < 30 years: 21.8% vs 11.0%, p < 0.0001), and have a lower initial body mass index (BMI, kg/m2: 45.0 vs 47.4, p < 0.001). There were no differences in 30-day complications (6.2% vs 5.9%, p = 0.586), although MENA patients had lower rates of ED visits (6.3% vs 7.0%, p = 0.017) and healthcare utilization (8.8% vs 9.9%, p = 0.034). Overall, there were no differences in weight loss outcomes or rates of comorbidity improvement at 1 year. Among MENA patients undergoing gastric bypass specifically, percent total weight loss (%TWL) was lower than non-MENA patients (30.1% vs 33.4%, p = 0.008). Conclusion: MENA individuals tend to pursue bariatric surgery at a younger age and at a lower BMI. Bariatric surgery appears to be equally safe and similarly effective in this patient population.

Surgery

Hutchings H, **Wang A**, Grady S, **Popoff A**, **Zhang Q**, and **Okereke I**. Influence of air quality on lung cancer in people who have never smoked. *J Thorac Cardiovasc Surg* 2025; 169(2):454-461.e452. Full Text

I. Okereke, Department of Surgery, Henry Ford Health System, 2799 W Grand Blvd, Detroit, MI, United States

Objective: Lung cancer is the leading cause of cancer-related death. The percentage of people who have never smoked with lung cancer has risen recently, but alternative risk factors require further study. Our goal was to determine the influence of air quality on incidence of lung cancer in people who have smoked or never smoked. Methods: The cancer registry from a large urban medical center was queried to include every new diagnosis of lung cancer from 2013 to 2021. Air quality and pollution data for the county were obtained from the US Environmental Protection Agency from 1980 to 2018. Patient demographics, location of residence, smoking history, and tumor stage were recorded. Bivariate comparison analyses were conducted in R (R Foundation for Statistical Computing). Results: A total of 2223 new cases of lung cancer were identified. Mean age was 69.2 years. There was a nonsmoking rate of 8.1%. A total of 37% of patients identified as a racial minority. People who have never smoked were more likely to be diagnosed at an advanced stage. When analyzing geographic distribution, incidence of lung cancer among people who have never smoked was more closely associated with highly polluted areas. People who have never smoked with lung cancer had significantly higher exposure levels of multiple pollutants. Conclusions: Newly diagnosed lung cancer appears to be more related to poor air quality among people who have never smoked than people who have smoked. Future studies are needed to examine the associations of specific pollutants with lung cancer incidence.

Surgery

Kling C, **Chau L**, and Perkins J. Exploring Machine Learning Algorithms to Revise the Kidney Donor Risk Index. *Am J Transplant* 2025; 25(1):S96. Full Text

Introduction: The Kidney Donor Risk Index (KDRI), originally based on patients transplanted between 1995-2005, has been demonstrated as a poor predictor of graft failure (C-statistic: 0.62). Recent policy developments have removed race and Hepatitis C virus from the model with recalculation of the variable coefficients, but without re-analysis of the variables included. We sought to develop an updated KDRI in a modern cohort of kidney transplant recipients using both conventional and machine learning algorithms. Methods: Kidney transplant alone recipients transplanted between 2016-2023 were included. To minimize the impact of recipient factors on death-censored graft failure, recipients who were <35 or >65 years, had diabetes, peripheral vascular disease or prior transplant were excluded. The remaining recipients were randomized into development (80%) and testing (20%) cohorts. Regular Cox, Lasso Cox, Elastic Net Cox models, and Random Forest, XgBoost, and Neural Network models were fitted to predict the risk of 1-year death-censored graft failure with their respective C-statistics compared. Shapley plots were generated post-hoc from machine learning models for feature interpretability. Results: In this modern cohort, the original KDRI was a poor predictor of graft failure with a C-statistic of 0.594 but higher than the race-neutral KDRI (C-statistic 0.589). Regular Cox, Lasso Cox, Elastic Net Cox models, and Random Forest all performed equally well, with C-statistic of 0.62. XgBoost and Neural Net survival analysis performed less well (C-statistic 0.55 and 0.59, respectively). Variables included in the new model overlapped with original KDRI (donor age, height, weight, creatinine, diabetes, hypertension) but also included new variables (donor pH and >20% glomerulosclerosis on biopsy), while some models excluded CVA as a cause of death. Conclusion: The discriminatory power

Surgery

Lu Z, **Yoshida A**, and **Patel A**. Characteristics and Outcomes of Deceased Donor Kidneys Turned Down by A Single Center and Transplanted Elsewhere. *Am J Transplant* 2025; 25(1):S33-S34. Full Text

Background: The number of kidney transplants performed in the US remains insufficient for the number of patients awaiting one. To meet these demands and hit nationally set growth targets, it is imperative for

transplant centers to review their kidney utilization practice, especially for kidneys that were not accepted. This study analyzed accepted versus turned down kidneys for Henry Ford Hospital to better understand acceptance practices and to evaluate the need for modifying our acceptance criteria. Methods: Retrospective analysis of OPTN data on deceased donor kidneys offered by Gift of Life Michigan to Henry Ford Hospital (HFH) between 8/2/2022 and 7/19/2024. Only kidneys that were ultimately transplanted were included. Kidneys were classified as either "kidney transplanted by center (KTC)" if accepted and transplanted by HFH and "kidney transplanted elsewhere (KTE)" if turned down by HFH and transplanted elsewhere. Kidneys turned down for donor variables or organ quality were included in the analysis. Kidney characteristics and recipient outcomes were compared between the two groups. Outcomes of interest were rate of delayed graft function (DGF), recipient 6-month and 1-year serum creatinine (Se Cr), and 6-month and 1-year graft survival (GS). Results: 312 kidneys were included, with 65 in the KTC group and 247 in the KTE group. Selected analysis results are shown in Figure 1. KTE kidneys came from donors with significantly higher KDPI and terminal creatinine. Other donoror kidney characteristics did not differ significantly between the two groups. Recipients of KTC kidneys had a significantly longer length of hospital stay, but DGF rate, 6-month and 1-year recipient renal function did not differ significantly between the two groups. Rates of 6-month GS were similar, while 1-year GS rates were significantly higher in the KTC group. Conclusions: Despite differences in donor characteristics, renal outcomes did not differ significantly between kidneys we accepted versus those turned down. Findings of comparable outcomes with KTE kidneys can help reframe a center's understanding of acceptable organ quality metrics and motivate centers to rethink and expand their acceptance criteria. [Formula presented] DISCLOSURES: Z.Y. Lu: None. A. Yoshida: None. A. Patel: None.

Surgery
Lu Z, **Yoshida A**, and **Patel A**. Characteristics and Outcomes of Kidneys Accepted versus Turned Down by Regional Centers. *Am J Transplant* 2025; 25(1):S34. Full Text

Background: The number of kidney transplants performed in the US remains insufficient for the number of patients awaiting one. To meet these demands, it is important to review kidney utilization patterns, particularly for transplanted kidneys turned down by other centers. We performed an analysis of accepted versus turned down kidneys by transplant hospitals in Region 10 to examine kidney acceptance practices and recipient outcomes across the region. Methods: Retrospective analysis of OPTN data for deceased donor kidneys offered by Gift of Life Michigan to Region 10 adult kidney transplant centers between 8/2/22 and 7/19/24. Only kidneys that were ultimately transplanted were included. Offers received by each center were classified as "kidney transplanted by center (KTC)" for those accepted and transplanted by that center and "kidney transplanted elsewhere (KTE)" for those turned down by that center and transplanted elsewhere. Only kidneys turned down for donor variables or organ quality were included in the analysis. Donor characteristics and recipient outcomes were compared between the groups for each center. Outcomes of interest were occurrence of delayed graft function (DGF), recipient 6-month and 1-year serum creatinine (Se Cr), and 6-month and 1-year graft survival (GS). Results: 1046 kidneys, offered to 12 regional centers, were included. One regional center was excluded from the analysis due to lack of recipient 1-year Se Cr data. Center-specific acceptance and turndown rates varied widely and are shown in Figure 1. Selected analysis results are shown in Figure 2. Across multiple centers, KTE kidneys differed significantly in terms of KDPI, donor age, terminal creatinine, biopsy rate, and cold ischemia time. For most centers, recipient outcomes did not differ significantly in terms of DGF, 6-month or 1-year creatinine or GS. Conclusions: Despite differences in organ characteristics, renal outcomes did not differ significantly between KTC and KTE kidneys across the region. While further analysis is needed to elucidate the differences between centers, findings of comparable outcomes with KTE kidneys can help reframe a center's understanding of acceptable organ quality metrics and motivate centers to rethink and expand their acceptance criteria. DISCLOSURES: Z.Y. Lu: None. A. Yoshida: None. A. Patel: None.

Surgery
Lu Z, **Yoshida A**, and **Patel A**. Outcomes of Deceased Donor Kidneys Turned Down for Biopsy Results That Were Transplanted Elsewhere. *Am J Transplant* 2025; 25(1):S97-S98. Full Text

Background: The number of kidney transplants performed in the US remains insufficient for the number of patients awaiting one. To meet these demands, transplant centers should review their kidney utilization,

especially for kidneys that were not accepted. Previous review of kidney offers turned down at our institution revealed a common refusal reason to be unacceptable biopsy results. Some of these organs were subsequently transplanted elsewhere. We analyzed accepted versus turned down biopsied kidneys for Henry Ford Hospital (HFH) to assess our acceptance practices and the need for modifying our acceptance criteria. Methods: Retrospective analysis of OPTN data on deceased donor kidneys offered by Gift of Life Michigan to HFH between 8/2/2022 and 7/19/2024. Only kidneys that were biopsied and ultimately transplanted were included. Biopsied kidneys were classified as either "kidney transplanted by center (KTC)" if accepted and transplanted by HFH and "kidney transplanted elsewhere (KTE)" if turned down by HFH and transplanted elsewhere. Only kidneys turned down for biopsy- specific reasons were included in the analysis. Kidney characteristics and recipient outcomes were compared between the groups. Outcomes of interest were rate of delayed graft function (DGF), recipient 6-month and 1-year serum creatinine (Se Cr), and 6-month and 1-year graft (GS) and patient survival (PS). Results: 103 offers with kidney biopsies were included in the analysis, with 46 in the KTC group and 57 in the KTE group. Selected analysis results are shown in Figure 1. KTE kidneys had a significantly higher percentage of glomerulosclerosis and longer cold ischemia time. Donor characteristics and other biopsy features did not differ significantly between the groups. Recipient outcomes did not differ significantly between the two groups in terms of DGF rate, 6-month and 1-year Se Cr, and 6-month and 1-year GS or PS. Conclusions: While kidney characteristics differed between accepted and passed biopsy kidneys, no significant differences in renal allograft outcomes were noted. Findings of comparable outcomes with KTE kidneys can help reframe a center's understanding of acceptable organ quality metrics and motivate centers to rethink and expand their acceptance criteria. [Formula presented] DISCLOSURES: Z.Y. Lu: None. A. Yoshida: None. A. Patel: None.

Surgery

Nishimagi A, **Oki R**, **Rocha I**, **Al-Juburi S**, **Rajendran L**, **Kerby E**, **Mohamed A**, **Nassar A**, **Al-Kurd A**, **Yoshida A**, **Abouljoud M**, and **Nagai S**. The impact of race and socioeconomical status on the conditional graft and patient survival after 5-year in liver transplantation. *Am J Transplant* 2025; 25(1):S124. Full Text

Background: Race and socioeconomic status have been reported to affect graft survival in adult liver transplant recipients, but there are few reports on the effects on long-term survivors. We hypothesized that impact of socioeconomic status on patient outcomes might persist even in very long-term. In this study, we assessed possible impact of race and socioeconomic status on their very-long term outcomes. Method: Adult liver transplant alone performed from 2003-2013 were evaluated to compare 10-year survivals using the United Network for Organ Sharing database. To minimize prognostic impacts of early post-transplant complications, the conditional survival was evaluated which was defined as the probability of survival after 5 years in those who survived for the first 5 years. (10-year survivals in 5 years survivors) Socioeconomic factors included patient education level and employment status at transplant. The impact of race and socioeconomical factors on 10-year conditional graft/patient survival in 5 years survivors was evaluated by Cox proportional hazard model. Result: In total, 71,679 adult LT were performed from 2003-2013, of which 46,659 recipients survived at 5 years post-transplant. In this population, Kaplan-Meier analysis showed that Hispanic and Asian had better 10-year conditional graft survival as compared with Black and White ($p<0.01$) in 5 years survivors. (Figure 1) Multivariable Cox hazard model revealed that Hispanic, Asian (reference; white), and employment status at transplant improved 10-year conditional graft survival, independent of age, gender, diabetes mellitus, and MELD score. The lower education level (high school or lower, reference; postcollege graduate degree) was independently associated with worse 10-year conditional graft survival. (HR1.26, 95%CI 1.11-1.42, $p<0.01$, HR1.14, 95%CI 1.01-1.30, $p<0.01$) Similarly, in multivariable Cox hazard model for 10-year conditional patient survival, Hispanic, Asian, and employment status at transplant were related to better 10-year conditional patient survival. The lower education level increased the risk of 10-year mortality. (HR1.33, 95%CI 1.18-1.51, $p<0.01$, HR1.19, 95%CI 1.05-1.35, $p=0.01$) Conclusion: In liver transplantations, race and socioeconomic status significantly impacted very long-term outcomes, even after minimizing prognostic impacts of early post-transplant complications. [Formula presented] DISCLOSURES: A. Nishimagi: None. R. Oki: None. I. Rocha: None. S. Al- Juburi: None. L. Rajendran: None. E. Kerby: None. A. Mohamed: None. A. Nassar: None. A. Al-Kurd: None. A. Yoshida: None. M. Abouljoud: None. S. Nagai: None.

Surgery

Oki R, **Nishimagi A**, **Rocha I**, **Al-Juburi S**, **Rajendran L**, **Kerby E**, **Kim D**, **Malinzak L**, **Denny J**, **Yoshida A**, **Abouljoud M**, and **Nagai S**. Longitudinal changes in the impact of socioeconomic status on graft survival in kidney transplantation. *Am J Transplant* 2025; 25(1):S102-S103. Full Text

Background: It is well known that socioeconomic status affects graft survival (GS) in adult kidney transplant recipients. However, there is little data to assess the impact of socioeconomical status on long-term GS. We hypothesized that impact of socioeconomic status on GS might change depending on the period post- transplantation. We assessed longitudinal changes in impact of socioeconomic status on GS. Method: Adult kidney transplant alone performed from 2003-2013 were evaluated using the United Network for Organ Sharing database. The period of post-transplantation was divided into 3 categories; Group1: 1-year survival in all patients, Group2: 5-year survival in 1 year-survivors, Group3: 10-year survival in 5-year survivors.(Figure 1) Socioeconomic factors included patient education level and employment status at transplant. The impact of socioeconomical factors on GS in each group was evaluated by Cox proportional hazard model. Result: In total, 186,342 adult KT were performed from 2003-2013 (Group1), of which 176,656 recipients survived at 1 year (Group2) and 126,405 recipients survived at 5 years (Group3) post-transplant. (Figure 1) Multivariable Cox hazard model revealed that employment status at transplant was significantly associated with better graft survival in all groups, independent of race, age, gender, diabetes mellitus and KDPI. (Figure 2) While lower education level (high school or lower, reference; postcollege graduate degree) was not the risk factor in Group1, it increased the risk of graft failure in later periods. (HR1.09, 95%CI 1.04-1.15, p<0.01 in Group2, HR1.12, 95%CI 1.04-1.21, p<0.01 in Group3). Conclusion: In kidney transplantations, the impact of socioeconomic status on GS changed over time. Of note, the influence of the patient's education level on GS became more significant in later periods post-transplantation, where prognostic impacts of early post-transplant complications are limited. To improve the very long-term outcomes in later periods, consideration of the patient's education level in follow- up care might be necessary. Distensibility. PPFI (Systolic Pressure-Diastolic Pressure/Flow), is quantifies renal allograft arterial stiffness during HMP. Distensibility (Initial Resistance-Current Resistance/Initial Resistance) quantifies microvascular function, recruitment, and perfusion. We determined the association between PPFI and distensibility with 1 year graft failure and delayed graft function (DGF). Results: During the study period, 57 DDKTs met inclusion criteria, of which 12% (N=7) experienced a one-year graft failure and 51% (n=29) had DGF. As arterial stiffness is a fixed biomechanical property, PPFI is stable across time during. PPFI was two-fold higher in kidneys with graft failure in the first year compared to those with graft survival at one year (p<0.05, Figure 1). Consistent with improved microvascular recruitment and perfusion, Distensibility increased during HMP. It was significantly lower at 1 hour in kidneys with DGF (Figure 2). These findings were robust to sub-analyses of specific donor categories (Figure 2). Conclusions: Allografts with one year graft failure had high PPFI indicating that stiffer, more diseased renal vasculature negatively impacts post-transplant outcomes. Allografts with DGF had low Distensibility indicating poor microvascular recruitment and function during HMP may impact early graft function. These novel biomechanical based perfusion parameters have the potential to become powerful tools to assess renal allografts during HMP. [Formula presented] [Formula presented] DISCLOSURES: R. Oki: None. A. Nishimagi: None. I. Rocha: None. S. Al-Juburi: None. L. Rajendran: None. E. Kerby: None. D. Kim: None. L. Malinzak: None. J. Denny: None. A. Yoshida: None. M. Abouljoud: None. S. Nagai: None.

Surgery

Oki R, **Nishimagi A**, **Rocha I**, **Al-Juburi S**, **Rajendran L**, **Kerby E**, **Mohamed A**, **Nassar A**, **Al-Kurd A**, **Malinzak L**, **Denny J**, **Kim D**, **Yoshida A**, **Abouljoud M**, and **Nagai S**. The Difference in the Impact of Race on Long-Term Graft Survival Between Liver and Kidney Transplantation. *Am J Transplant* 2025; 25(1):S77-S78. Full Text

Background: The issue of racial and ethnic disparities in outcomes of liver transplantation (LT) or kidney transplantation (KT) is critical, particularly with increasing diversity. It has been reported that Black has lower graft function than White in both LT and KT. However, the impact of race on long-term outcomes remains unclear. We evaluated and compared the racial influence on very long- term graft survival (GS) in LT and KT. Method: Adult LT or KT alone performed from 2003-2013 were evaluated, using the United Network for Organ Sharing database. To mitigate the prognostic effects of early to mid-term post-

transplant complications, we assessed conditional 10-year GS in 5-year survivors post- transplant, which was defined as the probability of GS after 5 years in those who survived for the first 5 years. Race was classified into five categories; White, Black, Hispanic, Asian and Others. The impact of race on GS in each type of transplant was evaluated by Cox proportional hazard model. Result: 71,679 adult LT and 186,342 adult KT were performed from 2003-2013, of which 46,659LT/176,656KT recipients survived at 5 years post-transplantation. Black, white, Hispanic, Asian, and Others LT/KT recipients revealed 10-year conditional GS rates of 80.8%, 81.2%, 84.7%, 88.8%, and 82.2% in LT ($p<0.01$, Figure 1), and 73.5%, 67.5%, 76.8%, 78.8% and 68.6% in KT, respectively ($p<0.01$, Figure 2). Black showed significantly lower 10-year conditional GS in KT, compared to White, even after adjusted with age, gender, diabetes mellitus, employment status, educational level and KDPI. (HR1.07, 95%CI 1.03-1.11, $p<0.01$) In contrast, in LT, Black demonstrated comparable 10-year conditional GS to White after adjusting with age, gender, diabetes mellitus, employment status, educational level and MELD. (HR1.04, 95%CI 0.94-1.15, $p=0.45$). Conclusion: Black was associated with lower 10-year conditional GS in KT, whereas in LT, 10-year conditional GS between Black and White was comparable when the adverse impact of early to mid-term post-transplant complications was minimized. Further assessment of factors that may drive disparities, such as comorbidities and access to follow-up, is needed to address racial disparities in long-term post-transplant outcomes. [Formula presented] [Formula presented] DISCLOSURES: R. Oki: None. A. Nishimagi: None. I. Rocha: None. S. Al- Juburi: None. L. Rajendran: None. E. Kerby: None. A. Mohamed: None. A. Nassar: None. A. Al-Kurd: None. L. Malinzak: None. J. Denny: None. D. Kim: None. A. Yoshida: None. M. Abouljoud: None. S. Nagai: None.

Surgery

Oki R, **Rocha I**, **Al-Juburi S**, **Rajendran L**, **Kerby E**, **Kim D**, **Malinzak L**, **Denny J**, **Yoshida A**, **Abouljoud M**, and **Nagai S**. The individual impact of machine perfusion on liver and kidney in simultaneous liver and kidney transplantation. *Am J Transplant* 2025; 25(1):S77. Full Text

Background: Liver machine perfusion (MP) has expanded the donor pool. Liver MP may expand donor selection criteria in simultaneous liver and kidney transplantation (SLK) as well. It was reported that kidney MP could reduce a risk of delayed graft function and improve kidney graft survival. MP use for both organs in SLK can potentially increase organ usage from donation after circulatory death donors (DCD) without compromising outcomes. Method: Recent practice trends and outcomes of SLK performed between 2015 and 2024 were investigated using the United Network for Organ Sharing database. Donor types and MP use for liver and/or kidney were captured and associations with outcomes were evaluated. Cox proportional hazard model was used for analyzing the factors related to 1-year liver or kidney graft failure. Result: In total, 6,956 adult SLK were performed between 2015 and 2024. SLK from DCD increased from 4.5% in 2015 to 16% in 2023. (Figure 1) The rate of donors with KDPI>85% increased from 29% in 2015 to 35% in 2024. MP use for kidney and liver increased from 21% to 51% and 0% to 17%, respectively. (Figure 1) Overall, 37.8% of kidney allografts were placed on MP (N=2632) and 3.2% of liver allografts were placed on MP (N=222). DCD was found to be an independent risk factor of 1-year liver graft failure in the no liver MP group [hazard ration (HR) 1.51, 95%CI 1.16--1.97, $p<0.01$], but not in the liver MP group. KDPI>85% was an independent risk factor of 1-year kidney graft failure in the no kidney MP group [HR 1.95, 95%CI1.20--3.17, $p<0.01$], but not in the kidney MP group. Conclusion: While DCD was a risk factor for liver graft failure in the absence of liver MP, it was not a risk factor when liver MP was used. Similarly, while KDPI>85% was associated with an increased risk of kidney graft failure without kidney MP, kidney MP might mitigate this risk. MP for both organs might contribute to expanding the donor pool for SLK without compromising post- transplant outcomes. [Formula presented] DISCLOSURES: R. Oki: None. I. Rocha: None. S. Al-Juburi: None. L. Rajendran: None. E. Kerby: None. D. Kim: None. L. Malinzak: None. J. Denny: None. A. Yoshida: None. M. Abouljoud: None. S. Nagai: None.

Surgery

Rajendran L, **Oki R**, **Kerby E**, **Nassar A**, **Mohamed A**, **Al-Kurd A**, **Yoshida A**, **Abouljoud M**, and **Nagai S**. Impact of Machine Perfusion on Liver Transplantation for Hepatocellular Carcinoma. *Am J Transplant* 2025; 25(1):S68. Full Text

Extended criteria donor grafts are more susceptible to ischemic-reperfusion injury and are associated with worse post-transplant outcomes. Existing studies on use of machine perfusion (MP) in patients with hepatocellular carcinoma (HCC) undergoing transplantation is limited, though some data suggests ischemic damage in the transplant liver might increase the risk for cancer recurrence. Use of MP for patients with HCC potentially improves overall and oncological outcomes in this population. In this study, we analyzed a large national database to evaluate the role of MP on post-transplant outcomes in patients with HCC. Adults transplanted with a diagnosis of HCC between 2015 and 2022 from the United Network for Organ Sharing (UNOS) database were divided into two populations, based on use of MP for the procured liver. Post-transplant outcomes assessed included: overall survival (OS) and HCC recurrence (competing-risk) using Cox regression and Fine-Gray models, respectively. HCC recurrence was defined from the UNOS database by merging the two reported follow up outcomes: cause of death related to HCC or post-transplant recurrence of malignancy. Of the 15,374 patients with HCC who underwent liver transplant and had MP data, 284 (1.8%) used MP for the donor liver. The 3-year OS was significantly higher with MP use (93.0% in MP group versus 86.2% no MP; p=0.03) (Figure 1). Cox hazard regression model for 3-year OS showed that use of MP reduced risk of death, independent of HCC recurrence (hazard ratio 0.62 95% confidence interval 0.40-0.97; p=0.035). The use of MP was not related to 3-year HCC recurrence on competing risk analysis (recurrence and death) (3-year recurrence rate: 2.1% in MP group versus 4.2% no MP, p=0.50). Overall, only a small proportion of patients with HCC had liver transplant with use of MP in the donor liver. However, this group demonstrated significantly better 3-year OS, without significant difference in HCC recurrence. HCC recurrence might be underreported or uncaptured in the UNOS data, therefore, as the utilization of MP grows, further investigations into possible associations between HCC recurrence and improved survival outcomes in the MP group would be warranted. [Formula presented] DISCLOSURES: L. Rajendran: None. R. Oki: None. E. Kerby: None. A. Nassar: None. A. Mohamed: None. A. Al-Kurd: None. A. Yoshida: None. M. Abouljoud: None. S. Nagai: None.

Surgery
Suh S, **Obeid NR**, **Varban OA**, Noria SF, Petrick AT, Edwards M, and Kindel T. Safety of Same-Day Discharge after Sleeve Gastrectomy in Adults 65 Years and Older. *J Am Coll Surg* 2024; 239(5):S32. Full Text

S. Suh

Introduction: The purpose of this study was to compare outcomes between same-day vs next-day discharge after undergoing minimally invasive sleeve gastrectomy (SG) in adults 65 years and older. Methods: This study was a retrospective analysis of patients 65 years and older discharged on postoperative day (POD) 0 vs POD 1 after undergoing SG in 2022. Data was received from MBSAQIP. Univariate analyses were performed to compare demographics, comorbidity, and 30-day outcomes between patients discharged on POD 0 and 1. Data is presented as frequency and mean ± SD with significance determined by a t-test with $p < 0.05$. Results: A total of 4,609 patients were included in the study. Of these, 310 (6.7%) were discharged on POD 0 and 4,299 (93%) on POD 1 after SG. POD 0 patients were of similar age, more likely women, and had a lower BMI compared with POD 1 patients (41.4 ± 6.5 vs 42.6 ± 6.4 kg/m2, $p = 0.039$). Despite a significantly lower rate of hypertension, obstructive sleep apnea, and chronic obstructive pulmonary disease in POD 0 patients, they were more likely to experience wound disruption ($p < 0.001$), acute renal failure requiring dialysis ($p = 0.015$), and administration of outpatient intravenous fluids ($p = 0.008$) (Table 1). Conclusion: Same-day discharge SG for patients 65 years and older is associated with increased 30-day complication rate despite fewer preoperative obesity-associated comorbidities. Older patients may be more sensitive to dehydration events, and consideration should be given to continue inpatient monitoring after SG for these patients.

Surgery
Yono SS, **Hannoudi A**, **Chamseddine H**, **Rama S**, **Bensenhaver JM**, **Petersen L**, **Nathanson SD**, **Schwartz TL**, **Evangelista M**, and **Atisha DM**. The Effect of Lymphatic Microsurgical Preventive Healing Approach in Reducing Breast Cancer-Related Arm Lymphedema. *J Am Coll Surg* 2024; 239(5):S58-S59. Full Text

S.S. Yono

Introduction: Current guidelines lack surgical prevention recommendation for breast cancer-related arm lymphedema (BCRaL). The study aims to assess the effectiveness of immediate lymphatic microsurgical preventive healing approach (LyMPHA) during axillary lymph node dissection (ALND) in reducing BCRaL. Methods: A retrospective chart review of breast cancer patients who underwent ALND with or without immediate LyMPHA (2016- 2022) was conducted. The exclusion criteria were stage IV, preoperative lymphedema. BCRaL was defined as persisted swelling and/ or heaviness and need for complete decongestive therapy (CDT) > 12 months postoperatively. Patients' percent functional impairment was also assessed using the Lymphedema Life Impact Score (LLIS). Patient demographics, medical history, and treatment history were compared. Outcomes of interest included postoperative complication, lymphedema incidence, and percent of functional impairment. Univariate and Cox regression analysis were used. Results: A total of 187 patients underwent ALND, 121 of whom also had LYMPHA. Mean follow-up was 35 months (SD ± 21), age was 56.4 y (SD ± 13.6), BMI was 30.4 kg/m2 (SD ± 6.9). 76.5% received neoadjuvant chemotherapy, 88.8% adjuvant chemotherapy, and 85.0% adjuvant radiotherapy. 5.3% had history of radiation. Operative outcomes showed significant differences: LyMPHA group had lower median drain duration (13.0 d vs 15.0 d, $p = 0.042$), lower median percent functional impairment (4.7% vs 11.6%, $p = 0.045$), and lower risk of lymphedema which persisted over time ($p = 0.003$). Cox regression analysis showed that, at any point in time, LyMPHA group were half as likely to experience lymphedema as the ALND alone (hazard ratio = 0.50, $p = 0.023$); (Figure 1). Conclusion: Offering immediate LyMPHA after ALND presents an opportunity to prevent or mitigate lymphedema progression over time and ultimately reduces morbidity in the breast cancer population. (Figure Presented).